Futureskills Scotland

Chemicals, Nuclear, Oil & Gas, Petroleum and Polymers

Scottish Sector Profile 2005

cogent

Highlands & Islands Enterprise

Scottish Enterprise

FURTHER INFORMATION

This profile has been produced jointly with Cogent, using, in the main, data taken from the Scottish Employers Skill Survey 2004. More information about this survey, and a report containing the full results, can be found in "Skills in Scotland 2004", which is available on the Futureskills Scotland website (see below). Other data in this profile has been taken from official sources; all sources are footnoted.

ABOUT FUTURESKILLS SCOTLAND

Futureskills Scotland is part of Scottish Enterprise and Highlands and Islands Enterprise. We aim to:

- Analyse the Scottish labour market to inform policy making
- Improve the availability, quality and consistency of labour market information and intelligence across Scotland
- Work closely with Careers Scotland to provide the organisation and its clients with labour market information

The work of Futureskills Scotland is directed at a wide range of users from beginners to experts. Futureskills Scotalnd aims to present analysis in a user-friendly, clear and accessible manner using robust and reliable information. We strive to maintain the highest standard of accuracy and clarity in all of our products, as well as trying to make them relevant and useful. All of Futureskills Scotland's material is available free-of-charge via the website, where you can also find a range of tools and links providing easy access to a wide range of labour market information, intelligence and research. Please visit:

www.futureskillsscotland.org.uk for more information.

ACKNOWLEDGEMENT

Futureskills Scotland is grateful to Cogent for their contribution of the "Views from..." section.

SUMMARY OF FINDINGS

- **There are 59,800 employees in the chemicals, nuclear, oil and gas, petroleum and polymers industries (Cogent sectors), around 3% of Scottish jobs**
- **Most jobs in the Cogent sectors are full-time**
- **One quarter of employees are process, plant and machine operatives**
- **The average weekly full-time wage is £483, which is 23 per cent higher than the Scottish average**
- **Skill gaps affect a greater proportion of employees and workplaces than in other sectors**
- **Cogent sectors employers are more likely to have funded or arranged training compared with employers in other sectors**

DEFINITION OF THE INDUSTRY

The Cogent sectors are defined as covering the following Standard Industrial Classification (SIC) codes:

SIC code	Description
11	Extraction of Crude Petroleum and Natural Gas
23	Manufacture of Coke, Refined Petroleum Products and Nuclear Fuel
24	Manufacture of Chemicals, Chemical Products and Man-made Fibres (excluding 24.3, 24.64 & 24.7)
25	Manufacture of Rubber and Plastic Products (excluding 25.11 & 25.12)
50.5	Retail Sale of Automotive Fuel

These SIC codes were provided by the Sector Skills Development Agency in April 2005, and were the most up-to-date definition of the sector at that time.

STRUCTURE OF THE INDUSTRY

1 There are around 1,600 workplaces in Cogent sectors in Scotland, employing 59,800 people – about 3% of all Scottish jobs[1].

2 In comparison with the average across other sectors in Scotland, workplaces in Cogent sectors are characterised by **(Figure 1)**:

- **fewer female employees;**
- **a smaller proportion of part-time jobs; and**
- **fewer smaller workplaces.**

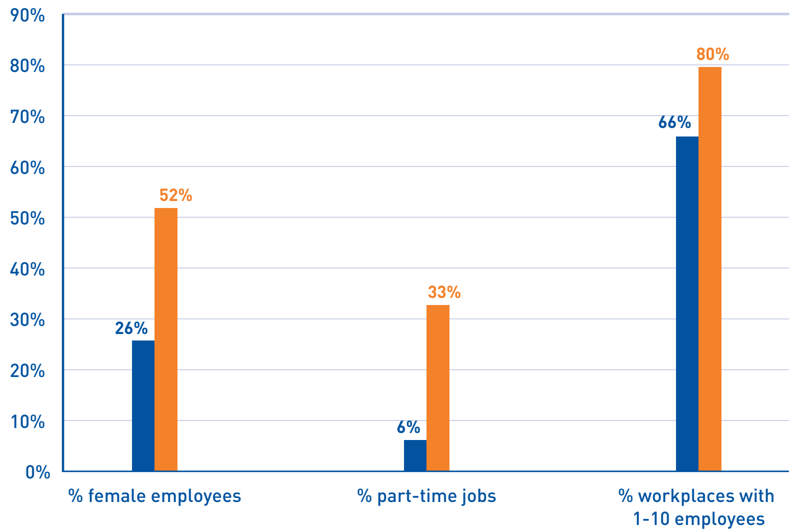
FIGURE 1

Characteristics of the sector

Cogent sectors

Other sectors

Source: ABI[1]



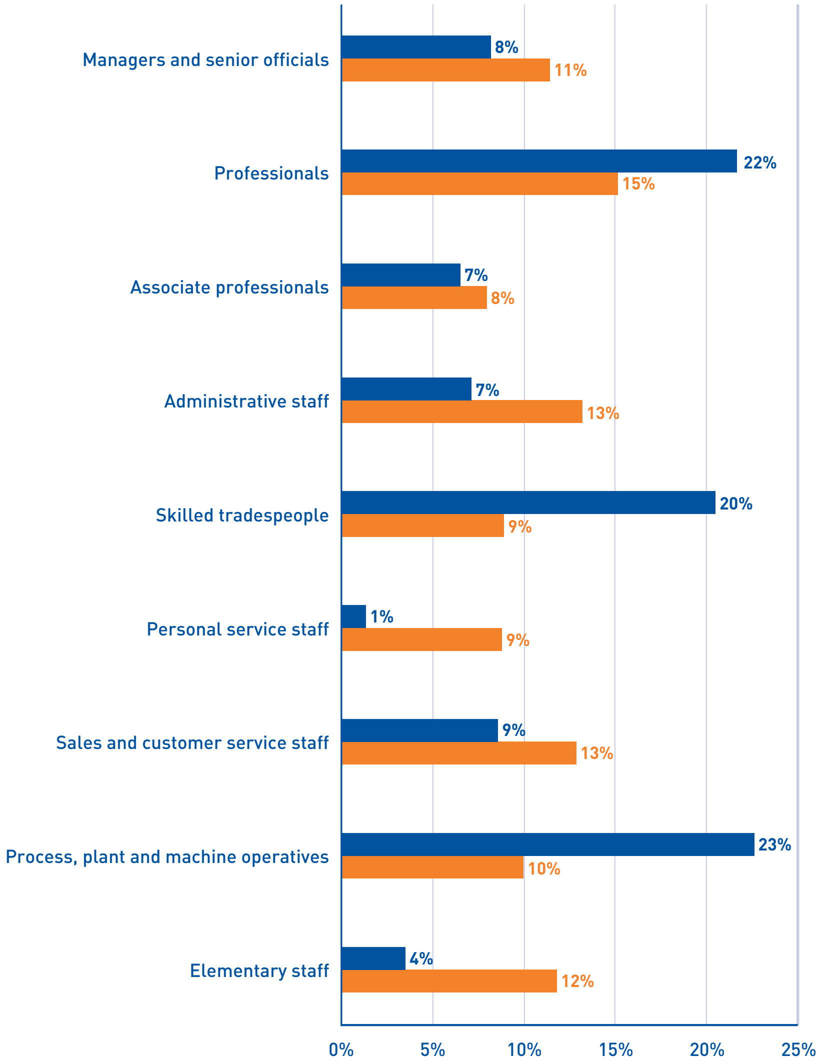
1 Annual Business Inquiry 2003, Office for National Statistics

FIGURE 2

Distribution of employees by occupation

Cogent sectors
Other sectors

Source: SESS 2004



3 The Cogent sectors have a different pattern of jobs from the rest of the economy **(Figure 2)**. There is a higher proportion of process, plant and machine operatives – one in four of all Cogent sector employees. In addition, one-fifth of employees in the sector are employed in professional occupations.

4 The average age of people in employment in the Cogent sectors is 41[2,3] , similar to the average for Scotland as a whole (40 years). There are fewer employees aged 16-24 in the Cogent sectors than in other sectors. **(Figure 3)**.

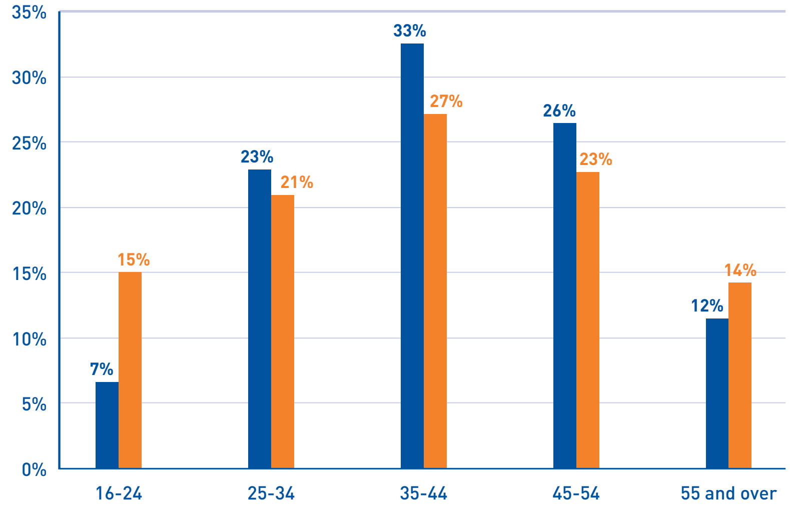
5 The average weekly full-time wage for employees in the Cogent sector is £483[4]. This is 23 per cent higher than the average across Scotland (£393).

FIGURE 3

Age profile of people in employment

Cogent sectors
Scotland

Source: Annual LFS[2]



2 Annual Labour Force Survey 2003, Office for National Statistics

3 Due to the limitations of the data source, age information for the Cogent sectors excludes SIC 50.5.

4 Annual Survey of Hours and Earnings 2004, Office for National Statistics

CHALLENGES FACING EMPLOYERS

6 It is important to set employers' responses to skills-related questions in a wider context. Employers were asked to identify the main challenges they anticipated facing over the next 12 months. Skills-related challenges were not those cited most frequently by employers in either the Cogent or other sectors. The challenges that were mentioned most often by employers in the Cogent were **(Figure 4)**:

- **changes in the structure of the market;**
- **increasing competition from within Scotland; and**
- **increasing competition from outside Scotland.**

FIGURE 4

Main challenges anticipated by employers over the next 12 months

Source: SESS 2004

		% of employers who anticipated challenges	
Ranking		Cogent sectors	Other sectors
1	Changes in the structure of the market	26%	8%
2	Increasing competition from within Scotland	26%	18%
3	Increasing competition from outside Scotland	23%	5%
4	Fuel Prices	11%	2%
5	Business regulations	10%	16%

Note: Attracting appropriately skilled staff was the 6th ranked challenge, cited by 6% of employers in the Cogent sectors.

RECRUITMENT, VACANCIES AND SKILL SHORTAGES

7 A similar proportion of employers in the Cogent sectors had recruited in the previous two to three years compared with employers in other sectors **(Figure 5)**. Of those employers who had recruited, those in the Cogent sectors were more likely to have recruited a university graduate than those in other sectors.

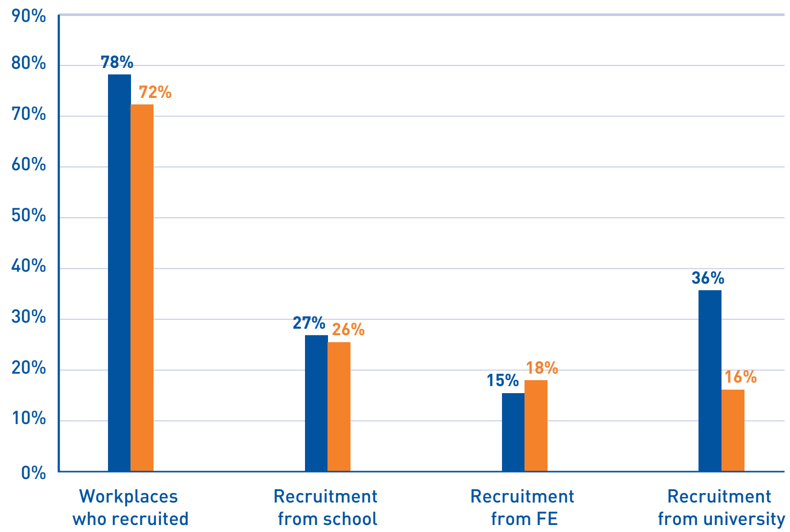
FIGURE 5

Recruitment activity

Cogent sectors

Other sectors

Source: SESS 2004



8 Labour turnover[5] in the Cogent sectors is slightly lower than turnover in other sectors (19% compared with 23%).

9 A skill shortage arises when an employer has a vacancy that is hard-to-fill because applicants lack the necessary skills, qualifications or experience. Skill shortages in Scotland are uncommon, totalling 18,300 and affecting less than one in twenty Scottish workplaces. Compared with the rest of the economy, the Cogent sectors are characterised by **(Figure 6)**:

- **a similar proportion of vacancies that are hard-to-fill; and**
- **more hard-to-fill vacancies that are the result of skill shortages.**

FIGURE 6

Vacancies, hard-to-fill vacancies and skill shortages

Source: SESS 2004

	Cogent sectors	Other sectors
Vacancies as a % of employees	2%	4%
Hard-to-fill vacancies as a % of employees	1%	2%
Hard-to-fill vacancies as a % of all vacancies	42%	46%
Skill shortages as a % of hard-to-fill vacancies	67%	53%

In addition, compared with other sectors, skill shortages in the Cogent sectors **(Figure 7)**:

- **represent a similar proportion of employee jobs; and**
- **affect a similar proportion of workplaces.**

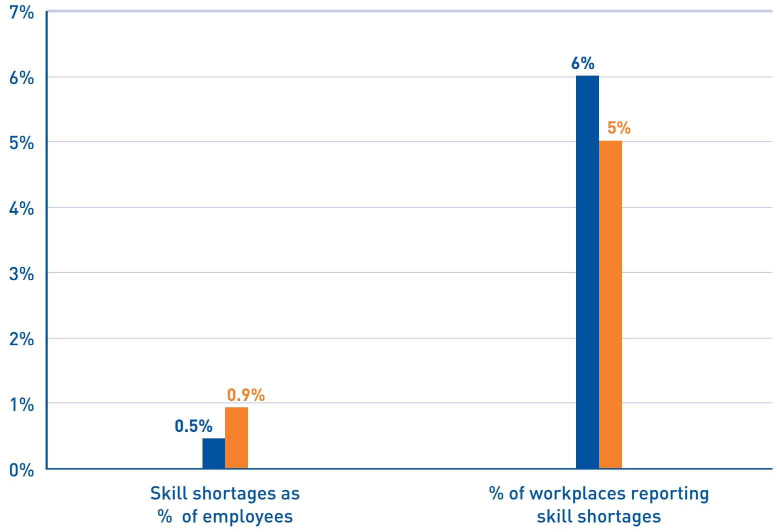
FIGURE 7

Skill shortages

Cogent sectors

Other sectors

Source: SESS 2004



5 Labour turnover is a measure of "churn" in the workforce. For a formal definition of turnover, see page 20 in the "Labour Market Glossary" on the Futureskills Scotland website at: www.futureskillsscotland.org.uk

SKILL GAPS

10 A skill gap arises when an employer judges that an employee is not fully proficient in their job. Skill gaps are more common than skill shortages, affecting around one in five Scottish workplaces. Compared with the rest of the economy, skill gaps in the Cogent sectors affect a greater proportion of both employees and workplaces **(Figure 8)**.

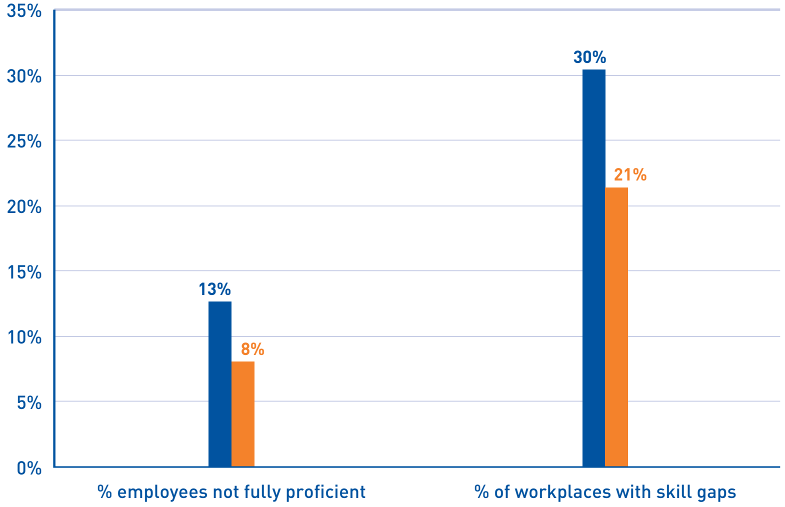
FIGURE 8

Skill gaps

Cogent sectors

Other sectors

Source: SESS 2004



11 Where skill gaps arise, employers in Cogent sectors most frequently cite weaknesses in "soft" skills such as team working and planning and organising. This is similar to employers in other sectors **(Figure 9)**.

12 Skill gaps are more likely to give rise to adverse consequences for businesses than shortages. Around half of all Cogent sector workplaces with gaps report that they lead to **(Figure 10)**:

- **difficulties meeting customer service objectives; and**
- **difficulties meeting required quality standards.**

FIGURE 9

Skills lacking in employees with skill gaps

Source: SESS 2004

	% of workplaces with skill gaps	
	Cogent sectors	Other sectors
Team working skills	59%	49%
Planning and organising	52%	53%
Problem solving skills	47%	49%
Customer handling skills	46%	52%
Other technical and practical skills	45%	38%

FIGURE 10

Impact of skill gaps

Source: SESS 2004

	% of workplaces with skill gaps	
	Cogent sectors	Other sectors
Difficulties meeting customer service objectives	57%	54%
Difficulties meeting required quality standards	45%	51%
Increased operating/running costs	43%	40%
Loss of business or orders to competitors	35%	32%
Delays developing new products or services	34%	31%

13 Providing further training is the main response by employers to skill gaps in both the Cogent sectors and other sectors, with nearly nine out of ten employers taking this action **(Figure 11)**.

FIGURE 11

Responses to skill gaps

Source: SESS 2004

	% of workplaces with skill gaps	
	Cogent sectors	Other sectors
Provided further training	90%	87%
Increased/expanded trainee programmes	58%	51%
Changed working practices	38%	44%
Relocated work within the company	19%	24%
Expanded recruitment channels	18%	14%

TRAINING AND DEVELOPMENT

14 Employers in the Cogent sectors are more likely to have funded or arranged training for their staff than employers in other sectors – 81% of employers compared with 62% in other sectors.

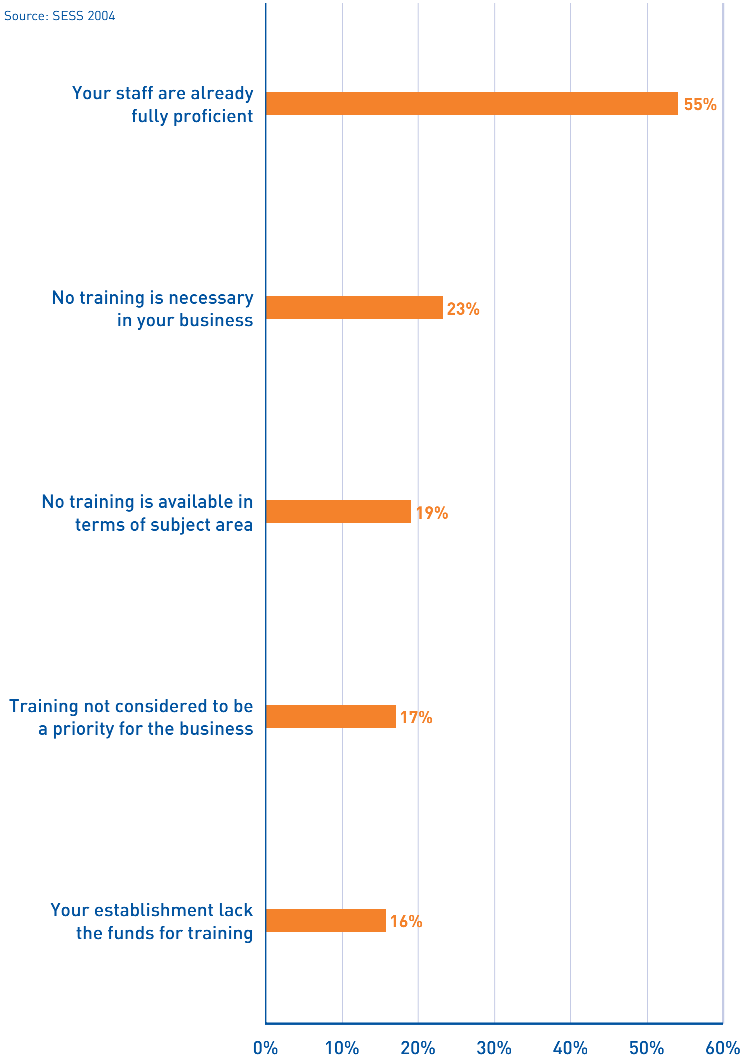
15 For those employers in all industries that had not funded or arranged training over the past 12 months, the main reason for not doing so was that staff were considered already to be fully proficient **(Figure 12)**. Information for Cogent sectors is not shown as the sample is too small to produce robust results.

FIGURE 12

Reasons for no training

All sectors

Source: SESS 2004



16 Considering off-the-job training only, Cogent sector employers are more likely to have provided or funded off-the-job training in the last 12 months, compared with employers in other sectors **(Figure 13).**

17 Employers in the Cogent sectors who had provided or arranged off-the-job training were most likely to use a private training provider or consultant to provide that training **(Figure 14)**. This is similar to workplaces in other sectors. In contrast to other sectors, Cogent employers were less likely to have used a dedicated company/Government training centre.

18 Cogent sector workplaces are equally likely to participate in Modern Apprenticeships and less likely to participate in other Government-funded training schemes compared to other sectors **(Figure 15)**.

FIGURE 13

Off-the-job training

Cogent sectors

Other sectors

Source: SESS 2004

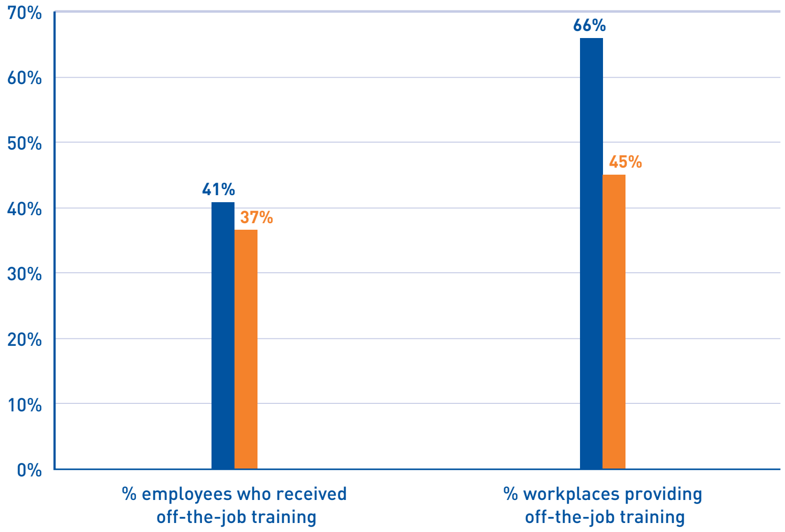


FIGURE 14

Providers of off-the-job training

Source: SESS 2004

	% of workplaces who provided off-the-job training	
	Cogent sectors	Other sectors
Private training providers/external consultants	61%	48%
Staff at this site	48%	36%
Industry bodies/professional associations	23%	30%
FE College	18%	24%
Dedicated company/Govt owned training centre	16%	34%

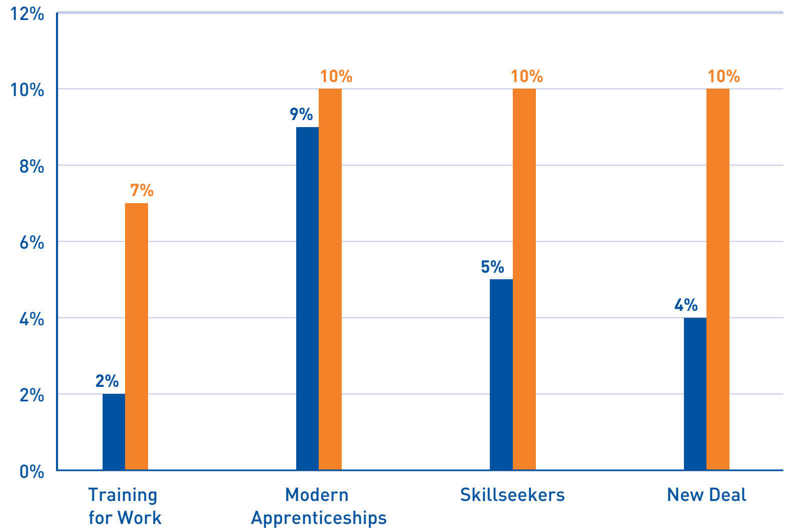
FIGURE 15

Participation in Government-funded training schemes

Cogent sectors

Other sectors

Source: SESS 2004



VIEWS FROM COGENT

Cogent Sector Skills Council represents the chemicals, nuclear, oil and gas, petroleum and polymer industries. These industries are of both economic and strategic importance to the UK. However, they face significant changes in the demands placed on their workforce from global competition, increasing public expectations for cleaner and safer products, new technology, workforce demographics and sustainable development requirements.

Cogent is aimed at improving performance and driving up productivity across this critical sector footprint through better, more focused training and the structured bridging of skill gaps. Industries within our sector depend on a range of skills relating to science, technology and engineering. And having the right people with the right skills in place is critical to productivity, competency, innovation and sustainability right across the sector.

We are focusing our efforts in four key strategic areas:

1 Understanding and interpreting industry's skills needs

2 Influencing government and industry to ensure there is appropriate

3 Ensuring skills delivery meets industry's needs

4 Improving the Cogent sector industry image to make it a positive career choice

Structure of the Industry

There are 1,600 Cogent sector workplaces in Scotland, accounting for 3% of all Scottish employees. This accounts for 10% of employers within the Cogent sector in the UK (16,735 – Inter Departmental Business Register 2003). The breakdown of employers by number of employer sites is dominated by Petroleum given the high incidence of petrol forecourts across the country. Excluding forecourts, the industry breakdown of employers in the Cogent sector for Scotland is: 30% Oil and Gas Extraction; 4% Petroleum Refining and Nuclear; 28% Chemical Manufacturing and; 38% Polymer processing (Annual Business Inquiry 2002).

In comparison to the average across the other sectors in Scotland, Cogent sector workplaces have a lower proportion of female employees, significantly fewer part-time jobs and a lower share of smaller enterprises. In common with other engineering and science industries, the Cogent sector workforce is male dominated with the majority of workforce in full-time employment. The age profile of the workforce is also of some concern to the employers. While the industries remain competitive in terms of remuneration, the average weekly pay for full-time employees in the sector is £483, significantly higher than other sectors in Scotland (£393), there is still an issue around other aspects of industry attractiveness. Groups of employers within the sector are taking steps to help address these issues by working collaboratively to promote awareness of the industries and the opportunities that they offer to the potential and current workforce.

Challenges facing employers

Changes in the structure of the market and increasing competition from within Scotland (both 26%) were seen as the main challenges facing businesses in the Cogent sectors. This compared to 8% and 18% respectively, in other sectors. Changes in the market structure are being witnessed across the Cogent sector. For example in the oil and gas industry, there is a trend towards outsourcing work to contactors in the supply chain. Recent years have seen a new type of Operating Company moving into oil and gas in the UK who tend to be leaner operations sub-contracting operational activities to supply chain contractors. Likewise, the structure of the Polymers market has been changing and continues to change as the variety and range of products using polymer technologies expands. The automotive and aerospace industries are increasingly using polymers as a substitute for metal components. Also, as consumer tastes change there is an increase in demand for production of consumables such as fashion driven colour co-ordinated domestic and kitchen appliances.

In terms of increasing domestic competition, independent forecourt operations are facing increasing competition as supermarket forecourts extend their proportion of the market share. As the trend continues towards petrol stations diversifying into the local convenience store, petroleum company chains and supermarkets have a competitive advantage of bulk purchase.

Note: The "Views from Cogent" section reflects the views of Cogent and not necessarily those of Futureskills Scotland

Recruitment, Vacancies and Skill Shortages

While labour turnover is at a similar level to other sectors, slightly more Cogent sector employers have been recruiting in the last 2-3 years (78% compared to 72%). Ongoing recruitment and attraction of new entrants to the industries will be essential to maintain core operations and replace those retiring from the workforce despite overall employment levels within the Cogent industries projected to be in long term decline.

Of those employers who have recruited, employers in the Cogent sectors were more likely to recruit from a Scottish university than employers in other sectors (36% and 16% respectively). Close links have been established between some Scottish Universities and the Cogent industries. As a result these Universities offer a range of courses particular to our sector which are valued by employers.

In this survey and the Employer Skills Survey for England Cogent employers are reporting a higher incidence of skills shortage vacancies than average across all other employers. However, Cogent sector employers in Scotland are more likely than their English counterparts to report hard-to-fill vacancies that are the result of skill shortages. Concern over the future supply of a suitably skilled and qualified workforce is recognised across science and engineering based industries and as a result is one of the issues being investigated further through the Sector Skills Agreement process.

Skill Gaps

Skill gaps in the Cogent sector affect 13% of employees and 30% of workplaces compared to 8% and 21% respectively, for other sectors in Scotland. Given that Cogent employers experience greater difficulty with skills shortage vacancies and skills gaps within the existing workforce, this suggests that to some degree skill gaps are a result of recruitment difficulties possibly stemming from recruitment of employees who do not fully meet the job role profile.

Where skills gaps have been reported, "soft" skills such as team working and planning and organising were mentioned most frequently by both Cogent sectors and other sectors employers. As the structure of markets change (for example, oil and gas and nuclear moving into decommissioning phase); new technologies and processes are implemented and new products and services are developed, the required skills sets of the workforce will change. Working Futures[1] indicates further upskilling of the current workforce is required projecting an increased proportion of the workforce will be employed in higher skilled occupational roles (Associate Professional & Technical, Professional and Managerial). The work of the Sector Skills Agreement seeks to more clearly articulate the skills training and qualifications required by employers now and to meet future needs.

Approximately one sixth of Cogent employers report having problems meeting customer service objectives and required quality standards as a result of their current workforce not having the required skills. As this is similar to employers in other sectors this must provide a driver for employer commitment to the Action Plan outcomes of the Sector Skills Agreements. Already in response to skills gaps, most workplaces in the Cogent sectors have provided further training, whilst 58% increased or expanded trainee programmes. This is similar to workplaces in other sectors.

1 Working Futures: Sectoral Report 2003-04, SSDA (2004).

Training and Development

Cogent sector employers are more likely to have funded or arranged any training over the last 12 months compared to employers in other sectors (81% compared to 62%). The nature of activities in the Cogent sector means it is highly regulated and employers must ensure the workforce undertakes relevant training to ensure compliance with Health and Safety and environmental regulations. Cogent sectors employers are more likely to have provided or funded off-the-job training in the last 12 months compared with employers in other sectors (66% and 45% of workplaces respectively). Employers in the Cogent sectors who have provided or arranged off-the-job training were most likely to use a private training provider or external consultant to provide training. This was also true for employers in other sectors. The Sector Skills Agreement involves an assessment of current and future training needs and provision this will include an assessment of employer relevance of current public and private training provision

Cogent sectors workplaces are generally less likely to participate in Government training schemes compared to workplaces in other sectors. As part of the Sector Skills Agreement work, Cogent are also reviewing formal qualifications and their uptake by employers. The Labour Force Survey (2003q3–2004q2) finds that the Cogent workforce in Scotland has the highest proportion of workforce with qualifications at level 3 or higher (69%) compared the Cogent UK workforce of (54%) or the overall Scottish economy of (56%).

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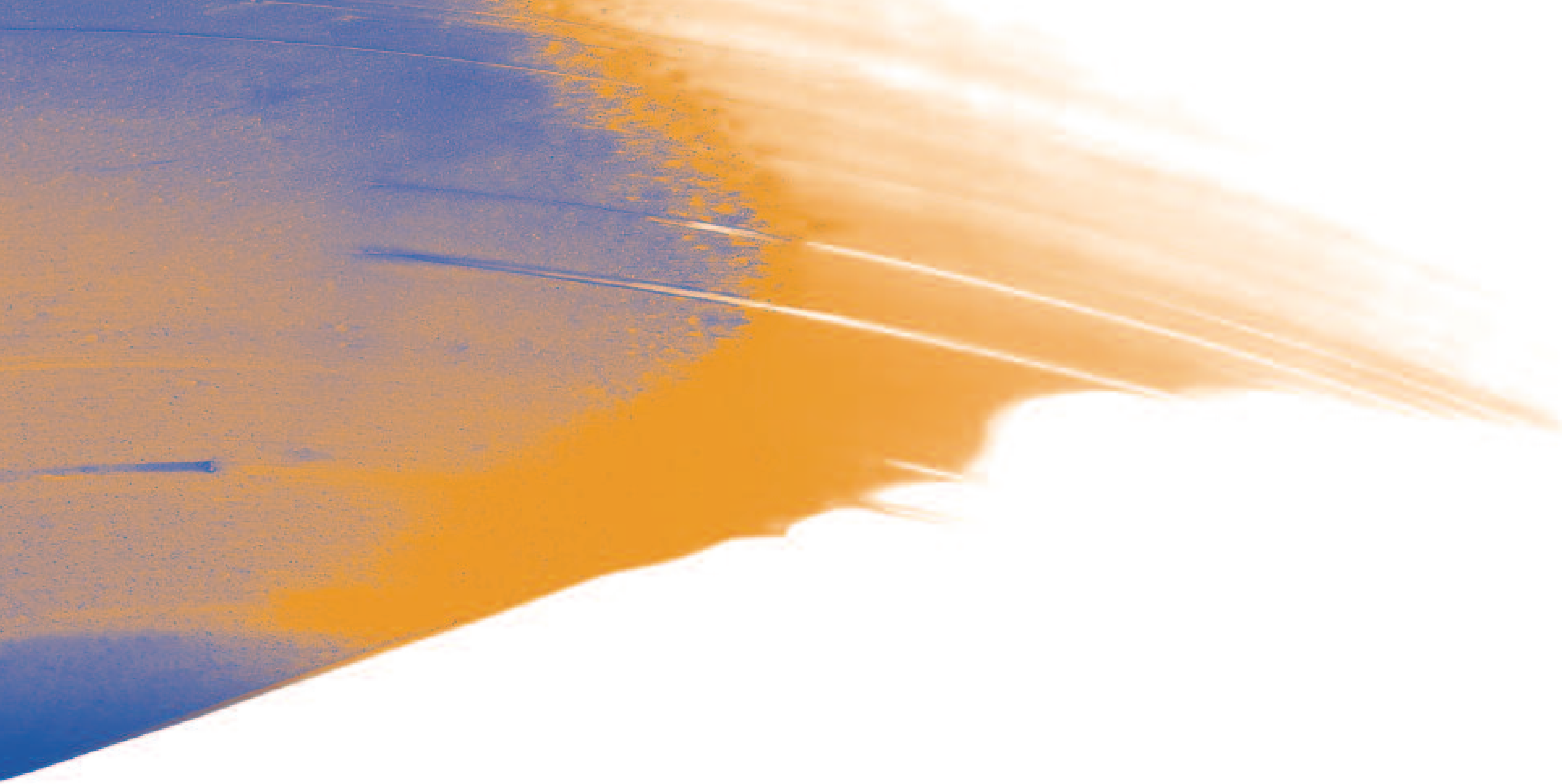

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