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Business Activity

**Statistics Bulletin**

# **UK Innovation Survey 2011: Northern Ireland Results**

25 July 2012



Northern Ireland Statistics & Research Agency

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From 1 April 2011, the responsibility for the collection of data and production of official labour market and economic statistics transferred from the Department of Enterprise, Trade and Investment to the Northern Ireland Statistics and Research Agency (NISRA), an agency of the Department of Finance and Personnel (DFP). This transfer mirrored the position in Great Britain, where most business surveys and labour market data collection and statistical production have been transferred from the departments with policy responsibilities to the Office for National Statistics (ONS). However, it is important to note that there are no planned changes to the production of economic and labour market statistical publications and outputs as a result of the transfer.

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## **UK INNOVATION SURVEY 2011: NORTHERN IRELAND RESULTS**

**Published 25/07/12**

The UK Innovation Survey provides a wide range of information related to innovation activity among enterprises, and includes information on the extent of innovation activity, the impact of innovation on businesses and the barriers to innovation. There have been a number of significant changes to the survey in 2011 including the move to a new industry classification system (SIC 2007). This limits the comparisons with the 2009 and earlier survey results. Headline figures for Northern Ireland show that:

- During 2008-10, 27 per cent of NI enterprises were innovation active, compared to 31 per cent during 2006-08. The equivalent UK figure was 31 per cent, decreasing from 38 per cent during 2006-08.
- The difference between the proportions of enterprises that were product innovators in NI (14 per cent) and the UK (19 per cent) and process innovators (NI: 7 per cent; UK: 10 per cent) during 2008-10, remained similar when compared to 2006-08.
- There was little difference between the proportion of enterprises that were innovation active in the production and construction sector (27 per cent) and distribution and services sector (26 per cent). For information, under the previous definition of innovation used in the 2009 survey, the proportions of enterprises which were innovation active were 63 per cent and 51 per cent respectively.
- Cost factors continued to be the most common barriers to innovation among NI and UK enterprises.
- Comparisons between the 2007, 2009 and 2011 surveys suggest that the proportion of firms in NI engaged in innovation activity is likely to have decreased over the period. Thirty-seven per cent of businesses were innovation active in 2004-06, 31 per cent in 2006-08 and 27 per cent during 2008-10. Comparable figures for the UK have also decreased over the period, from 42 per cent in 2004-06 to 38 per cent in 2006-08 and again to 31 per cent in 2008-10.
- Results from NI enterprises responding to the 2007, 2009 and 2011 surveys show that during 2008-10, 43 per cent of this like-for-like panel were innovation active, representing a 4 percentage points increase compared to 2006-08. The equivalent UK increase was 3 percentage points (to 49 per cent during 2008-10).



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# Executive Summary

# 1

## INTRODUCTION

This report presents results from the Northern Ireland (NI) element of the UK Innovation Survey (UKIS) 2011, covering the three-year period from 2008 to 2010.

The UK-level results can be found on the Department for Business, Innovation and Skills (BIS) website (<http://www.bis.gov.uk/assets/biscore/science/docs/f/12-p107-first-findings-uk-innovation-survey-2011.pdf>). This is part of a wider European Community Innovation Survey (CIS) and is the seventh such survey, with the previous survey being undertaken in 2009<sup>1</sup>. EU-wide results will be published once national results are available.

Business innovation is a vital ingredient in raising the productivity, competitiveness and growth potential of modern economies. It is a key objective for the Department of Enterprise, Trade and Investment (DETI) to encourage NI businesses to become more innovative and to engage with potential partners in Higher and Further Education and the wider public sector.

The Community Innovation Survey complements other indicators of innovation by providing a regular snapshot of innovation inputs and outputs and the constraints faced by NI businesses in their innovation efforts, across the range of industries and business enterprises. It has the additional benefit of providing the basis for some comparisons with other European countries.

The 2011 survey sampled enterprises with 10 or more employees in sections B to N of the Standard Industrial Classification (SIC) 2007.

This is the first UKIS collected on a SIC 2007 basis. The 2009 results are reported on a SIC 2003 basis. Together with changes to the sampling approach and a significant revision to the questions relating to the organisational aspect of innovation, direct comparisons with the 2009 survey are limited (see section 8 for details).

With 554 of the 1,065 enterprises selected responding, the survey had a response rate of 52 per cent. In order to be representative, the responses have been weighted back to the population and this is reflected in the results shown throughout the publication.

## INNOVATION ACTIVITY

In line with the EU and UK definitions, innovation activity refers to whether enterprises were engaged in any of the following:

- introduction of new or significantly improved products (goods and/or services) or processes;
- engagement in innovation projects not yet complete or abandoned; or
- new and significantly improved forms of organisation, business structures or practices and marketing concepts or strategies.

Table 1 shows the proportion of enterprises that actively innovate, broken down by the components that feed into the definition of innovation activity for this publication.

It is worth noting that GDP growth began to turn negative in the 2nd quarter of 2008, so economic conditions were fluid and probably unfavourable throughout the reference period 2008-2010. This is likely to have had an impact on the number of businesses starting innovation activities in 2008 thereby affecting the overall number of innovation active firms.

Twenty-seven per cent of NI businesses were innovation active during 2008-10, compared to 31 per cent in the UK. It is not possible to make direct comparisons with the results from the 2009 survey due to the methodological changes implemented in 2011. However, it seems safe to say there was a fall in the number of innovation active firms over the period as 31 per cent of NI firms and 38 per cent of UK firms were innovation active in the 2009 survey. Changes in the structures of the respective business populations of interest may also have to be taken into account.

The difference between the proportions of enterprises that were product innovators in NI (14 per cent) and the UK (19 per cent) and process innovators (NI: 7 per cent; UK: 10 per cent) during 2008-10, remained similar when compared to 2006-08.

Large enterprises with 250 or more employees were slightly less likely to engage in some sort of innovation activity, with 23 per cent innovation active, as opposed to 27 per cent of SMEs<sup>2</sup>. The opposite was true at a UK level (35 per cent among large enterprises compared to 31 per cent among SMEs).

<sup>1</sup> The 2009 survey covers 2006-08, the 2007 survey covers 2004-06, and the 2005 survey covers 2002-04.

<sup>2</sup> SMEs are defined here as having 10-249 employees. They may be part of an enterprise group.

### Innovation by industry type

The proportion of firms reported to be innovation active varied considerably across all sections of industry and commerce, although overall, the percentage of respondents within the Production and Construction Sector (SIC 2007 sections B-F) who were innovation active (27 per cent) was broadly the same

as the 26 per cent of enterprises within the Distribution and Services Sector (SIC 2007 sections G-N). For information, under the previous definition of innovation used in the 2009 survey, the proportions of enterprises which were innovation active were 63 per cent and 51 per cent respectively.

**Table 1: Innovation active enterprises: by type of activity, 2008 to 2010**

Percentage of all enterprises

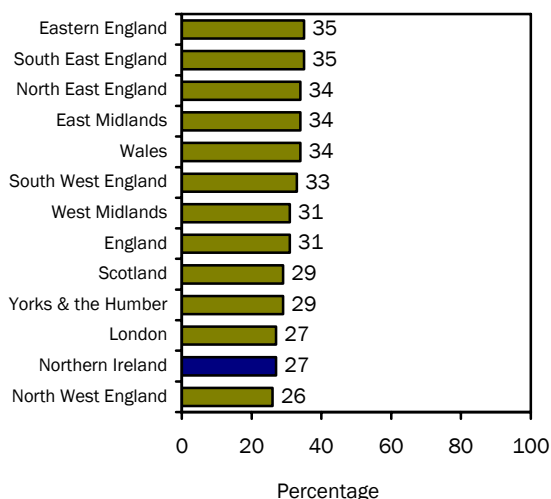
	SIZE OF ENTERPRISE					
	SMEs		Large		All	
	NI %	UK %	NI %	UK %	NI %	UK %
<b>Innovation active</b>	<b>27</b>	<b>31</b>	<b>23</b>	<b>35</b>	<b>27</b>	<b>31</b>
Product innovator	14	19	16	23	14	19
<i>of which (share with new-to-market products)</i>	39	46	29	50	39	46
Process innovator	8	10	6	17	7	10
<i>of which (share with new-to-industry processes)</i>	D	27	D	24	31	26
Abandoned activities	D	4	D	6	4	4
Ongoing activities	D	7	D	9	5	7
Innovation-related expenditure	28	33	26	38	28	33
Both product and process innovator	5	7	5	13	5	8
Either product or process innovator	16	22	17	28	16	22

D = disclosive figures

### Innovation by region

Figure 1 shows the rate of innovation activity for businesses across the countries and regions of the UK. Results for 2008-10 displayed a similar level of regional variation to the 2009 Survey, ranging from 35 per cent in Eastern and South East England to 26 per cent in North West England.

**Figure 1: Regional innovation patterns**



### COMPARISONS WITH THE 2007 AND 2009 INNOVATION SURVEYS

Comparisons between the 2007, 2009 and 2011 surveys show that the proportion of innovation active enterprises in NI over this period has decreased from 37 per cent in 2004-06 and 31 per cent in 2006-08 to 27 per cent during 2008-10. Comparable figures

for the UK have also decreased over the period, from 42 per cent in 2004-06 to 38 per cent in 2006-08 and again to 31 per cent in 2008-10.

However, analysis of the panel of enterprises responding to the 2007, 2009 and 2011 UK Innovation Surveys shows that (when examining a like-for-like group) the proportion of NI enterprises that were innovation active during 2008-10 has increased by 4 percentage points, compared to 2006-08, to 43 per cent. The equivalent UK increase was 3 percentage points (to 49 per cent during 2008-10).

### FACTORS IMPACTING ON INNOVATION

Cost factors were the most common barriers to innovation among NI and UK enterprises. Indeed, 17 per cent of responding NI and 14 per cent of UK enterprises cited 'Cost of finance' and 'Availability of finance' as being highly important constraints on innovation.

NI enterprises not engaged in innovation activity were also more likely to perceive cost related factors as highly important barriers to innovation. These results suggest that businesses may be choosing not to attempt to innovate due to specific cost related barriers, such as the cost of finance, availability of finance and direct innovation costs being too high. Indeed, a larger proportion of NI enterprises with no innovation activity cited constraining factors as the reason for no activity during 2008-10 (32 per cent) compared to 2006-08 (28 per cent).

# Innovation activity

## 2

Innovation takes place through a wide variety of business practices, and a range of indicators can be used to measure its level within the enterprise or in the economy as a whole. These include the levels of effort employed (measured through resources allocated to innovation) and achievement (the introduction of new or improved products and/or processes). This section reports on the types and levels of innovation activity over the three-year period, 2008-2010.

In line with the EU and UK definitions, innovation activity refers to whether enterprises were engaged in any of the following:

- introduction of new or significantly improved products (goods and/or services) or processes;
- engagement in innovation projects not yet complete or abandoned; or
- new and significantly improved forms of organisation, business structures or practices and marketing concepts or strategies.

**Table 2: Innovation active enterprises by type of activity, 2008 to 2010** Percentage of all enterprises

	SIZE OF ENTERPRISE					
	SMEs		Large		All	
	NI %	UK %	NI %	UK %	NI %	UK %
<b>Innovation active</b>	<b>27</b>	<b>31</b>	<b>23</b>	<b>35</b>	<b>27</b>	<b>31</b>
Product innovator	14	19	16	23	14	19
<i>of which (share with new-to-market products)</i>	39	46	29	50	39	46
Process innovator	8	10	6	17	7	10
<i>of which (share with new-to-industry processes)</i>	D	27	D	24	31	26
Abandoned activities	D	4	D	6	4	4
Ongoing activities	D	7	D	9	5	7
Innovation-related expenditure	28	33	26	38	28	33
Both product and process innovator	5	7	5	13	5	8
Either product or process innovator	16	22	17	28	16	22

D = disclosive figures

Before analysing Table 2, it is worth noting that GDP growth began to turn negative in the 2nd quarter of 2008, so economic conditions were fluid and probably unfavourable throughout the reference period 2008-2010. This is likely to have had an impact on the number of businesses starting innovation activities in 2008 thereby affecting the overall number of innovation active (defined above) firms.

Table 2 above shows that overall, 27 per cent of NI enterprises were classed as being innovation active during this period compared to 31 per cent in the UK. NI's innovation rate has therefore decreased compared to the 2009 survey (31 per cent); however, the comparability of the 2011 survey results with those from earlier surveys are limited because of the methodological changes implemented in 2011.

Large enterprises with 250 or more employees were slightly less likely to engage in some sort of innovation activity, with 23 (2009: 41) per cent innovation active, as opposed to 27 (2009: 30) per cent of SMEs. The opposite was true at a UK level, with 35 (2009: 49)

per cent of large enterprises innovation active compared to 31 (2009: 38) per cent of SMEs.

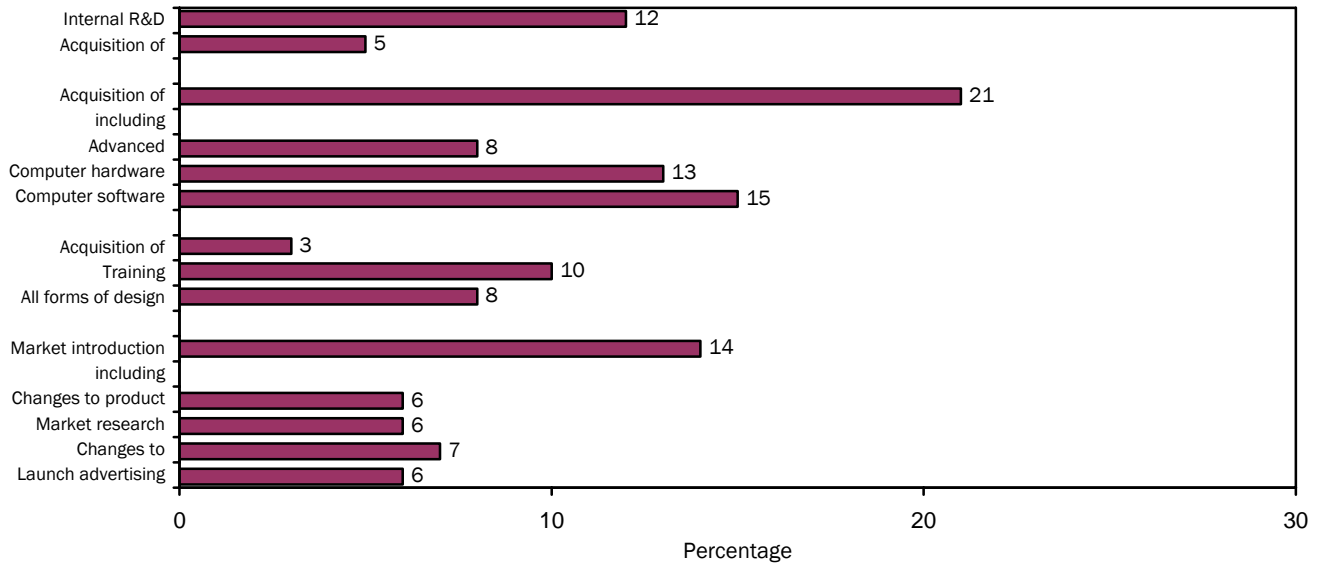
The difference between the proportions of enterprises that were product innovators in NI (14 per cent) and the UK (19 per cent) and process innovators (NI: 7 per cent; UK: 10 per cent) during 2008-10, remained similar when compared to 2006-08.

Four per cent of NI enterprises (4 per cent at a UK level) had projects during the period to develop product or process innovations that had to be abandoned before the end of 2010, while 5 per cent of NI enterprises (UK: 7 per cent) had innovation projects that were ongoing at the end of 2010. Twenty-eight per cent of NI and 33 per cent of UK enterprises had some innovation-related expenditure during 2008-10, showing that businesses recognise the need to allocate resources to innovation.

As shown in Figure 2, the most commonly reported activities were in acquisition of computer software and hardware, followed by investment in internal research & development and in training. For the 2011 survey, these activities are not included in the

'innovation active' definition however they are included in the 'broader innovation' definition (see section 8 for more details).

**Figure 2: Breakdown of activities (all enterprises)**



**INNOVATION BY INDUSTRY TYPE**

As shown in Table 3, the percentage of firms reported to be innovation active varied considerably across industrial and commercial sectors.

Twenty-seven per cent of respondents in the production and construction sector were innovation active, compared with 26 per cent of enterprises in the distribution and services sector. Although direct comparisons with previous survey results are limited due to the methodological changes implemented in 2011, for information, under the previous definition of innovation used in the 2009 survey, the proportions of enterprises which were innovation active were 63 per cent and 51 per cent respectively.

Similar to NI findings, across the entire UK a larger proportion of production and construction enterprises were innovation active during 2008-10 (34 per cent) compared to distribution and services (30 per cent).

In the NI production and construction sector, 59 per cent of enterprises in the transport equipment category were innovation active, against 18 per cent of enterprises in construction.

In the distribution and services sector, financial intermediation had the highest proportion of innovation active enterprises (63 per cent), against only 13 per cent for transport, storage and communication. In the UK as a whole, retail trade (excluding motor vehicles and motorcycles) was the least innovative sector (23 per cent).

**Table 3: Innovation activity by industry**

Percentage of all enterprises

INDUSTRY	SIZE OF ENTERPRISE					
	SMEs		Large		All	
	NI %	UK %	NI %	UK %	NI %	UK %
<b>Production and Construction Sector</b>	<b>27</b>	<b>33</b>	<b>16</b>	<b>40</b>	<b>27</b>	<b>34</b>
Electrical and optical equipment	D	42	D	49	31	42
Fuels, chemicals, plastic, metals and minerals	D	37	D	43	32	37
Manufacturing not elsewhere classified	D	35	-	35	D	35
Transport equipment	D	36	D	37	59	36
Food, clothing, wood, paper, publishing and printing	D	33	D	39	31	33
Electricity, gas and water supply	D	43	-	46	D	44
Construction	D	28	D	34	18	28
Mining and Quarrying	D	25	-	47	D	28
<b>Distribution and Services Sector</b>	<b>26</b>	<b>30</b>	<b>28</b>	<b>32</b>	<b>26</b>	<b>30</b>
Real estate, renting and business activities	24	32	34	32	24	32
Financial intermediation	D	35	D	28	63	35
Transport, storage and communication	D	25	D	30	13	25
Wholesale trade (including cars and bikes)	D	34	D	35	33	34
Retail trade (excluding cars and bikes)	31	23	31	28	31	23
Hotels and restaurants	D	25	D	37	15	25
Motion Picture and Video Production	D	26	D	35	D	27
<b>ALL INDUSTRIES</b>	<b>26</b>	<b>31</b>	<b>24</b>	<b>35</b>	<b>26</b>	<b>31</b>

**Key**

D = disclosive figures

- = no enterprises responded in this sector/size group

# Constraints on innovation

## 3

Successful and evidence-based policy interventions require an understanding of the barriers to business innovation. These barriers can be internal obstacles that the enterprise encounters while carrying out innovation activities as well as external factors preventing innovation.

The survey asked about a range of constraining factors and their effect on the ability to innovate. Table 4 shows the proportion of respondents who gave a 'high' rating to each category of constraint.

Similar to results from the 2009 survey, cost factors were most commonly regarded as significant barriers

to innovation among NI and UK enterprises. This was particularly true with regards to the cost of finance (NI: 17 per cent; UK: 14 per cent) and the availability of finance (NI: 17 per cent; UK: 14 per cent). Also of note is that for the results available, SMEs tend to perceive all cost barriers to be greater than do large enterprises.

In general, the proportions of businesses reporting cost barriers as highly significant decreased compared to the 2009 survey. This was also the case throughout the knowledge and market factors.

**Table 4\*: Enterprises regarding potential barriers to innovation as 'high'** Percentage of respondents

BARRIER		SIZE OF ENTERPRISE					
		SMEs		Large		All	
		NI %	UK %	NI %	UK %	NI %	UK %
<b>Cost Factors</b>	Direct innovation costs too high	D	12	D	9	15	11
	Cost of finance	18	14	9	7	17	14
	Excessive perceived economic risks	16	12	8	8	15	12
	Availability of finance	18	14	12	7	17	14
<b>Knowledge Factors</b>	Lack of qualified personnel	D	4	D	2	4	4
	Lack of information on markets	D	1	D	1	1	1
	Lack of information on technology	D	1	D	2	1	1
<b>Market Factors</b>	Market dominated by established businesses	D	6	D	5	6	6
	Uncertain demand for innovative goods or services	D	6	D	5	6	6
<b>Other Factors</b>	Need to meet UK Government regulations	D	5	D	4	6	5

\* Please note, Table 4 results are not comparable with previous surveys. Please refer to section 8 for details.

D = disclosive figures

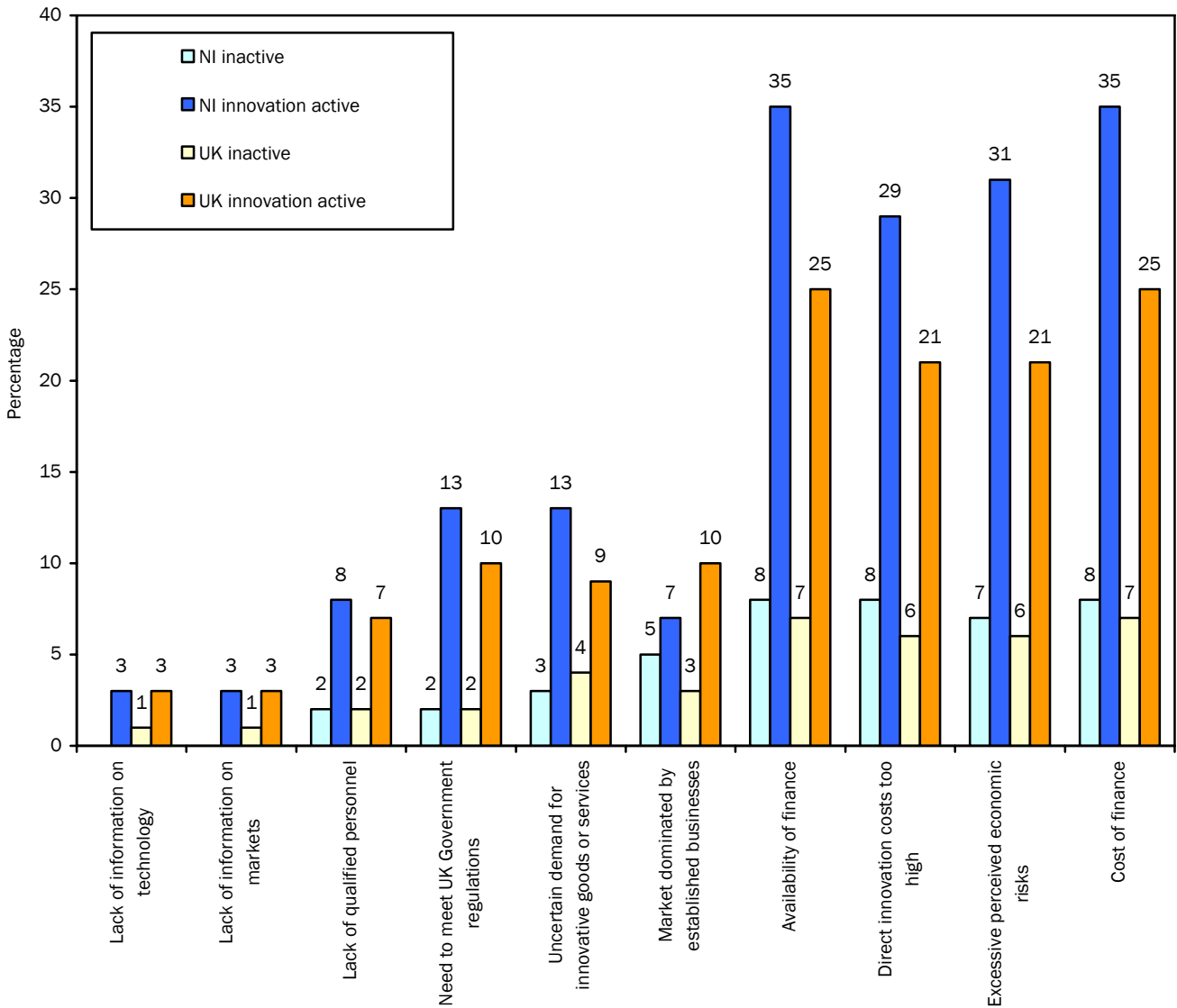
As shown in Figure 3, and similar to results from the previous two surveys, UK enterprises engaged in innovation activity were more likely to perceive barriers as being highly important compared to those who did not attempt to innovate. This was also the case for NI enterprises.

Among non innovating enterprises, perceived barriers to innovation were remarkably similar between the UK and NI. As seen with innovating enterprises, cost factors were more likely to be perceived as highly important barriers to innovation among those who did not attempt to innovate, though at nowhere near the same levels as those reported for innovating enterprises.

These results suggest that, in general, businesses 'learn' about the severity of barriers to innovation as a result of their attempts to innovate.

**Figure 3: Perception of barriers – comparison of innovators and non-innovators rating ‘high’**

Percentage of respondents



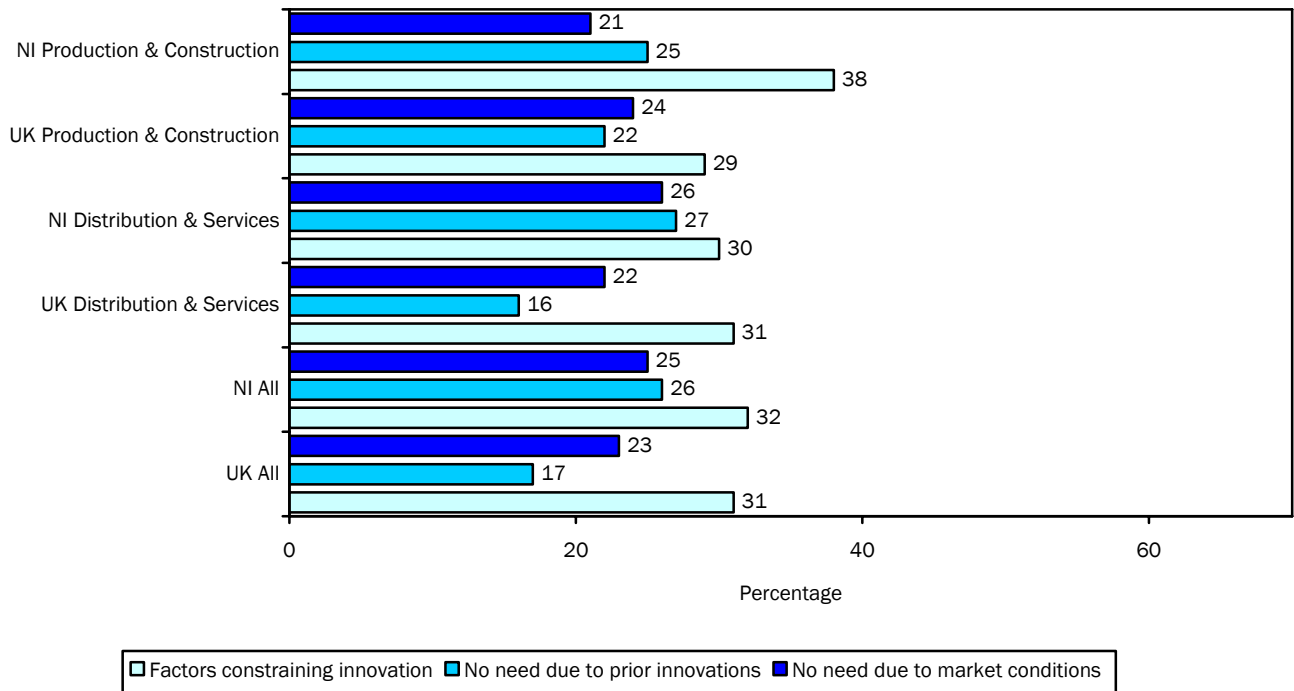
**REASONS FOR NO INNOVATION**

During 2008-10, 32 per cent of responding non-innovative NI enterprises did not innovate due to constraining factors, 26 per cent felt they did not need to innovate due to prior innovations and 25 per cent felt they did not need to innovate due to market conditions. Overall, non innovative UK enterprises were less likely to cite each of the reasons for no innovation activity than their NI counterparts.

There was not a great amount of difference between the reasons for no innovation of Distribution & Services enterprises and Production & Construction enterprises in both NI and the UK. NI Distribution & Services enterprises were slightly more likely to cite market conditions and prior innovations, while NI Production & Construction enterprises more often cited constraining factors.

**Figure 4: Reason for no innovation activity (non innovative enterprises only)**

Percentage of respondents





# Factors driving innovation

## 4

Similar to CIS 6 and CIS 5, this survey sought information about motivational factors for innovation (surveys previous to this asked about the effects of innovation). Respondents were asked to rank a number of drivers for innovating on a scale from 'no impact', through 'low' and 'medium' to 'high' impact. The proportion of innovation active respondents who answered 'high' in each category is shown in Table 5.

Similar to findings from the 2009 survey, in general, product-related factors were more often cited than process factors at both NI and UK level. Two fifths (40 per cent) of NI and 38 per cent of UK respondents rated improving the quality of goods or services as highly important, confirming a strongly customer-

focused approach to innovation. Increasing the range of goods or services, entering new markets, increasing market share and reducing costs per unit produced or service provided were also widely reported drivers.

For large enterprises in NI and the UK, product related factors were again generally seen as the most important drivers for innovation activities. The most commonly reported driver for SMEs in NI and the UK, by some margin, was the improvement in quality of goods or services that innovation would bring.

The least cited factor in both NI and the UK was reducing environmental impacts.

**Table 5\*: Enterprises rating factors driving innovation as 'high'**

Percentage of innovation active respondents

FACTOR		SIZE OF ENTERPRISE					
		SMEs		Large		All	
		NI %	UK %	NI %	UK %	NI %	UK %
Product-related	Improving quality of goods or services	40	38	41	47	40	38
	Increasing range of goods or services	30	30	19	34	30	30
	Entering new markets	23	23	24	25	23	23
	Increasing market share	35	30	41	41	35	31
Process-related	Improving flexibility of production or service provision	18	19	16	25	18	20
	Increasing capacity for production or service provision	D	17	D	22	15	17
	Reducing costs per unit produced or service provided	34	21	24	34	34	22
Product and Process related	Replacing outdated products or processes	D	17	D	21	22	17
Other	Increasing value added	27	25	26	37	27	25
	Meeting regulatory requirements	22	21	14	30	22	21
	Reducing environmental impacts	D	12	D	21	12	12
	Improving health and safety	16	15	15	23	16	15

\* Please note, Table 5 results are not comparable with previous surveys. Please refer to section 8 for details.

D = disclosive figures

# Sources of information and co-operation for innovation

## 5

Introducing innovation is an increasingly complex process, requiring the co-ordination of multiple inputs. It is therefore important to know how far enterprises engage with external sources of technology and other innovation-related knowledge and information. Businesses can gain guidance, advice or even inspiration for their prospective innovation projects from a variety of both public and private sources.

Respondents were asked to rank a number of potential information sources on a scale from 'no relationship' to 'high importance'. The proportion which answered 'high' in each category is shown in Table 6. These sources are:

- **Internal:** from within the enterprise itself or from other enterprises within the enterprise group;
- **Market:** from suppliers, customers, clients, consultants, competitors, other businesses, commercial laboratories or private research and development institutes;
- **Institutional:** from the public sector such as

government research organisations and universities; or

- **Other:** from conferences, trade fairs, exhibitions, scientific journals, trade/technical publications, professional or industry associations or technical, industry or service standards.

SMEs and large enterprises in NI and the UK reported internal and market sources as most important for information on innovation. This suggests that enterprises tend to rely on their own experience and knowledge coupled with information from suppliers, customers and clients.

In NI, 41 per cent of respondents felt that clients or customers were a highly important source of information during 2008-10, compared to the equivalent UK figure of 39 per cent.

Similar to the 2006-08 survey, the institutional sources were considered to be of lowest importance among NI and UK enterprises.

**Table 6\*: Enterprises rating information sources as of 'high' importance**

Percentage of respondents

INFORMATION SOURCE		SIZE OF ENTERPRISE					
		SMEs		Large		All	
		NI %	UK %	NI %	UK %	NI %	UK %
<b>Internal</b>	Within the business or within the enterprise group	39	39	50	52	39	39
<b>Market</b>	Clients or customers	41	39	32	50	41	39
	Suppliers of equipment, materials, services or software	D	18	D	23	18	19
	Competitors or other businesses in the industry	17	14	17	18	17	15
	Consultants, commercial laboratories or private research & development institutes	D	4	D	7	5	4
<b>Institutional</b>	Universities or other higher education institutions	D	3	D	2	2	3
	Government or public research institutes	D	2	D	4	2	2
<b>Other</b>	Technical, industry or service standards	D	8	D	15	3	8
	Conferences, trade fairs or exhibitions	D	5	D	5	6	5
	Professional and industry associations	D	6	D	8	5	6
	Scientific journals and trade/technical publications	D	8	D	15	D	8

\* Please note, Table 6 results are not comparable with previous surveys. Please refer to section 8 for details.

D = disclosive figures

### INNOVATION CO-OPERATION

Forty-five per cent of collaborative, broader innovators reported co-operation arrangements compared to 51% in 2006-08.

Among broader innovators who collaborated, 74 per cent had agreements that operated at a local/regional level, which was 23 percentage points higher than in the UK. Similar to the 2006-08 survey, UK enterprises were more likely to co-operate on a UK

level (67 per cent compared to 51 per cent among NI enterprises with co-operation arrangements).

As shown in Table 7, the most frequent partners for co-operation among NI (and UK) broader innovating enterprises were clients or customers (65 per cent of NI and 72 per cent of UK enterprises) followed by suppliers (58 per cent of NI and 61 per cent of UK enterprises). The least likely co-operation arrangement in NI and the UK was with government or public research institutes.

The percentage of enterprises in NI which reported co-operation activity remained relatively unchanged for each geographical area. The exception to this was co-operation arrangements with countries outside of Europe, which declined by 12 percentage points, from 21 per cent during 2006-08, though it must be remembered that comparisons between the two surveys are limited due to sectoral reclassification and mapping issues.

**Table 7\*: Co-operation partners**

Percentage of collaborative, broader innovation active enterprises

TYPE OF PARTNER	GEOGRAPHY OF CO-OPERATION				
	Local/Regional within the UK <sup>3</sup> %	UK %	Other Europe %	All other countries %	Any %
Suppliers of equipment, materials, services or software	31	24	15	8	58
Clients or customers	40	26	14	3	65
Other businesses within the enterprise group	26	19	8	5	48
Competitors or other businesses within the industry	25	12	6	2	39
Universities or other higher education institutions	12	8	D	1	21
Consultants, commercial labs or private R&D institutes	16	12	D	1	29
Government or public research institutes	10	8	D	1	18
Any	74	51	25	9	100

\* Please note, Table 7 results are not comparable with previous surveys. Please refer to section 8 for details.

D = disclosive figures

<sup>3</sup> Within approximately 100 miles of the enterprise.

# Wider forms of innovation

## 6

Innovation is not wholly about the development or use of technology or other forms of product or process change. Enterprises can also change their behaviour or business strategies to make themselves more competitive, often in conjunction with product or process innovation, but also as an independent means of improving competitiveness. For the 2011 survey, wider innovators are included in the 'innovation active' definition (see section 8 for more details).

Enterprises were asked whether they had made major changes to their business structure and practices in the three-year period 2008 to 2010. Headline results are summarised in Table 8.

Unlike previous surveys, a slightly greater proportion of SMEs engaged in one or more of these changes (NI:

23 per cent of large enterprises compared to 27 per cent of SMEs). In the UK the opposite was observed with 35 per cent of large enterprises compared to 31 per cent of SMEs engaged in wider innovation activities.

The 2009 survey showed that 20 per cent of NI SMEs and 30 per cent of large firms engaged in one or more forms of wider innovation during 2006-08.

The spread of percentages of wider innovation activities among NI enterprises has increased from 3 percentage points during 2006-08 to 9 percentage points during 2008-10, though the slight changes in the wording of the question used to garner these responses may have contributed to this.

**Table 8: Enterprises that introduced wider forms of innovation**

Percentage of respondents

	SIZE OF ENTERPRISE					
	SMEs		Large		All	
	NI %	UK %	NI %	UK %	NI %	UK %
<b>Wider innovator (any of changes below)</b>	<b>27</b>	<b>31</b>	<b>23</b>	<b>35</b>	<b>27</b>	<b>31</b>
New method of organising external relationships	6	8	1	11	5	8
New business practices	11	15	11	22	11	16
Changes to marketing concepts or strategies	14	16	12	16	14	16
New method of organising work responsibilities	14	18	13	22	14	18

# Regional variation and historical changes

## 7

Figure 5 shows the rate of innovation activity for businesses across the countries and regions of the UK. Results for 2008-10 displayed similar regional variation than did the 2009 Survey, ranging from 35 per cent in Eastern and South East England to 26 per cent in North West England. Northern Ireland had an innovation activity rate of 27 per cent in 2011, equal second lowest along with London.

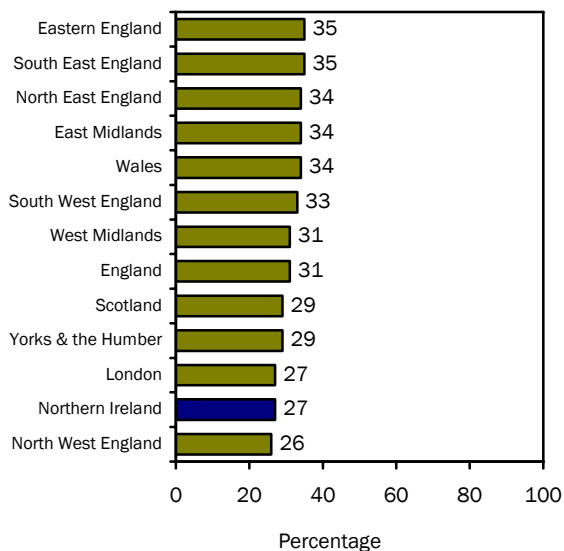
It is fair to say that the move to SIC 2007 has had a marked affect on regional differences. Combined with the new sampling methodology, there has been a shift in the numbers of businesses selected across the regions. For example, the NI selected sample was reduced by almost a half. Despite these sampling alterations, regional innovation rankings tend to vary from survey to survey anyway. They are a reflection of the region's industrial make-up and the associated variability in business and product life cycles across sectors.

also decreased over the period, from 42 per cent in 2004-06 to 38 per cent in 2006-08 and again to 31 per cent in 2008-10.

When innovation activity is examined by its component parts, the proportion of NI enterprises reporting product innovations has decreased from 20 per cent in 2004-06 to 18 per cent in 2006-08 and 14 per cent in 2008-10.

Enterprises reporting process innovations followed a similar pattern with 11 per cent of responding NI firms indicating that they had engaged in these activities in both 2004-06 and 2006-08, while the figure for 2008-10 was 7 per cent.

**Figure 5: Regional innovation patterns**



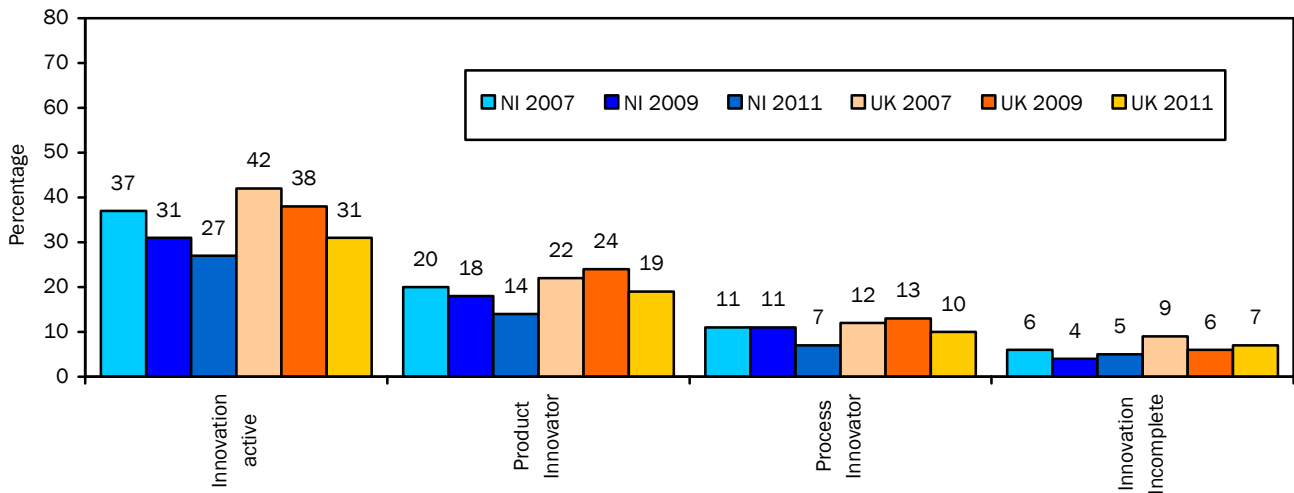
### COMPARISONS WITH THE 2007 AND 2009 INNOVATION SURVEYS

Figure 6 compares headline statistics from the 2007 UK Innovation Survey (referencing 2004-06), the 2009 survey (referencing 2006-08), and the 2011 survey (referencing 2008-10).

The proportion of innovation active enterprises in NI over this period has decreased from 37 per cent in 2004-06 and 31 per cent in 2006-08 to 27 per cent during 2008-10. Comparable figures for the UK have

**Figure 6: Comparisons of 2007, 2009 and 2011 Innovation Surveys: proportions of innovating enterprises**

Percentages



**COMPARISONS WITH THE 2007 AND 2009 UK INNOVATION SURVEY PANELS**

As a proportion of NI enterprises have responded to all three of the 2007, 2009 and 2011 surveys, it is possible to examine how innovation activity among this like-for-like group has changed over time. **As Figure 7 is based on enterprises responding to the 2007, 2009 and 2011 surveys only, results included here are not comparable with any other results in this report.**

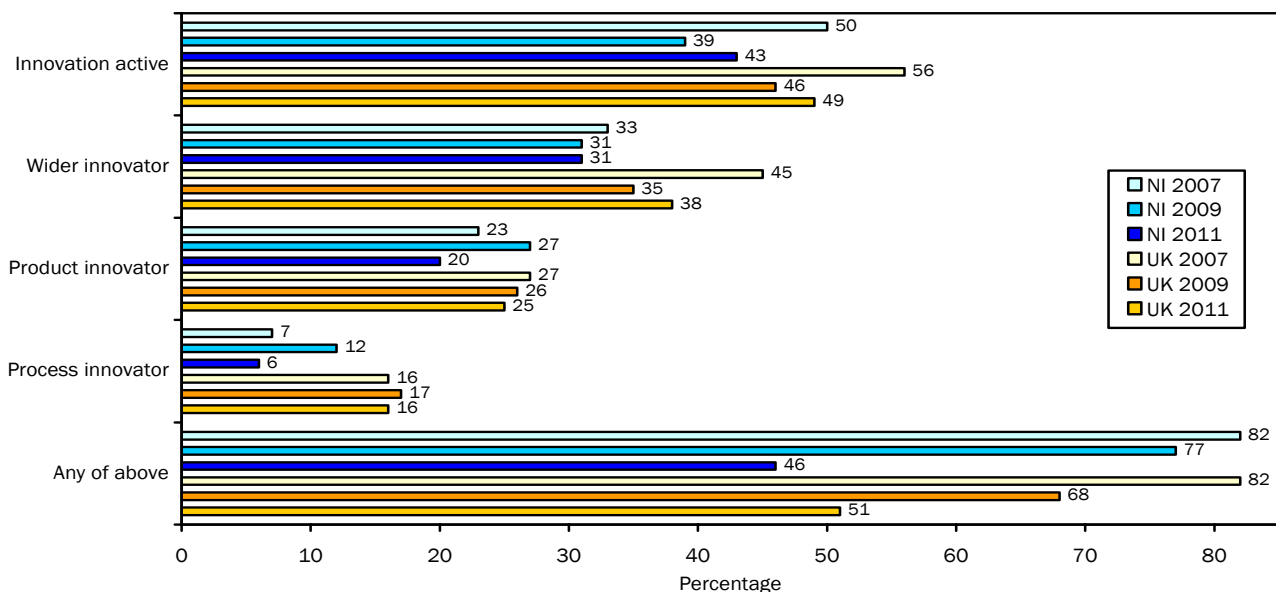
As shown in Figure 7, the proportion of NI enterprises that were innovation active during 2008-10 has increased by 4 percentage points compared to 2006-08 (while the UK experienced an 3 per cent increase). When examined separately, the proportions of enterprises reporting product and process innovation

activity in the 2011 survey were reduced compared to the 2009 survey. The proportion of NI businesses engaged in at least one innovation-related activity decreased by 31 percentage points, to 46 per cent during 2008-10. The UK also experienced a substantial decrease of 17 per cent (to 51 per cent) in this measure over the period from 2009 to 2011.

What is especially interesting is the comparison of the panel firms over the last two surveys with the general survey results. Whilst levels of innovation activity within the panel have increased slightly, the general survey results have decreased; suggesting sampling, data collection and first time respondent effects may be impacting on the overall survey results (see section 8 for further information).

**Figure 7: UK Innovation Survey panel**

Percentages



# Background Notes for Innovation Survey 2011

## 8

### **METHODOLOGY**

The UK Innovation Survey is part of a wider Community Innovation Survey (CIS) covering European countries. The survey is based on a core questionnaire developed by the European Commission (Eurostat) and Member States. This is the seventh iteration of the survey (CIS 7) – CIS 6, covering the period 2006 to 2008, was carried out in 2009 and the results form part of various EU benchmarking exercises (see [http://ec.europa.eu/enterprise/innovation/index\\_en.htm#3](http://ec.europa.eu/enterprise/innovation/index_en.htm#3)).

The UK Innovation Survey 2011 surveyed over 1,000 enterprises in NI. The survey was voluntary and conducted by means of a postal questionnaire but, unusually, around half of the responses were collected by telephone interview.

### **COVERAGE AND SAMPLING**

The 2011 survey sampled enterprises with ten or more employees in sections B to N of the Standard Industrial Classification (SIC) 2007. The groups included are as follows:

#### *Production and Construction Sector*

SIC 05-09 - Mining and Quarrying  
SIC 10-18 - Food, clothing, wood, paper, publishing and printing  
SIC 19-25 - Fuels, chemicals, plastic, metals and minerals  
SIC 26-28 - Electrical and optical equipment  
SIC 29-30 - Transport equipment  
SIC 31-33 - Manufacturing not elsewhere classified  
SIC 35-39 - Electricity, gas and water supply  
SIC 41-43 - Construction

#### *Distribution and Services Sector*

SIC 45-46 - Wholesale trade (including cars and bikes)  
SIC 47 - Retail trade (excluding cars and bikes)  
SIC 49-53, 61 - Transport, storage and communication  
SIC 55-56 - Hotels and restaurants  
SIC 64-66 - Financial intermediation  
SIC 58, 62, 63, 68-82 - Real estate, renting and business activities  
SIC 59-60 - Motion Picture and Video Production

The 2011 survey used a new sampling format based on SIC 2007. This was an inevitable change and an EU legislative requirement on the collection of innovation statistics. In addition to the move to SIC 2007, two other significant changes were implemented. Firstly, the sample was based on 4,

rather than 3, size classes by splitting medium size firms into 2 classes of 50–99 and 100–249. Secondly, to minimise respondents' burden, the sample base was refreshed (or rotated) bringing new firms into the selection from which to draw the survey. With a large proportion of businesses receiving the survey for the first time, we have also noticed a higher item non-response on this occasion as opposed to previous surveys which showed respondents were 'learning' how to complete the form and demonstrating a good understanding of the questions and what was meant by innovation.

Due to weighting issues, there are some differences in reporting between this report and the first findings publication released by BIS. Where differences do exist, UK results are presented in this publication consistent with the NI approach. However, these differences in reporting do not impact on the headline innovation activity measure.

In line with the EU and UK definitions, innovation activity refers to whether enterprises were engaged in any of the following:

1. Introduction of a new or significantly improved product (good or service) or process;
2. Engagement in innovation projects not yet complete or abandoned;
3. New and significantly improved forms of organisation, business structures or practices and marketing concepts or strategies;
4. Activities in areas such as internal research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities;

For the purpose of the UK innovation survey and in line with the European-wide Community innovation survey a business that has engaged in any of the activities 1 to 3 is defined as innovation active.

For the purpose of this paper a business that has engaged in any of the activities 1 to 4 is defined as a broader innovator. We define a wider innovator as a business that has engaged in activity 3.

The definition of innovation active used for the 2009 UK innovation survey referred to businesses engaging in activities 1, 2 & 4.

Due to an unexpectedly poor survey return, telephone response chasing commenced earlier. The combined effect of businesses new to the survey and a telephone survey, as opposed to a postal response, is difficult to quantify. However, a catalogue of changes to the sampling and collection methodology has had a definite impact on the data with item response, in particular, adversely affected. Any comparisons made with previous surveys within this paper are to give a feel for general changes to behaviour over the survey period only.

There has still been some preservation of the panel (respondents also common to the 2009 and 2007 surveys) though substantially reduced to around 50 businesses. Nevertheless, it remains a valuable resource for both government and academic users alike.

The majority of the survey questions are concerned with innovation through new and improved products and processes (technological) and with the investments that develop and implement them along with changes in business structures, management and marketing practices (non-technological innovation). It also asks businesses about the drivers to innovate as well as their perception of barriers to innovation.

The sample was drawn from the ONS Inter-Departmental Business Register in January 2011.

The methodology, sample details and first UK-level findings from CIS 7 can be found on the UK Department for Business, Innovation & Skills website at:  
<http://www.bis.gov.uk/assets/biscore/science/docs/f/12-p107-first-findings-uk-innovation-survey-2011.pdf>.

All results are grossed up to the business population, and all figures quoted relate to the UK Innovation Survey 2011 unless stated otherwise.

General comparisons refer to overall survey results. Other differences between the survey, such as the change to SIC 2007, sectoral coverage and variations in question wording and the overlap of the reference period (2008, plus 2008 and 2006 for the time series comparison) in question are not accounted for.

The questions in Section C 'Context for Innovation' of the questionnaire are only asked if the respondent answered yes to Question 3, 4, 6, 10 or 13 (i.e. strategic innovator, innovation activities, product innovator, process innovator or abandoned/incomplete innovation). This differs from previous survey routing. This routing affects results for Tables 4, 5, 6 & 7 plus Figures 3 & 4.

The survey layout, including routing, was changed considerably for UK IS 2009 and revised again in

2011. In particular, changes to questions on organisational innovation, the reintroduction of strategic protection methods for innovation and additional questions on exports & skills.

## RESPONSE AND WEIGHTING

The questionnaires from the initial survey were distributed on 31 March 2011. Enterprises not responding received written reminders in mid-May and mid-June, with the second reminder also including a copy of the questionnaire. Finally, non-responding enterprises were contacted by telephone in an effort to further boost response rates.

Of the 1,065 enterprises selected, 554 valid responses were received, to give a response rate of over 52 per cent. The population and achieved sample are summarised in Table 9.

The composition of the 2011 achieved sample comprises a greater percentage of large firms (14 per cent) than the last survey (7 per cent). This was to be expected given an increase in the number of large firms receiving the survey due to sector re classification in 2011.

The results in this report are based on weighted data in order to be representative of the population of businesses. The responses were weighted back to the population using the inverse sampling proportion in each stratum, that is, the weight attributed to each enterprise was the number of enterprises in the population divided by the number of responses in that stratum.

Please note that as with all sample surveys, the estimates provided in this publication are subject to an associated degree of sampling error.

**Table 9: Summary of sample frame**

Number of enterprises

ENTIRE NI POPULATION			RETURNED SAMPLE		
SMEs	Large	All	SMEs	Large	All
5,949	177	6,126	476	78	554

## FURTHER INFORMATION

Further information is available on request from:

**Economic and Labour Market Statistics Branch  
 Room 110  
 Netherleigh  
 Massey Avenue  
 Belfast BT4 2JP**

**Telephone: (028) 9052 9385 or 9052 9897**

**Fax: (028) 9052 9459**

**Textphone: (028) 9052 9304**

**E-mail: [mark.mcfetridge@dfpni.gov.uk](mailto:mark.mcfetridge@dfpni.gov.uk)**

**Website: [www.statistics.detini.gov.uk](http://www.statistics.detini.gov.uk)**