Innovation and Skills: Implications for the Agri-food Sector in Northern Ireland

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Presentation Outline

- Current issues - education and skills within the agri-food sector
- Importance of the agri-food sector to the Northern Ireland economy
- Study Objectives and Methodology
- Results
- Main Conclusions and policy implications

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Current Issues: Education and Skills within the Agri-food and Drinks Sector

- Change in Global Markets
  - decline of low skilled sectors
  - lower skills level will constrain companies in taking advantage of new innovation
- Drive for Export and Innovation
  - NI Programme for Government
  - NI Economic Strategy
- Food security, control of the food supply chain
  - Key Issues raised in DEFRA's 'Food 2030' (growth in world population, limited resources & climate change)
  - UK Cross Government Food Research & innovation Strategy

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Current issues: Education and Skills within the Agri-food and Drinks sector

- Global growth in the coming decade driven by expansion in emerging markets
- Population growth coupled with rising consumer spending in emerging economies increasing demand
- European markets are well established and provide limited growth opportunities
- In contrast…trends in emerging economies suggest that these present the best opportunities for substantial further growth

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Current issues: Education and Skills within the Agri-food and Drinks sector

- Links between skills, innovation and productivity
- Links between workforce flexibility and adaptability and innovation
- Current situation: Skills gaps:
  - Scope of education and training provision within Universities / Further Education colleges
  - New technologies and innovations; need for up-skilling of current workforce

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Importance of Food and Drinks sector to the NI economy

- **Agriculture**
  - Gross output (2010) £1.5 billion
  - Gross value added (2010) £378 million

- **Food and Drinks Processing**
  - Gross output (2010) £3.7 billion
  - Gross value added (2009) £608 million

- **Combined Contribution to Northern Ireland**
  - GVA 3½%
  - Employment 6%
  - Employment 19,195 full-time equiv.

Source: DARD

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Importance of Agri-food and Drinks Sector to the NI economy

- Importance to the rural economy
- Provides important links between primary and intermediate inputs (agricultural & farming sector) and the retail sector
- A key supplier to other sectors within local economy
- 19,197 FTE employees in 2009 - just over one quarter of all manufacturing jobs in Northern Ireland
- NI Programme for Gov. & NI Economic Strategy - prioritise investment towards R&D, innovation, education and skills

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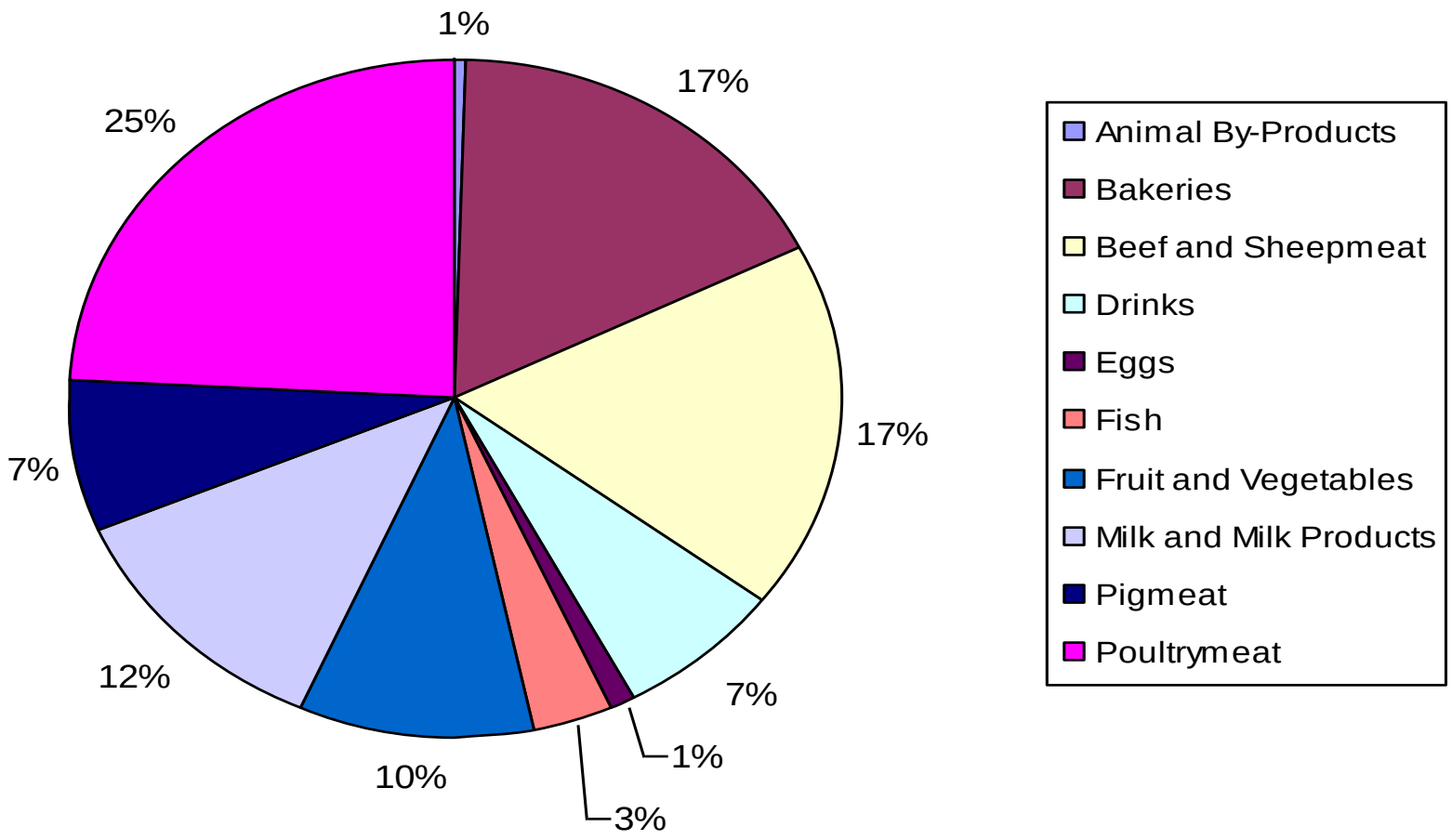
Percentage share of employment within the food and drinks industry by sub-sector 2008



Current Skills Issues specific to NI

- An increasing drive towards a more innovative and technical food and drink industry in Northern Ireland

However....

- More people of working age with no qualifications, 35%, compared with the food and drinks industry in the UK: 8% in Wales, 11% in England and 17% in Scotland (Improve 2010)

- Oxford Economics study identified sector as having a significantly lower level of graduates compared to other sectors

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Background to Study: Education and Skills in the Agri-food and Drinks sector

- In order to inform education and training priorities the Department of Agriculture and Rural Development (DARD) aims to...
  - Establish a sector baseline
  - Explore current skills gaps within the agri-food sector in Northern Ireland
  - Examine anticipated skills demand into the future

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Survey Methodology

- Pilot survey: Spring 2011
- Main Survey Spring / Summer 2011
- Interviews with 30 of the largest NI food and drink companies
- representation achieved from all the key food and drinks sub-sectors
- Coverage equated to 50 per cent of all employee numbers in each sub-sector
- Survey strategically orientated: targeted organisation's CEO / Managing Director / Site Manager as main survey participant

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Methodology - Questionnaire Design

- Information sought on company background and focus i.e. products, markets and other key background information
- Recruitment of recent school leavers and/or college / university graduates in past 12 months
- Qualification and experience required for supervisor, management and specialist/professional/technical posts
- Current vacancies (incl. hard-to-fill vacancies)
- Current skills gaps and future skills requirements;
- Training activity in past 12 months
- Strategic opinions/views on skills and training

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Agri-Food Sector Background

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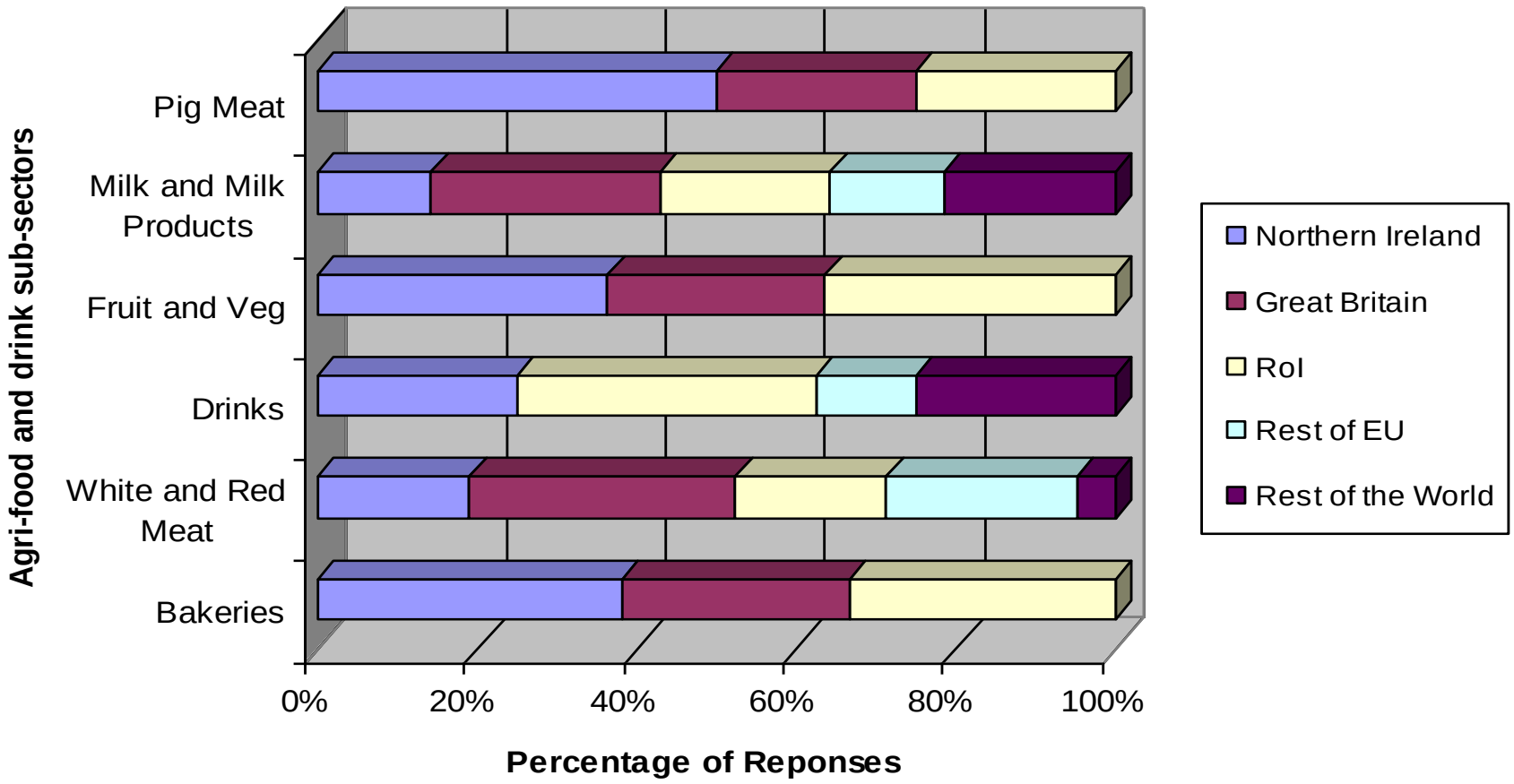
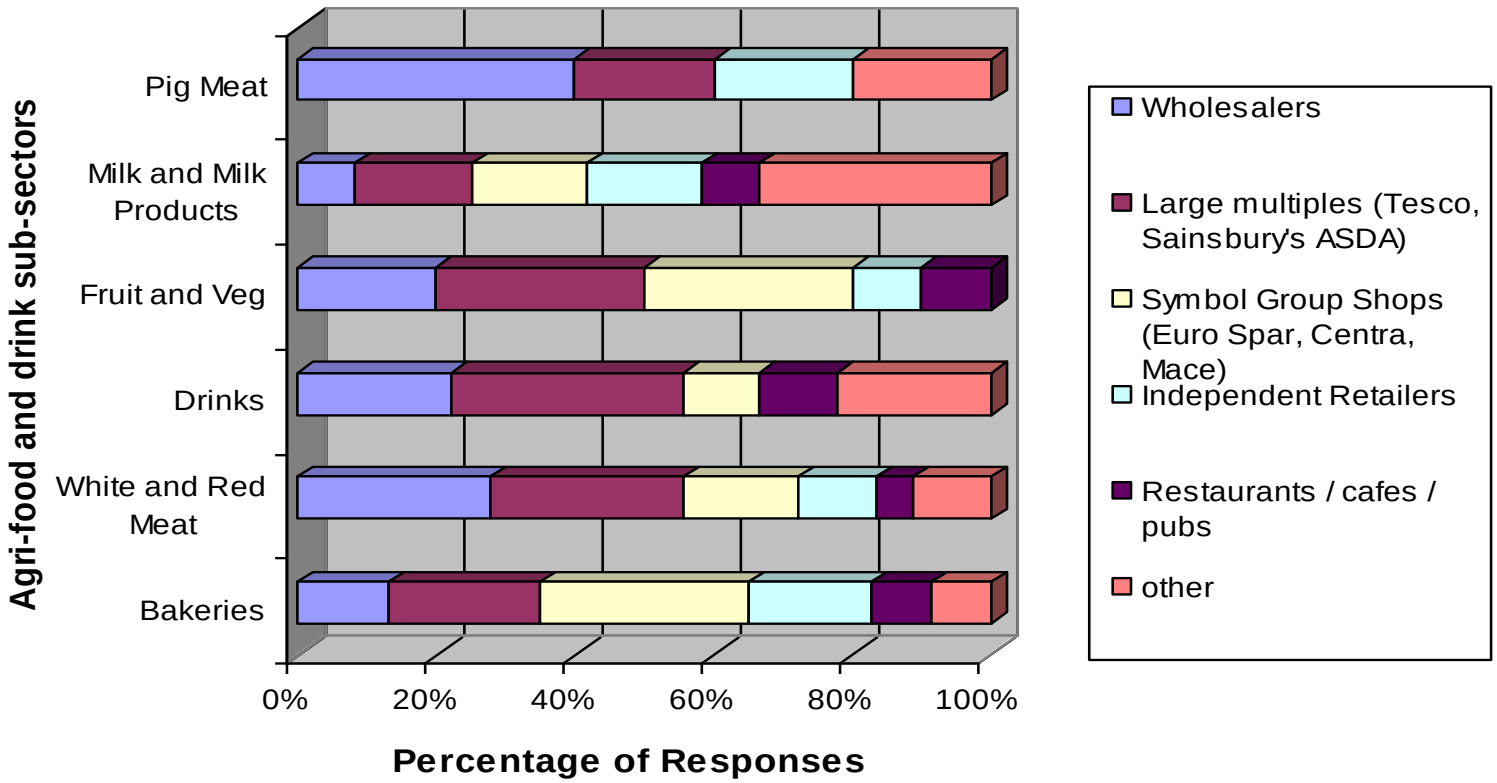
Respondents' top three geographical markets



Respondents' top three main customers



Largest area of growth (sales) in past 5 years

	Percentage of all Responses
Maintaining Key Product/Product Range	16.1%
Export Markets	16.1%
Key Customer	12.9%
Added Value/Premium Product	12.9%
Commodity/Standard Product	12.9%
Own Brand	6.5%
Ready Meals/Convenience Products	6.5%
Healthy Food/Drinks	6.5%
Snack Products	3.2%
No Real Growth Area	3.2%
Don't Know	3.2%
	100%

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Agri-Food Sector Background - Summary

- Larger firms (300 employees +) marginally more focused on **export markets**
- **Cost competitive** – significant proportion of firms reported 'price' as key in maintaining market share, therefore increased adoption of new technologies e.g. 'lean manufacturing techniques'
- **Large multiples** – ranked most important customer by over half respondents
- **Innovations** in new **product and market development** has played a key role in driving sales growth in the past 5 years

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Recruitment and Required Qualifications

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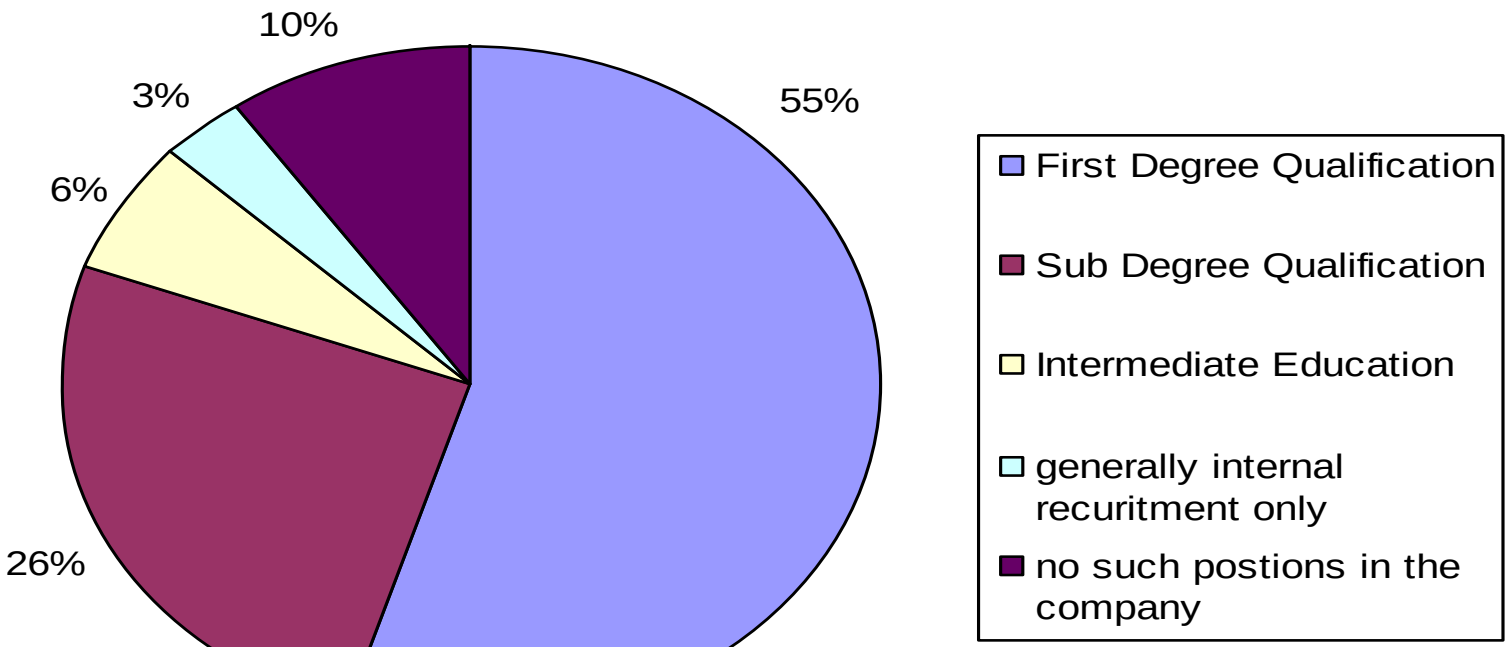
Minimum level of qualification for specialist / technical / professional



Minimum level of qualification for supervisors

	General Supervisory Position %	Specialist / Professional / Technical Supervisory Position %
Compulsory Education	20.0	3.3
Intermediate Education	26.7	10.0
Sub Degree Qualification	23.3	53.3
First Degree Qualification	3.3	20.0
Very basic education - essential skills	3.4	.0
Generally recruited internally only	20.0	6.7
Don't have supervisory positions in the company	3.3	6.7
All respondents	100%	100%

Minimum level of qualification for managers

	General management Position %	Specialist / Professional / Technical Managerial Position %
Compulsory Education	6.7	0
Intermediate Education	6.7	3.5
Sub Degree Qualification	36.7	11.0
First Degree Qualification	46.7	85.5
We don't specify a minimum level of qualification	3.3	
All respondents	100%	100%

Skills Shortages

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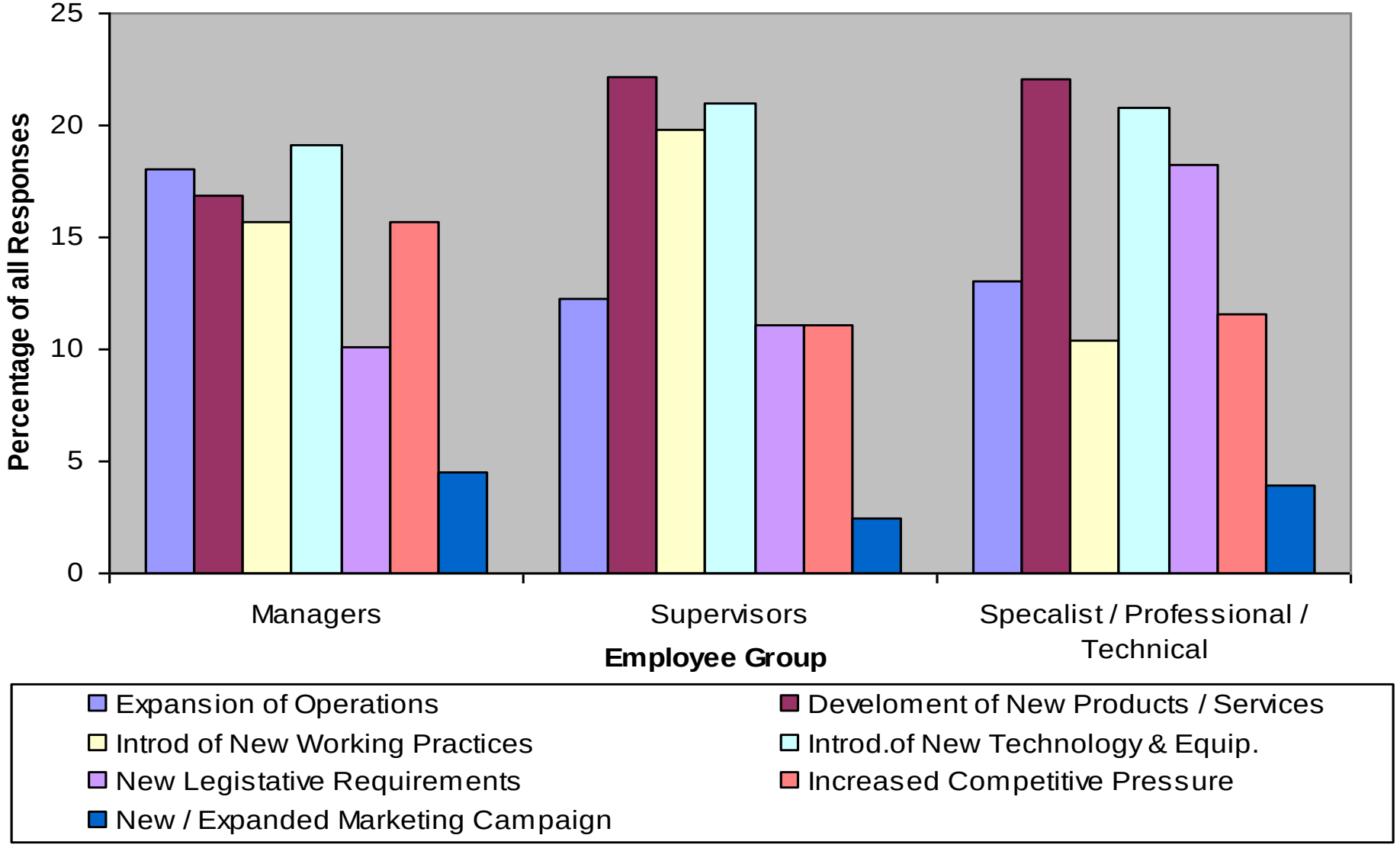
Sector	Skills Shortage Rank 1	Skills Shortage Rank 2	Skills Shortage Rank 3
Bakeries	Skilled/Semi-Skilled Staff (i.e. bakeries skills etc.)	Production Engineers; and Maintenance Engineers	Specialist/Technical Staff (i.e. Food Scientist, Food technologists, Agricultural Technologists, Quality Assurance, etc.)
White and Red Meat	Skilled/Semi-Skilled Staff (i.e. butchery, knife handling skills, etc.)	Specialist/Technical Staff (i.e. Food Scientist, Food Technologists, Agricultural Technologists, Quality Assurance, etc.)	Production Engineers; and Maintenance Engineers

Sector	Skills Shortage Rank 1	Skills Shortage Rank 2	Skills Shortage Rank 3
Drink	Production Engineers; and Maintenance Engineers	People Management Skills	
Fruit and Vegetable	Production – Lean Manufacturing Skills (all staff)	People Management Skills	
Milk and Milk products	Production Engineers; and Maintenance Engineers	Production - Lean Manufacturing Skills (all staff)	Skilled/Semi-Skilled Staff

‘Top three’ key drivers for staff to acquire new skills over next 5 years



Skills Shortages - Summary

- Production (general production.& management) is main business function with skills shortages, ‘generic’ skills important

- Deficiencies in the following key areas:
  - Production Engineers
  - Skilled / semi-skilled
  - Specialist and Technical expertise

- Up-skilling of all staff in response to intro of new work practices (i.e. lean manufacturing) and technologies

- Top three drivers for staff to acquire new skills in future
  - the development of new products and services
  - the introduction of new technologies and equip
  - the introduction of new working practices

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Conclusions

- Innovation driving organisational and technological change in manufacturing (Rothwell, 1992; Tether et al. 2005; Toner, 2011; Pro Inno Europe, 2007)
- Employees require a good level of ‘general education’: (competence in English, maths, IT) to engage with and adapt to these changes
- ID key skills shortages. Up-skilling driven by new innovations
- Concerns about supply of specialists and skilled trades-persons: food scientists, food technologists, manufacturing engineers
- Work experience - a critical factor when recruiting
- Demand for higher level skills likely to increase into the future (scientific change, supply chain security, technology, innovation and increased world food demand)

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Policy implications

- Consider specific scientific and technical training which supports R&D and new product development
- Increased engagement between Government, FE colleges, Universities and Industry in relation to the content, design and delivery of educational programmes (so teaching and training can adequately meets the needs of the sector)
- The Northern Ireland Agri-food and Drinks sector - identified as a sector with potential for growth in the future….Is funding is appropriate based on the sectors considered future strategic importance?

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Thank-you!

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