FUTURE SKILLS ISSUES AFFECTING INDUSTRY SECTORS IN WALES

Food Processing Sector

Futureskills Wales

FUTURE SKILLS WALES RESEARCH FORUM
FSW SECTOR STUDY: FOOD PROCESSING

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Introduction

This document is one of a series commissioned by the Future Skills Wales Research Forum. The overall project aims to extend and complement the work begun by the original Future Skills Wales project, which forecast future generic skills needs across Wales using forecasting and survey data. The current project adds studies of future vocational skills needs within key sectors in Wales. Each sector study is based on desk research and qualitative interviews with practitioners and employers, and aims to provide an overview of the sector, the skills issues, and current and potential actions to further strengthen the sector.

Businesses and employees in each of the sectors studied have achieved great successes; that is why these sectors have become important for Wales. Our focus on current skills issues should not obscure these achievements or the determination of all concerned to meet current and future challenges.

Sector Profile

Food processing is a **growing and important sector** for the Welsh economy. The natural advantage in some sub-sectors of being located close to the agriculture sector provides benefits which are being further developed through initiatives such as the Agri-Food Partnership.

There are estimated to be up to 700 firms in the sector, employing around 20,000; the sector is relatively strong in Wales in relation to the UK as a whole. The major subsectors are concerned with:

- bread;
- meat and poultry;
- dairies, cheese and ice-cream;
- fruit and vegetable processing.

The sector is present in all Welsh regions but the highest proportion of firms (34%) is located in the South East, with 16% being sited in Mid-Wales.

The occupational profile of the sector is dominated by a large group of operatives - a higher proportion than is seen in any of the other manufacturing sectors studied in this YCL series (aerospace, automotive manufacturing, and electronics).

Future employment and output is forecast to increase - thus describing an expanding, successful sector. This growth outlook contrasts with a forecast fall in employment in the UK as a whole, and should benefit the sector in North Wales in particular. However, there is **evidence of potential risks to the sector in the longer term.**

Skills Issues

Many **production jobs are relatively low skilled**, which in the short term suits employers, who generally focus training for operatives on satisfying legal requirements. Over the medium to longer term businesses will need to think carefully about how they can develop the skills they require in the following areas:

- **professional / technician skills;**
- **food hygiene and technology skills generally;**
- **IT skills of production staff.**

The sector is experiencing some skills shortages but these are not having a significant impact on business performance currently.

Competition is likely to increase with margins kept very tight. Imported food stuffs are often based on lower labour costs forcing Welsh producers to ensure cost control and to compete on quality.

Action on Skills

Apart from the establishment of the Food Directorate at the WDA, **the sector does not benefit from coherence on skills and training issues** throughout Wales as a whole. There is a need to encourage involvement from organisations, such as the National Training Organisations, in a debate about the key sectoral skills issues.

The natural result of generating organisational interest in the sector will be the development of a sector skills strategy.

Recommendations for the sector are summarised in the following table.

Summary of Recommendations

Theme No:	Rec. No	Action	Timescale	Key Partners
1	1a	Establish a forum for the consideration of skills issues across the sector in Wales	From 2000	CETW/WDA/ NTOs
2	2a	Develop a Food Processing sector skills strategy	2001	CETW/NTOs and others
3	3a	Promotion of flexibility and relevance of the NVQ framework to employers	2001	CETW/NTOs/ FE/providers
	3b	Encouraging employers to embrace company-wide strategies for skills development	2001	CETW/NTOs/ Business Connect
	3c	Review of training provision against employer needs	2001	NAW/CETW/ NTOs/FE providers
4	4a	Sector specific primary research in terms of employer attitudes to training and the response of the education and training sector to its needs	From 2000	NAW/Skills Unit

1. Introduction

1.1 This document is one of a series commissioned by the Future Skills Wales Research Forum. The overall project aims to extend and complement the work begun by the original Future Skills Wales project, which forecast future generic skills needs across Wales using forecasting and survey data. The current project aims to add studies of future vocational skills needs within key sectors in Wales.

1.2 Businesses and employees in each of the sectors studied have achieved great successes; that is why these sectors have become important for Wales. Our focus on current skills issues should not obscure these achievements or the determination of all concerned to meet current challenges.

1.3 The Food Processing sector was selected because of its strong links to agriculture and the food chain throughout Wales. The sector contains a number of diverse areas from mineral water bottling to animal slaughter to ready-made meals. The sector is also important in the context of manufacturing industry in Wales, and is included in the York Consulting study along with three other manufacturing sectors – aerospace, electronics and automotive.

1.4 Each of the individual sector reports is complemented by a report on management and information technology skills issues across the sectors studied. This reviews the situation in each sector and draws out common themes and implications.

Method

1.5 The first phase of this study involved mainly desk research (please refer to the Bibliography at **Annex A**) augmented by telephone discussions with key individuals.

1.6 In the second stage, further discussions, both face to face and telephone, were held with sector representatives. A series of employer case studies were undertaken to extend and deepen the analysis of vocational skills issues.

1.7 The overall focus of the work has been qualitative in nature, while retaining a firm quantitative grounding through making use of existing secondary research. The aim was not to conduct quantitative primary research, but to consult with sector representatives in order to identify perceived skills issues, the actions being taken in response to these, and the potential for further action or policy development. The published reports should therefore provide a clear introduction to the sector, a ‘snapshot’ of sector issues, and pointers to current and potential action.

2. The Sector

Definition

2.1 The food processing sector is basically the stage between the primary growing of foodstuffs, including livestock, and the presentation to the consumer or intermediaries such as restaurants. The links between the stages at either end of the food processing chain are becoming more complex as a result of:

- vertical integration;
- recognition of the benefits from close partnership along the food chain.

2.2 As a result of this definition the sector itself includes a wide range of activities such as:

- abattoirs and cutting plants;
- water extraction and bottling;
- dairy processing;
- catering butchery;
- retail packaging;
- prepared meats;
- recipe products;
- manufacturing – the cooking, curing, drying and canning of products;
- food and drink preparation, including pre-cooking.

2.3 While the sector fits well with standard statistical definition, it is covered by a range of National Training Organisations:

- Food and Drink NTO;
- Dairy Training and Development Council;
- Meat Training Council;
- Bakery Training Council;
- Seafish NTO.

2.4 As a result, more detailed sector-specific information is less consistent and often has a limited Welsh focus.

Characteristics

Number of Firms

2.5 The estimated number of firms in the sector is between 500 (Annual Employment Survey, 1998) and 700 (WDA Directory) throughout Wales. The higher estimate covers more smaller organisations, however this total excludes areas such as animal slaughter and milk processing.

2.6 The sector is relatively more important to the Welsh economy than across the UK, with a location quotient of 1.21 indicating there are 20% more employers than would be expected, compared with the size of the sector at a UK level.

2.7 The distribution of companies is concentrated within relatively few sub-sectors **(Table 2.1)**. The majority of sub-sectors have fewer than 5% of food processing companies translating to less than 25 actual businesses per sub-sector.

2.8 The major sub-sectors in business unit terms across Wales are:

- manufacturing of bread (35%);
- production and processing of meat and poultry (14%);
- operation of dairies, cheese and ice-cream making (12%);
- processing/preserving fruit and vegetables (5%).

Table 2.1 Business by Food Processing Sub-sector for Wales

Food Processing	GB %	Wales%
1511 : Production and preserving of meat	5.4%	6.2%
1512 : Production and preserving poultry meat	1.6%	1.7%
1513 : Production: meat & poultry meat products	7.8%	6.3%
1520 : Processing/preserving of fish	4.6%	2.4%
1531 : Processing and preserving of potatoes	1.0%	0.6%
1532 : Manufacture of fruit and vegetable juice	0.3%	0.4%
1533 : Processing/preserving: fruit/veg nec	6.2%	5.4%
1541 : Manufacture of crude oils and fats	0.3%	0.2%
1542 : Manufacture of refined oils and fats	0.6%	0.2%
1543 : Manufacture: margarine/similar fats	0.4%	0.2%
1551 : Operation of dairies and cheese making	5.2%	7.5%
1552 : Manufacture of ice cream	2.8%	4.3%
1561 : Manufacture of grain mill products	1.9%	0.9%
1562 : Manufacture of starches /starch products	0.1%	0.2%
1571 : Manufacture of feeds for farm animals	5.3%	4.3%
1572 : Manufacture of prepared pet foods	2.4%	2.1%
1581 : Manufacture of bread etc	26.2%	35.3%
1582 : Manufacture of rusks, biscuits etc	3.8%	3.7%
1583 : Manufacture of sugar	0.2%	0.0%
1584 : Manufacture of cocoa; chocolate etc	3.6%	3.0%
1585 : Manufacture of macaroni, noodles etc	0.3%	0.4%
1586 : Processing of tea and coffee	0.9%	0.7%
1587 : Manufacture of condiments and seasonings	1.0%	0.7%
1588 : Manufacture of homogenised food etc	0.4%	0.6%
1589 : Manufacture of other food products nec	6.5%	5.0%
1591 : Manufacture of alcoholic beverages	1.9%	0.2%
1592 : Production of ethyl alcohol	0.1%	0.2%
1593 : Manufacture of wines	0.8%	0.0%
1594 : Manufacture of cider/ other fruit wines	0.7%	0.2%
1595 : Manuf: other non-dist. fermen. beverages	0.2%	0.0%
1596 : Manufacture of beer	3.6%	3.0%
1597 : Manufacture of malt	0.7%	0.4%
1598 : Production of mineral waters/soft drinks	3.1%	3.9%

2.9 The Agri-Food partnership identified 71 abattoirs and cutting plants throughout Wales in June 1998. Furthermore the Milk Processing sector consists of:

- 8 large companies operating ten sites (accounting for 85% of milk production);

- 15 medium sized operators (including some ice cream businesses);
- over 70 small milk processing operations, including 30 or so ice cream makers and 23 specialist cheese makers.

Regional trends

2.10 In terms of the spread of firms throughout Wales, there are similar numbers in the North and West, with a larger proportion in the South East and a significantly lower proportion in Mid Wales **(Table 2.2).**

Table 2.2: Employers in the 'Manufacture of Food Products and Beverages' Sector

Region	%
N Wales	26
M Wales	16
SE Wales	34
W Wales	24

Source: AES 1998

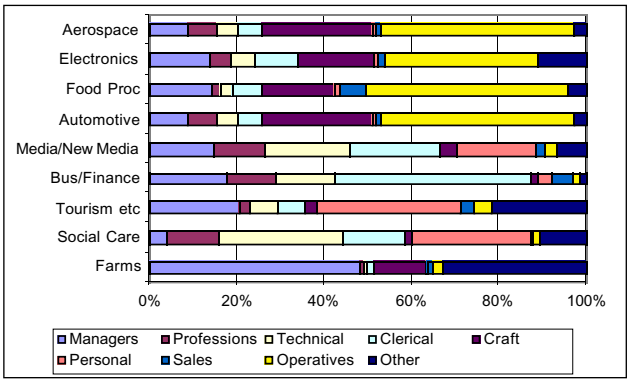
2.11 The Skills Audit of the Food Sector in North Wales identified the following key sub-sectors:

- production, processing and preserving of meat (33 companies);
- dairies, cheese making (39);
- manufacture of other food products (40).

Employees

2.12 Recent forecasts, by Business Strategies Limited (BSL), provide an estimate of the broad occupational profile of this and the other sectors studied by York Consulting. **Figure 2.1** below compares the profiles. The food processing sector has a large proportion of operatives and also a relatively large proportion of sales staff, perhaps reflecting the need to look outward and seek market opportunities.

Figure 2.1: Sector Occupational Profiles, 2000



Source: BSL sector forecasts, 2000

2.13 A paper presenting an overview of the sectors selected for the study, the relative scale of the sectors involved and some idea of their relative importance in Wales can be found at **Annex B**.

2.14 Analysis of BSL data indicates a total of 20,600 employees in the industry (Table 2.3). Major sub-sectors in employment terms are:

- manufacture of bread (17%);
- production of meat and poultry meat products (14%);
- operation of dairies and cheese making (11%);
- production and preserving poultry meat (10%);
- manufacture of biscuits (9%).

2.15 The spread of employment across the regions shows a much greater concentration in the South East and the North.

Table 2.3: Employees in the Manufacture of Food Products and Beverages Sector, 2000

Region	numbers	%
N Wales	7,700	37
M Wales	1,500	7
SE Wales	9,800	48
W Wales	1,600	8
Total	0,600	100

Source: BSL 2000

2.16 The sector employs greater proportions of part-time and female employees than the manufacturing sector generally. Between 1993 and 1998 these characteristics became even more pronounced with female employment increasing from 32% to 44% and part-time employment rising from 8% to 15% (AES). This is reinforced by the structure in North Wales where a third of employment is female, with half of this being part-time employed.

2.17 Sub-sectors with higher than average part-time and female employment include:

- manufacture of bread (17% part-time employment);
- manufacture of biscuits (24% part-time employment);
- manufacture of ice-cream (47% female employment);
- manufacture of biscuits (51% female employment).

2.18 Food and Drink NTO research suggests that the sector employs similar proportions of young people (16%) to other manufacturing industries (15%) although some sub sectors employ higher proportions:

- baking (30%);
- frozen food and ice cream (28%).

Output

2.19 The value of output in Wales is estimated at £597 million. Thus the Welsh food processing market represents approximately 3% of GDP (BSL/MORI).

Markets

2.20 The sector is relatively outward looking, with more overseas customers and competitors than average for other sectors in Wales. However, this also means greater exposure to international competition and the impact of exchange rates linked to the high value of sterling.

Sources of Change

2.21 A number of factors are currently influencing change in the industry, as described below.

Technological

2.22 The potential use of technological advances for efficiency and quality improvements in the treatment of food products is massive. However the need to be aware of consumer reactions is critical

to avoid food scares as has been seen recently. On the processing side the increasing use of machinery, computers and process control will reduce time and costs.

2.23 This will lead to a range of effects for different types of employer. Some companies view substitution of machinery for labour as not requiring additional skills among operatives. For others, the opposite applies, they see an opportunity to develop the skills of operatives further in areas such as quality assurance, identifying efficiency gains and multi-skilling.

Competitive

2.24 Any market linked to the supermarket and retail sectors will be subject to incredible pressures of competition. A need for continuous improvement and cost savings, while at the same time increasing quality standards, will force businesses to adopt the most efficient practices. Added to this the continued movement towards a global market for food will increase competition from outside the UK.

2.25 In some of the more commodity-based sub-sectors in food processing such as abattoirs, cutting plants and milk processing, competition has led to decreasing numbers of firms operating within Wales.

Regulatory

2.26 Regulation is an ever-growing issue in the food processing sector. Influenced by consumer pressure and EU directives, this will be a critical area which processors cannot afford to let slip. Access to information about legislative changes is a major problem for smaller companies who feel that they "just hear about new regulations by accident". Although they are often aware of commercial companies that provide such advice they consider this expensive, and feel that it should be the role of government to provide this information.

2.27 In addition the burden of audits carried out by buyers can be expensive and often repetitive as they all want to send in their own consultant at the expense of the supplier.

Welsh Brand

2.28 Opportunities exist through the work of the WDA Food Directive and the Welsh Agri-Food Partnership to develop a 'Welsh brand' which will contribute to a positive image of Welsh food production. The key features of the brand will be based on the Welsh countryside, healthy living, a green approach, and in time may develop a stronger organic aspect.

2.29 The degree to which employees value or utilise the Welsh connection in their promotion and marketing is mixed, with some using it very overtly, while others feel that high product quality is a more important factor.

Culture and Lifestyle

2.30 Consumers will become a bigger, more direct influence on producers, through market research, consumer groups and a growth in direct marketing.

2.31 There is likely to be an increasing differentiation of food consumption by occasion and social group. Patterns of consumption will become more personalised and product lifecycles are likely to be shorter. Further factors include:

- increasing moves towards healthy eating;
- increasing demand for fast, pre-processed meals.

2.32 Food chain sectors will increasingly be seen as a single entity with a total impact on the environment and on society. Issues of sustainable development will be important both in the UK and abroad. The organic food sector is rapidly developing; creating opportunities and requiring some specific knowledge and skills.

Inward Investment

2.33 There have been some recent successes in attracting companies to Wales and the sector remains a focus for WDA activity. However, this brings a specific set of issues:

- satisfying large demands for labour often in areas with limited history of the sector;
- meeting (high) expectations of investing companies in terms of transferable skills and high quality, sector-specific skills.

Forecasts for the future

2.34 Employment forecasts indicate a rise in employment between 2000 and 2010 of 2,800 employees. This 14% rise is in contrast to the 10% decline in employment expected across the UK. Forecasts in 1998 indicated Welsh output would grow slightly at 0.7% per annum. However it is likely that this forecast will have increased over the past two years.

2.35 The developing importance of the sector to the Welsh economy is further demonstrated by the forecast rise in employment quotient from 1.02 in 2000 to 1.29 in 2010.

2.36 The forecast increase in employment is not consistent across Wales, (**Table 2.4**), some specific differences include:

- West Wales will see a decline of 12% employment;
- North Wales is expected to significantly outgrow the Welsh average with an increase of 26% in employment terms;
- below average growth in employment is expected in South East Wales (10%) and to a lesser extent in Mid Wales (5%).

Table 2.4: Forecast Change of Workforce in the Food Processing Sector 2000-2001

Region	Employees	% Change
North Wales	9,600	26%
West Wales	1,600	-12%
Mid Wales	10,800	5%
South East Wales	1,400	10%
Wales	23,400	14%

Source: BSL Forecasts, 2000

Summary Sector SWOT Analysis	
Strengths	**Weaknesses**
Close proximity to primary production (for meat products)	Vulnerable to food scares and changing public attitudes
Extensive experience in some sub-sectors	Relatively low skilled workforce
Global and diverse markets	
Sectoral initiatives	
History of inward investment success	
Opportunities	**Threats**
Development of food chain approach	Increasing competitiveness nationally and internationally
'Welsh' brand	Environmental sustainability – pressure to reduce the environmental impacts of food processing
Improved use of technology	Regulation
New product/materials development	Higher costs associated with EU integration
Innovation e.g. ready meals	Supermarket pressure on suppliers
'Niche' markets	Continued strength of the pound
Interest in purchasing local/national produce	

3. Sectoral Skills Issues

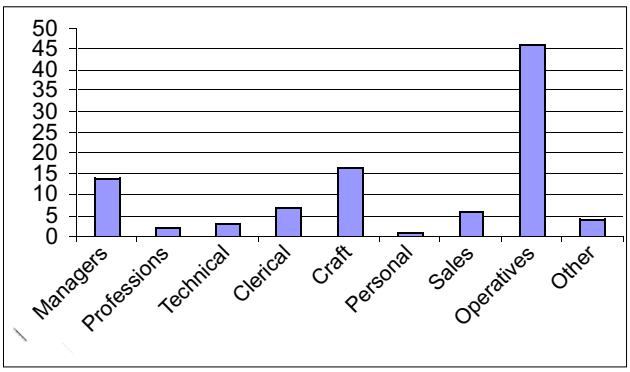
Main vocational skills in the sector

3.1 Future Skills Wales research shows that the Food Processing sector in Wales has higher than average proportions of the following occupations:

- managers and professional staff;
- craft occupations;
- other skilled manual;
- plant and machine operatives.

3.2 The importance of production operative occupations is confirmed by looking at the sector profile (**Figure 3.1**), where they account for 45% of the workforce across Wales.

Figure 3.1: Percentage employment by occupation in Food Processing, 2000



Source: BSL, 2000

3.3 The key occupational areas, representing over 75% of all employment in the sector, are identified in **Table 3.1**. The regional balance across the occupations is in line with what would be expected given their share of employment.

Table 3.1: Key Occupations in the Agriculture Sector, by region, 2000

Occupation	North	West	Mid	South East	Wales
Production Managers	656	127	110	851	1,744
Specialist Managers	164	28	32	243	467
Scientific Technicians	172	26	21	146	365
Metal Machining, Fitting and Instrument Making Trades	197	40	30	229	496
Food Preparation Trades	1,021	200	211	1,102	2,535
Sales Representatives	282	56	50	367	754
Food, Drink and Tobacco Process Operatives	1,956	450	424	2,898	5,728
Other Routine Process Operatives	804	196	166	905	2,071
Road Transport Operatives	452	87	75	488	1,101
74 other occupations, each with less than 300 employees across Wales	1,764	384	372	2,330	4,850
Total	**7,655**	**1,627**	**1,524**	**9,795**	**20,601**

Source: BSL Forecasts, 2000

3.4 According to work undertaken by the Foresight Panel **"the demand for job-specific skills is generally lower than for the softer business-oriented competencies… transferable skills are highly sought after"** (Foresight Project, 2000). Furthermore, a large proportion of workers in food manufacturing is relatively low skilled, with the perception amongst employers that many unskilled jobs do not currently require higher technical ability (FD NTO, 1999).

3.5 This view is re-enforced by employer perspectives: **"most of our work is low skilled, if we trained people they would want more money and might leave for better jobs"**.

3.6 Views of employees do not indicate a high demand for training. Most individuals interviewed as part of the North Wales Food Sector research felt they had the necessary skills to do their job.

3.7 Evidence from employers is that any training received by operatives/production staff tends to be informal and on-the-job. The main exception is for legislation requirements such as basic food hygiene training, which is certificated and takes place off-the-job.

3.8 The North Wales study identifies some specific skills fundamental to the jobs of many operatives:

- checking the quality of their own work;
- reporting quality problems to supervisors;
- keeping tools and machinery clean and hygienic;
- reporting tool or machinery problems to supervisors.

3.9 Furthermore, quality issues are increasingly devolved down the line to operational workers. This is in line with world class manufacturing approaches and raises the issue of multi-skilling within the sector.

Case Study: Lewis Pies

Lewis Pies is a family business employing 70 staff in Swansea. The company is primarily a producer, distributor and wholesaler of meat pies, pasties and vegetarian products. The company has expanded from being a predominantly local supplier, with current markets across the UK and throughout Wales. Recent expansion has involved taking on an additional business area relating to confectionery, which is presenting some new challenges.

All staff undergo internal training on basic food hygiene within three months of starting. This is delivered in an on-site learning centre. Aspects such as health and safety are generally covered 'on the line'. Environmental health, hazard analysis and quality issues are critical to the business as they are regularly audited by large suppliers. Failing these audits can have a profound affect on the business.

Recruitment of new production staff is often difficult. The major problem is finding people with the right attitude who are prepared for shiftwork which can often involve working on bank holidays. Other areas where they have found problems is finding experienced bakers and confectioners. A number of people interviewed had been to Neath college but had no experience of production machinery and working environments.

They do not use NVQs although they have considered a Modern Apprenticeship, but felt that it would be too expensive. However, they are aware of NVQs and some of their skilled staff such as bakers have gained the qualification at college prior to employment. Some senior staff are members of the Chartered Institute for Environmental Health, but experience of external training has been very mixed.

IT skills are not regarded as important for production staff as most machines have very simple keypads, although IT training has been provided for staff who work in the office on software covering personnel, accounts and shipping.

Limited contact has been made with West Wales TEC, although WDA funding has been accessed to develop an equal opportunities policy and they are currently participating in a Human Resource Management programme operated by the Language Export Centre at Swansea University. The programme involves a six month placement for a post graduate who will be working on Hazard Analysis and Quality Assurance. In addition they gain free places on a number of seminars relating to human resource management.

Case Study: St Merryn Food Group

St Merryn Food Group is a major meat processor based in the South West. The company has been established since 1987 and decided to locate a new state-of-the-art site in Merthyr Tydfil in the late 1990s. The first two, of three, site development phases have been completed (a Centrally Prepared Meat Unit, involving the packaging of retail ready fresh meat and a Boning Hall), with the third (a Slaughter Hall) due to come on line in late 2000. The decision to locate in Merthyr Tydfil ensured the company's close proximity to the motorway network (M4 and M50) and some of Tesco's distribution units.

The company has in excess of 200 beef, lamb and pork products and was the first UK producer to be granted an export license under the Date Based Export Scheme.

The plant operates shift work to stay open seven days a week, with approximately 650 staff covering the following occupations:

- Production
- Hygiene
- Warehouse staff
- Forklift truck operators
- Technical staff (quality assurance, quality control)
- Office staff (accounts, personnel etc)

Access to motivated and adaptable local labour for production operations have been problematic. A lack of critical mass in terms of food sector businesses locally means that awareness of basic food hygiene is low. However, the major problem relates to people being available for work: "15,000 people are on sickness benefit, compared with 1,500 registered unemployed". Experience with 18-22 years olds is that they are unreliable, therefore they are now focusing their attention on recruiting older workers in age groups 30-50 and 50 plus. Problems with recruitment have increased costs in terms of transport and advertising.

The main skills they are looking for are; commitment, ambition, social skills, common sense, and a responsible attitude. Issues such as numeracy, literacy and IT skills are not regarded as critical for operations staff. Most training is on-the-job focusing on specification issues and customer requirements.

Other areas of focus for internal training include line leaders and supervisors. Key areas include basic management, communication and motivation.

Case Study: Radnor Hills Mineral Water Company

Radnor Hills is a family run business, based in mid-Wales, where water is extracted from a mineral source on land farmed by the family. The ten year old company employs approximately 20 full time staff, with up to 20 casual staff during busy periods. Product areas cover mineral water, carbonated drinks and juice drinks, sold to wholesalers, distributors and multi-nationals such as McDonalds. The majority of sales are in the UK market, with 5% exported.

The highly competitive nature of the market means that continuous improvement and quality are critical issues. "Suppliers such as McDonalds demand very high standards". This has been maintained by Radnor Hills, demonstrated by McDonalds awarding them Quality Suppliers of the Year for 1999.

They have not experienced any particular recruitment problems. Recruitment of production operative staff is relatively easy due to the economic circumstances in Knighton. However, for more specialist roles they would have to consider a wider labour market area.

Training is recognised as critical to the development of the business. Areas that are currently important to the business include:

- supervisory skills;
- food hygiene;
- health and safety;
- forklift truck driving;
- world class team leadership;
- NVQ 3 in Management;
- risk assessment.

They currently have four modern apprentices working to NVQ level 3 in supervisory/management skills. In addition older workers are offered the same opportunities to develop their skills – two staff over 25 are being funded to work towards NVQs.

A package of training is discussed and agreed with a local training provider, Mid and North Wales Training Services. Radnor Hills is very satisfied with the availability of appropriate training locally. In addition Radnor Hills hope to become an approved City and Guilds assessment centre. The production manager currently has D32,33,34 units and will be developing other staff to assessor standards.

Case Study: South Caernarfon Creameries

South Caernarfon Creameries is a farmer co-operative, employing 130 people, based near to Pwllheli in rural Gwynedd. ver 175 farmers own the company, which has been established for over 60 years. As a co-operative they pay more for their raw materials, but benefit from a very strong relationship with their suppliers. The company supplies mostly to the UK, with 8% of their market in Wales and 16% exports.

Essentially the company collects milk from farms and produces cheese, liquid milk and milk products. Twenty franchised milk rounds are also operated. Critical issues for the business are managing costs and continuing to reduce wastage.

The skill element for people working in the company has increased considerably over the past 20 years. It is more technical, more machines are used and there are increasingly stringent hygiene and health regulations. The company has the Investors in People standard.

A training consultant who has been working with the company for a number of years supports the development of a training strategy, principally from results of annual appraisals. Training is mainly in the IT and food processing areas. IT training is required for some production staff and in the stores. For food processing training they tend to use providers rather than colleges for specialist courses such as cheese making, health and safety and manual handling. Food technology training is currently being accessed at a college in Nantwich, where they are able to specify exactly what is covered. The college is approximately 100 miles away and is not the most convenient location, but it is able to satisfy their requirements.

It is hoped that the Food Centre at Coleg Menai when fully operational may be able to make similar provision. The Centre also provides access to Research and Development facilities which the company is considering for product development.

NVQs are not generally used although they are currently talking to CELTEC about this. They have just started using NVQs for forklift truck training but generally are concerned that NVQs will not prove appropriate for the business.

Future Skills Demand

3.10 The changes in employment (Table 3.2) differ across the range of occupations:

- product managers (27%), specialist managers (30%) and scientific technician (52%) will experience greater than average increases;
- process operations will increase at a rate just above the average for the sector;
- all other occupations will generally increase but at a lower than average rate.

3.11 These changes are significant as they indicate the increased reliance on management of scientific roles as the sector develops more mass production techniques.

3.12 Lower than average increases in food preparation trades confirm the expected greater reliance on

machinery as opposed to labour. Similarly lower increases in fitting and instrument trades, and road transport operatives indicate greater contracting out of those areas to give greater specialisation to the core activity of food processing.

3.13 Changes in occupations across the regions are as would be expected given the speed of employment.

Table 3.2: Forecast Change in Key Occupations in the Food Processing Sector, 2000-2010

Occupation	North West	Mid	South East	Wales
Production Managers	40% 0%	18%	22%	27%
Specialist Managers	44% 0%	20%	25%	30%
Scientific Technicians	65% 17%	41%	43%	52%
Stores and Despatch, Clerks, Storekeepers	28% -9%	7%	12%	16%
Metal Machining, Fitting and Instrument Making Trades	19% -16%	-1%	5%	9%
Food Preparation Trades	5% -19%	-4%	2%	5%
Sales Representatives	17% -17%	-2%	3%	6%
Food, Drink and Tobacco Process Operatives	29% -9%	7%	1%	15%
Other Routine Process Operatives	22% -15%	3%	7%	11%
Road Transport Operatives	14% -20%	-5%	-1%	3%
74 other occupations,	24% -14%	3%	8%	12%
Total	**26% -12%**	**5%**	**10%**	**14%**

Source: BSL Forecasts, 2000

3.14 Future skills demand is expected in two key areas:

- **skills of professionals in food hygiene and food technology-related occupations;**
- **skills of production staff linked to the increasing use of technology.**

3.15 The skills of hygiene related professional staff will become more important as regulatory requirements rise in priority. There will also be a requirement for wider groups of employees to be aware of hygiene related issues. The application of science and technology to achieve operational efficiency will require greater practical knowledge.

3.16 This is starting to be seen in companies such as Radnor Hills where developing skills to national standards is regarded as critical to the success of the business.

3.17 Production staff, as mentioned previously, are relatively low skilled which when compared with their more highly trained international counterparts threatens to make the industry appear vulnerable (FD NTO 2000). Particular skills areas which are relevant to production staff include literacy, numeracy and skills linked to the use of computers or computerised machinery. However, there is a body of opinion which disagrees with the idea that this is an imminent reality.

Vocational Skills Future Supply

Qualifications

3.17 The proportion of employees qualified above level 2 is significantly lower than for all industries, 16% compared with 32.8% (**Table 3.3**). This demonstrates a fairly low skilled sector. Anecdotal evidence and the results of the North Wales Skills Audit of the sector suggest that the proportion with no qualifications may be slightly higher than indicated in the table.

Table 3.3: Employee Highest Qualifications (NVQ Equivalent), Wales

	All industries	Food & Drink production
Level 5	4.6	-
Level 4	18.7	7.8
Level 3	9.5	8.2
Level 2	29.9	36.3
Level 1	23.2	38.3
No Qualifications	12.5	7.6

Source: LFS, 2000

3.19 A degree of latent non-accredited skills exist within the employees of the sector according to the North Wales study. It was also identified that opportunities for multiskilling and internal promotion may exist.

3.20 Particular qualifications held include:

- Food Hygiene (69% of North Wales employees);
- Health and Safety (25%);
- HACCPS (Hazard Analysis at Critical Control Points) (40%);
- Other food hygiene or health and safety training or education (40%);
- Other formal qualifications and certificates (33%);

3.21 A conclusion drawn in the North Wales study was that Health and Safety and HACCPs training appeared to be given a lower priority compared with Food Hygiene training suggesting concerns regarding the commitment "to providing workers with the basic competence to do the job safely" (Prism, 1998). Furthermore those not having had the training tended to be newer (or younger) staff.

3.22 There are a number of issues relating to qualifications in the sector:

- there is a large range of qualifications, but no clear structured framework, this is currently being addressed by the QCA/ACCAC Sector Advisory Group. Their aim is to develop a more coherent framework which can be easily understood by employers;
- in addition there is concern regarding the level of understanding by employers of the parity between courses or their relevance to business, suggesting a need for clearer, more customer focussed marketing by training providers;
- there is evidence from the Food and Drink NTO that many companies are using NVQs which are not Food and Drink Manufacturing Operations qualifications.

The Supply of Manufacturing and Engineering Qualifications in Wales

3.23 It is far from straightforward to produce meaningful figures on the provision of skills in relation to sector skills needs. However it is at least possible to look at the provision of qualifications in the Welsh FE and HE sectors, and to examine the profile of these in relation to overall demand in the manufacturing sector in Wales.

3.24 The latest comprehensive figures on Welsh provision are published by the Wales Funding Councils and relate to the academic year 1997/98. In other words they describe provision which will generate skills and qualifications which typically became available to the labour market from late 1998 and (in the case of students in the earlier years of three year courses) in 1999 and 2000. Figures for 1998/99 should be published in late 2000.

3.25 The 1997/98 figures for all of Wales show that within Further Education, around one per cent of students were pursuing qualifications relating to Manufacturing. This represents some 5,441 students from a total of 398,044 enrolled at Welsh FE institutions. (These figures and those below are based on both full and part-time student enrolments).

3.26 In addition to this, approximately 4 per cent of FE students (16,543) aimed for Engineering qualifications.

3.27 These proportions are broadly reflected in the figures for the Welsh regions (**Table 3.4**). There are slight variations: Manufacturing qualifications, for example, are more strongly represented in West Wales, and Engineering in the North, perhaps reflecting the emphasis of local demand.

3.28 As for the rest of the UK, Wales displays **a strong gender bias** to this enrolment pattern. Of those aiming for Manufacturing qualifications, 83% were male (4,529). Of those seeking Engineering qualifications, almost 94% (15,506) were male. This contrasts, for example, with the case of IT qualifications, where males represented just under 43% of the students enrolled.

3.29 For 1997/98 and the succeeding years, this total of 21,984 students enrolled will form the main input (from Further Education) of new skills and qualifications which are specific to the manufacturing sectors. This input will be complemented by entries to manufacturing of FE students with less sector specific qualifications and skills in, for example, sales and marketing, science and mathematics, or IT.

3.30 In Higher Education, there are no comparable figures for Manufacturing related subjects, but student enrolments are recorded for Engineering and Technology. The total enrolled for these qualifications in Welsh Higher Education Institutions in 1997/98 was 7,800. These enrolments are concentrated in institutions in the South-East and South-West of Wales (**Table 3.5**). The main exception is North East Wales Institute, with 857 enrolments, though Bangor also has 233 enrolments in these subject areas.

3.31 Again, there is a very pronounced gender bias in terms of enrolments - 92% of students in this subject area are male. Only 1.6% of female students are enrolled in these subjects, as against 15% of male students.

3.32 In 1997/98 a total of 990 first degrees were awarded in Engineering and Technology by Welsh Higher Education Institutions (HEIs), mostly by full time and sandwich study. A further 776 other undergraduate qualifications were awarded, the majority via part-time study, giving a total of 1,766 awards at undergraduate level. Postgraduate qualifications were awarded in 256 cases.

Table 3.5: Engineering & Technology Enrolments, 1997/98

Institution HEI	Enrolled in Engineering &Technology	Total Enrolled at HEI
University of Glamorgan	2,014	15,148
University of Wales Aberystwyth	0	9,743
University of Wales Bangor	233	10,017
Cardiff University	1,394	20,294
University of Wales Lampeter	0	2,313
University of Wales Swansea	1,323	13,085
University Wales Coll. Of Medicine	0	3,208
University Wales Institute Cardiff	415	7,853
University Wales College Newport	976	7,757
North East Wales Institute	857	4,952
Swansea Inst. of Higher Ed	588	4,272
Trinity College Carmarthen	0	1,590
Welsh College of Music & Drama	0	599
Total for Welsh HEIs	**7,800**	**100,831**

3.33 There are no comparable published figures for **awards** by subject area from FE. Estimation of qualifications awarded per annum in Manufacturing and Engineering would need to take account of the average length of courses and the retention and attainment rates for these subjects. From the 22,000 students enrolled, for example, assuming two year courses, a retention rate of 83% (the average for all subjects), and an attainment rate of 60% (actual rates vary between 49% and 70% by qualification type), we can construct a rule-of-thumb estimate for annual output of these qualifications by FE. This would be 11,000 x 0.83 x 0.6, or 5,480 awards.

Table 3.4: FE Enrolments in Manufacturing/Engineering by Region 1997/98

	South East	West	Mid	North	Totals
Manufacturing	1,697 1%	2,721 3%	2,721 3%	2,721 3%	2,721 3%
Engineering	7,204 4%	3,728 4%	824 3%	4,787 5%	16,543 4%
Totals	**8,901**	**6,449**	**998**	**5,636**	**21,984**

Source: BSL Forecasts, 2000

3.34 Taken with the 2,000 outputs from HE, this gives a figure of around **7,500** qualifications in manufacturing, engineering and technology subjects per annum at all levels. A complication is the relative lack of data on student destinations. Especially for Higher Education awards, students receiving the relevant qualifications may leave Wales before entering employment. This may be partly balanced by inflows of Welsh students who have completed studies at other UK universities. Therefore this is in many ways a rough estimate, but it does provide some basis for comparison with the size of the manufacturing sectors now and in future.

3.35 To this figure we also need to add qualifications obtained via non FEFCW funded provision – primarily vocational qualifications gained in sixth forms, and those gained via study with employers and private sector training providers, funded by the Welsh TECs. The yearly cohort size for pupils aged 18 or over leaving Welsh schools is around 12,000 (Digest of Welsh Statistics, 1999, National Assembly for Wales/Government Statistical Service, Table 3.2). However most of these will leave with non-vocational qualifications and skills; no figures for vocational awards were available at the time of reporting.

3.36 We do not have a comprehensive set of figures for qualifications gained, by vocational subject area, via TEC funded provision. Figures provided by Mid Wales TEC and South East Wales TEC suggest that a total of around 1,000 students per annum enter manufacturing related vocational courses in these two regions (at Modern Apprentice and National Traineeship level: adult training not included). Given the preponderance of the population in the South-East, one might assume that not more than another 1,000 per annum enter across West and North Wales. This gives a maximum estimate of **2,000** per annum for possible outputs of learners with manufacturing specific vocational skills and awards from TEC provision.

3.37 Taking all the key sources of supply, therefore, we arrive at a rough estimate of **9,500** for the annual supply of new people with manufacturing specific skills and qualifications.

Manufacturing Sector Employment Demand

3.38 We can compare these estimates for annual supply with the BSL forecast for job opportunities in Wales, included in the original Future Skills Wales report. **Table 3.6** shows gross job opportunities per annum in occupations which are closely related to the qualification subject areas analysed above (The Future Skills Needs of Wales, All Wales Report, Table 6.8). These figures take into account the effects of expansion or contraction in these occupations as well as retirement or movement out of the occupations due to occupational mobility.

3.39 The table shows that the forecast for new entrants needed in these largely manufacturing-specific occupations was **18,200** per annum – almost double our estimate of the annual supply of people with directly relevant and newly acquired training and qualifications.

Table 3.6: Forecast of Who Will Take Up Job Opportunities in Wales, 1997-2007

(000s per annum)

Occupation	Gross Job Opportunities p.a	People already working in Wales	Others (new entrants)
Skilled Engineering	3.7	1.8	1.9
Other Skilled Trades	7.9	3.7	4.3
Industrial Operatives	14.4	6.8	7.5
Drivers/Machine Operatives	5.6	1.1	4.5
Total	**31.6**	**13.4**	**18.2**

Source: FSW All Wales Report, BSL 1998 (ONS and LFS data)

Manufacturing Specific Skills/Qualifications: Supply versus Demand

3.40 Given that our estimate of an annual supply of 9,500 is roughly correct, this implies that the remaining 8,700 new entrants to these occupations per annum will fall into one of the following categories:

- people with no training or qualifications;
- people with training or qualifications not in relevant vocational areas;
- people with relevant training and qualifications from outside Wales.

3.41 To this extent, one might speak of a **mismatch between supply and demand** for vocational manufacturing skills in Wales. However, more qualitative evidence from employers suggests that they are often concerned about the quality of skills on offer, rather than the numbers of people applying with qualifications in the right area and at the right level. We must be cautious, therefore, in drawing conclusions about the need to change the balance of provision, based on the estimates presented here.

3.42 There is little in the analysis to suggest that the relationship between supply and demand will be significantly different in different Welsh regions. It does suggest, however, that the supply of people with manufacturing qualifications is strongly biased towards males – a situation which is unlikely to assist in the elimination of existing gender imbalances in the manufacturing sector workforce as a whole. In particular it would seem that workers with relevant qualifications – and therefore a better chance of progressing within the workforce – are much more likely to be male.

3.43 This attempt to analyse the fit between supply and demand has indicated some of the difficulties arising from limited current availability of provision data, and some of the complexity inherent in this task. While such an analysis can probably not provide a complete and accurate basis for provision planning (which, anyway, will be strongly affected by student demand), it does serve to indicate the relative scales of provision and occupational and sector needs. In the case of manufacturing, it provides food for thought about the balance of provision.

Vocational Provision

3.44 The following broad qualification areas are currently available in the manufacturing framework:

- Craft baking (level 2-3);
- Food and Drink Manufacturing Operations (levels 1-4);
- Meat/poultry processing/butchery/plant operations (levels 1-4).

3.45 Many colleges and training providers deliver training for the food processing sector, although there remain concerns among employers that they are not always able to provide the specialist skills required and in a flexible format. There are three centres of excellence for the food sector across Wales, their challenge will be to address some of these perceived or real limitations in provision:

- Horeb in Mid Wales;
- UWIC in South Wales;
- Coleg Menai in North Wales.

Skills Issues

Skills shortages

3.46 Across the UK companies find it difficult to recruit the right calibre of staff especially in food technology occupations (FD NTO 1999). The main cause of these shortages was identified as a lack of applicants with the right skills. Within Wales companies say they are less likely to experience hard to fill vacancies, but of those who did, plant and machine operations and sales occupations were the biggest problems. These occupations are often lower paid and given the tight labour market employers may need to reconsider factors such as pay and conditions.

3.47 Anecdotal evidence from case studies and consultations with experts highlights difficulties in recruiting people with craft skills and management/supervisory skills.

3.48 With respect to craft skills one employer described a lack of workplace experience by most applicants she interviewed. **"They had been trained in how to make products with their hands, which is important to understand. However, they have no experience of operating production machinery in workplace environments".**

3.48 The same employer did also concede that they are unable to take on work-based apprentices themselves due to costs. This is the usual Catch-22 situation, especially for young people.

3.50 Results of skills shortages were identified as causing a loss of business to competitors. Given that the sector competes outside of Wales this may become a critical factor for Wales in maintaining a sectoral strength in the longer term.

3.51 Graduate-level skills are of concern to the industry throughout the UK. The numbers of students on food science-related degree courses have been falling over a number of years. The difficulty of recruiting students into food science is thought to be caused by a combination of poor image and low starting salaries.

Skills Gaps

3.52 The extent of skills gaps within the Welsh Food Processing sector is slightly lower (17%) than for all sectors (19%) according to employers. The occupations where skills gaps are most likely to be experienced are:

- science and engineering associate professions;
- skilled technicians;
- industrial plant and machine operators.

3.53 For operatives, the skills areas tend to be generic skills such as communication, motivation and punctuality. These issues have been highlighted in the North Wales study and by some consultees.

Training activity

3.54 A slightly higher number of businesses said that they had funded training (63%) compared with the figure for all sectors (57%), however there was some disagreement between employers and employees views on the availability of opportunities to develop skills relevant to their current job, with fewer employees feeling that they were given adequate opportunity.

3.55 ccupations where training was most likely to be received include:

- managers and administrators;
- clerical staff;
- skilled engineering and other skilled staff;
- plant and machine operators.

3.56 Professionals and associate professional such as technicians received proportionately less off-the-job training.

3.57 Across Great Britain 72% of Food and Drink sites that trained in the past year stated that they did not provide NVQ related training. While the remaining 28% represent the larger organisations covering 49% of employees, there are clearly opportunities to expand this further. The analysis in North Wales concluded that "training tends to be reactive rather than proactive", with a suggestion that wider implementation of liP might change strategic attitudes to human resource development.

Management Skills

3.58 The importance of management skills has been mentioned in case study interviews and also referenced in the Agri-Food strategic plans. Employers express some difficulty in recruiting people in management and supervisory roles, particularly in more rural areas. This may be related to some of the issues identified earlier, such as:

- lower numbers of graduates entering the sector;
- perceptions regarding the food processing industry;
- lack of vision on the part of individuals and employers to recognise the transferability of good quality management skills.

3.59 Further research is required to understand the specific skills needed.

Summary SWOT on skills issues	
Strengths	**Weaknesses**
Skills shortages/gaps not having significant effects on industry currently Strong traditions of food processing An existing qualification system that is being used by some companies	Large proportions of unskilled labour Further global competition may put pressure on skills base Confusion regarding qualification framework and equivalencies Employers are reluctant to train beyond legal requirements
Opportunities	**Threats**
Diverse and competitive sector provides time to develop skills for the future Evidence of latent skills which could be developed	Shortages of key staff at higher levels may limit potential of some companies

4. Action on Skills

Current developments

4.1 A number of recent initiatives are working to address issues in the food sector throughout Wales.

4.2 The creation of the **WDA Food Directorate** is primarily concerned with business development and wider sector initiatives. heir work is driven by "adding value to primary produce".

4.3 The WDA's strategy for the sector explicitly encompasses the activities of the agriculture sector in the interests of drawing the two areas together, with a number of services targeted to assist business development. However, while some of these activities relate to training they are predominantly about business support.

4.4 The **Agri-Food Partnership** is bringing together key players in the sector. Three task groups cover the food chain from agriculture through to food processing for their specific sub-sector:

- lamb and beef;
- dairy;
- organic.

4.5 In many ways the separation of the food sector from agriculture for the purposes of this study is contrary to the general policy direction. However, from a skills perspective there are some important differences in terms of priority areas which would justify this distinction.

4.6 The relative importance of the sector to the Welsh economy, its forecast expansion and the initiative drive being generated through the WDA Food Directorate means that availability of skilled labour will be important particularly in the short to medium term.

4.7 However, a clear focus on skills issues for the sector does not appear to exist. The primary NTO relating to the sector, the Food and Drink NTO, is not actively involved in existing developments and it is difficult to see which existing organisation would be responsible for developing a skills action plan for the sector across Wales. The CETW would be the most obvious candidate to generate a catalytic effect among interested parties.

5. Conclusions

5.1 The food processing sector is important to the Welsh economy, with output forecast to increase. However, it is fast changing and if companies are to be successful they will need to be flexible, adaptable and responsive to customer needs.

5.2 The sector employs high levels of low skilled people, which appears to suit many employers, particularly in the short term, demonstrated by their reluctance to train and develop operational staff. However, in terms of longer term sustainability only some employers are truly investing in their people.

5.3 This shows evidence of a low skills equilibrium within the sector. Some skills shortages exist such as craft skills in bakery and confectionery but these are having a limited effect on the sector as a whole. However, some geographical areas are experiencing problems e.g. parts of North Wales and South Wales. Skills gaps exist for some parts of the sector, particularly in terms of generic skills such as communication and motivational skills.

5.4 Particular skills areas regarded as being important in the future include:

- professional/technician skills;
- food hygiene and food technology skills;
- management/supervisory skills;
- basic IT skills for production staff.

5.5 Improvements to the NVQ framework are being undertaken in response to evidence of employers using non-Food and Drink Manufacturing Operations NVQs – there is need for more flexibility such as the use of RVQs. In addition, there is evidence that NVQs are considered by employers to be:

- expensive to implement;
- not relevant.

5.6 These employer perceptions regarding NVQs in the sector would suggest a need for stronger promotion of their benefits and examples of good practice. Perhaps there cold be a clearer strategy for promotion of NVQs to the sector across Wales.

5.7 The image of the sector is thought to be a barrier for young people considering it for a career. Traditionally pay has been lower. The major impact is being seen at graduate level with fewer undergraduates taking courses. These are people who would often move quickly into management roles.

Strategy Development

5.8 The absence of an NTO presence in Wales for the food processing sector is probably a key factor in limiting the coherence of policy development on skills and training issues. While serious attention is being given to the economic and business development issues a clear skills strategy will be required to ensure Wales can provide the human resources required. There is a clear role for the CETW to lead on the development of such a strategy. However, success will be limited if the CETW acts in isolation, therefore, an effective partnership of interested and representative organisations will be crucial.

Further Research

5.9 Across Wales as a whole the food processing sector has not been previously identified for research purposes. While a detailed study has been carried out in North Wales there are some clear differences in sector structure across the regions which limits the generalisation of findings. This leaves some gaps in understanding around skills and training. For example, there is some evidence, backed up by anecdotal findings that employers are reluctant to invest in training. However, this may be due, in part, to limited exploration. Anecdotal evidence also points to limited flexibility among Welsh colleges and providers of training. However, firm conclusions cannot be drawn here without further exploration of this issue.

Recommendations

5.10 The key recommendations for the sector are drawn out below and are summarised in **Table 5.1**.

Table 5.1 Summary of Recommendations

Theme No:	Rec. No	Action	Timescale	Key Partners
1	1a	Establish a forum for the consideration of skills issues across the sector in Wales	From 2000	CETW/WDA/ NTOs
2	2a	Develop a Food Processing sector skills strategy	2001	CETW/NTOs and others
3	3a	Promotion of flexibility and relevance of the NVQ framework to employers	2001	CETW/NTOs/ FE/providers
	3b	Encouraging employers to embrace company-wide strategies for skills development	2001	CETW/NTOs/ Business Connect
	3c	Review of training provision against employer needs	2001	NAW/CETW/ NTOs/FE providers
4	4a	Sector specific primary research in terms of employer attitudes to training and the response of the education and training sector to its needs	From 2000	NAW/Skills Unit

5.11 **Establishment of a forum for the consideration of skills issues** relevant to the food processing sector. Ideally this would be driven by industry but an initial push will be required by the CETW in collaboration with the relevant NTOs.

5.12 Development of a coherent **skills strategy for the sector** based on consultation and involvement of employer organisations and public agencies. Ideally this would be co-ordinated by the group described above. Although there is potential for overlap with NTO Sector Workforce Development Strategies, the extent of Wales-specific coverage is likely to warrant a strategy dedicated to the Welsh sector.

5.13 Further elements that would be required to fit within a skills strategy include:

- **promotion of flexibility and relevance of the NVQ framework** to employers within the sector;
- **encouraging employers to embrace company-wide strategies for skills development** through programmes such as IiP;
- **review of training provision against employer needs.**

5.14 **Sector specific primary research** would help to further understand this growing sector, particularly in terms of employer attitudes to training and the response of the education and training sector to its needs.

Annex A: Bibliography

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Conwy Future Skills Survey annex b: Welsh sectors in context

Annex B: Welsh Sectors in Context

A Brief Overview of the Relative Size and Importance of Welsh Sectors

This paper presents an overview of the sectors selected for study within the Future Skills Wales Sectoral Skills project. It aims to give the relative scale of the sectors involved and some idea of their relative importance in Wales.

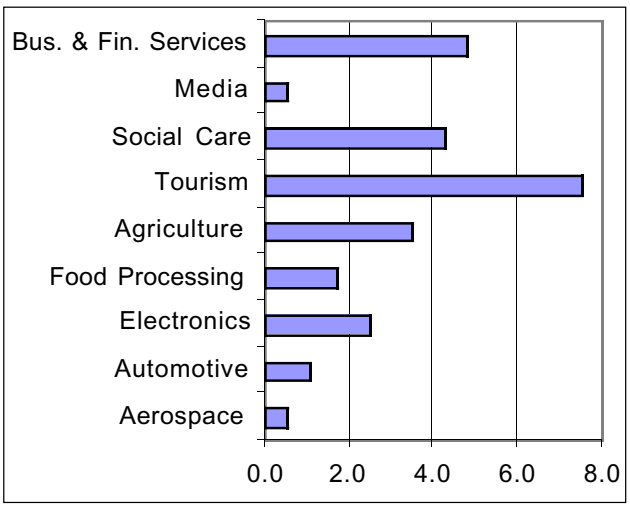
The data on employment used in this section is taken from the latest estimates from Business Strategies Limited (August 2000). Data on business units are taken from NOMIS. Some of the values given (for example for the number of businesses within Wales, or the size of the workforce, for a given sector) will not agree with estimates or calculations from other sources. This is due to differences in the detailed definitions of sectors, or in methods of estimation. However by using one source in this discussion, consistency in measurement or estimation is established, and better comparability is ensured. This is appropriate since here we are concerned with the relative sizes of sectors and their workforces, as much as with absolute numbers.

Sector Size: Workforce Numbers

Figure B.1 shows the employment figures for each of the sectors (employees and self employed) as a percentage of the total for Wales. By this measure Tourism, Leisure and Hospitality is the largest of the selected sectors, followed by Business and Financial Services, Social Care, and Agriculture and Farm Enterprises.

Together, the nine sectors selected for study in this project provide work (either as employees or in self employment) for around 26% of people working in Wales. This indicates the scope and potential importance of the exercise for the understanding of skills issues in Wales and the formulation of policy responses. (The rest of employment in Wales is accounted for by a large public sector, including government, education and public sector healthcare, and by the primary, construction, transport and distribution sectors, including retail).

Figure B.1: Employment as a percentage of Welsh Employment: by Sector

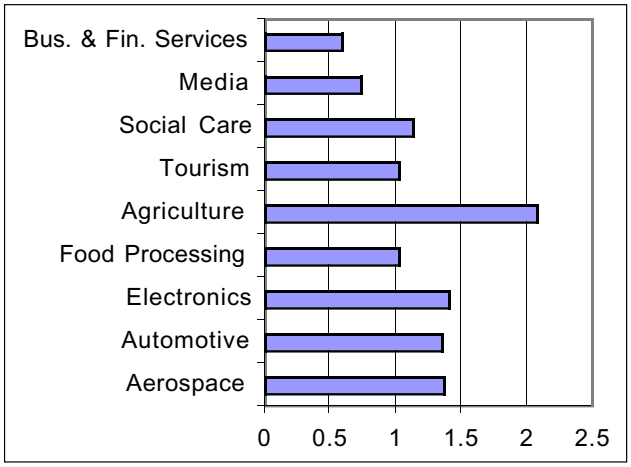


Source: BSL FSW Sector Forecast

Employment Location Quotients

Figure B.2 provides a different view of the sectors, in terms of their importance within Wales relative to the UK as a whole. It does this by comparing the employment location quotients for the sectors. Employment location quotients are used to express the degree to which employment in a given sector is located in a selected region. To calculate a location quotient, an average percentage is first calculated for all employment in the region. Using the BSL estimates, for example, one finds that 4.3% of all employment in the UK is located in Wales.

Figure B.2: Employment Location Quotients for Wales: by Sector



Source: BSL FSW Sector Forecast

Therefore, if employment in a given sector is distributed evenly over all regions of the UK, one would expect 4.3% of its employment to be in Wales. The sector's Welsh employment percentage, at 4.3%, will be equivalent to the average employment percentage for Wales.

To calculate the employment location quotient, the sector's percentage is expressed as a ratio of the Welsh average percentage. For example if a sector has 5.2% of UK employment, the employment location quotient will be the ratio of 5.2 to 4.3, or 1.2. Quotients of more than 1 therefore indicate over-representation of employment in the Welsh sector relative to the UK as a whole. Quotients of around 1 indicate that employment in the sector in Wales is much as one would expect given the overall distribution of employment across the UK; and quotients below 1 indicates that the sector in Wales is relatively under-represented in terms of employment.

Figure B.2 shows that the strongest Welsh sectors, in these terms, are Agriculture, plus three of the manufacturing subsectors – Automotive, Aerospace and Electronics Manufacturing. UK employment is relatively concentrated in Wales for these sectors, despite the fact that some of them are small in relation to Welsh employment as a whole (Figure B.1). The Social Care sector also shows employment strength, while Food Processing and Tourism, Leisure and Hospitality are approximately in line with the Welsh share of UK employment.

Media and New Media, and the Business and Financial Services sector, are both under-represented in Wales in employment terms, with employment location quotients well below 1.

Sector Size: Number of Businesses

An alternative method of comparing sectors is by the number of business units in each sector. This can be less straightforward than the employment location quotient method used above. Here we are using data on business

units in Wales and for Great Britain as a whole, provided in NOMIS. The main difficulty is the definition of a business unit within the published figures. This does not make a distinction between separate businesses, and locations representing branches or sites within one business. It also omits small 'one-person' business sites without formal employees.

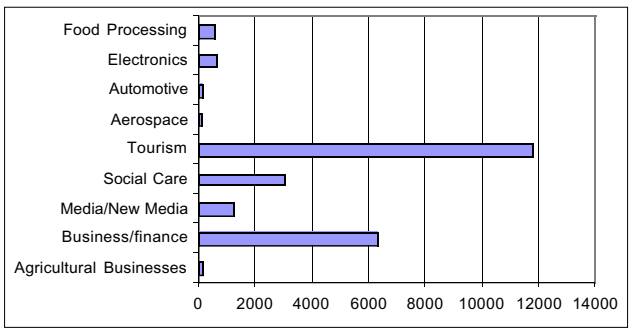
This means, in particular, that these figures are apt to be misleading as applied to the agricultural sector, since they represent agricultural businesses with employees, rather than all farms. They therefore greatly under-represent the number of agricultural enterprises in Wales. Although the business unit figures for agriculture have been included in the following analysis, they are therefore **not a reliable guide to agricultural sites in Wales.**

Figure B.3 shows the sectors studied in terms of the number of business units in Wales. It shows that, by this measure, the Tourism, Leisure and Hospitality sector is by some way the largest. According to the NOMIS figures, this sector contains 12.4% of all Welsh business units, - around 1 in every 8.

A further 6.6% of Welsh business units are in the Business and Finance sector, and 3.2% in Social Care. The next largest sector, Media and New Media, includes a large number of businesses classified under 'Other computer related services'. Many of these may be 'New Media' businesses within our study definition. Others, however, may be providing services which are not relevant within this definition. As explained above, the figures for agriculture do not represent the farming sector accurately.

In total the sectors covered by the study account for over 25% of business units located in Wales.

Figure B.3: Number of Business Units – Selected Sectors



Source: NOMIS

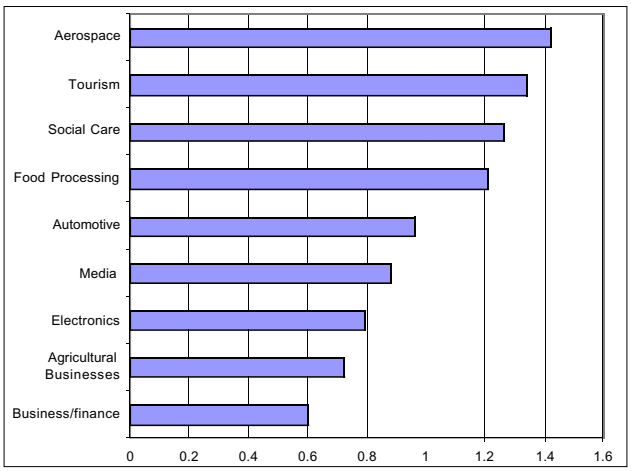
Site Location Quotients of Welsh Sectors

Figure B.4 shows the site location quotients calculated for the sectors covered by this study. These are calculated as for the employment location quotients used earlier, but using business unit figures instead of employment numbers. Four of the sectors have quotients greater than 1. In other words, these sectors are 'over-represented' in Wales relative to what one might expect taking Great Britain as a whole. These quotients represent a degree of concentration of business units in these sectors within Wales. These sectors are Aerospace, Tourism, Hospitality and Leisure, Social Care, and Food Processing.

The Automotive Manufacturing sector in Wales, with a location quotient of 0.96, is close to the size one might expect (in terms of numbers of business units). In other words, Wales has 'a fair share' of business units in this sector, according to these NOMIS figures. At the other end of the scale, the Business and Finance sector, with a site location quotient of only 0.6, is under-represented within Wales – confirming the findings of the first Future Skills Wales study in 1998.

Again, the quotient for 'Agricultural Businesses' reflects the limitations of the method, although it may indicate that Welsh farms and agricultural businesses tend to be smaller than the average for Great Britain, inasmuch as fewer of them are large enough to be included as business units.

Figure B.4: Site Location Quotients



Source: NOMIS

Selection of Sectors for the Study

The above discussion sheds light on the reasons for selecting this set of nine sectors. The reasons vary, but can be simply expressed as follows (some sectors are selected for more than one reason):

- sectors with significant proportions of Welsh businesses and/or workforce (Tourism, Business and Finance, Social Care);
- sectors which are important components of manufacturing industry within Wales (Aerospace, Electronics, Automotive, Food Processing);
- sectors which are relatively strong in Wales (Aerospace, Tourism, Social Care, Food Processing);
- sectors which are relatively weak in Wales, but are important for future growth (Business and Finance, Media/New Media);
- sectors with particular significance for Welsh culture and communities (Agriculture, Media/New Media).

The Manufacturing Sector

Manufacturing has been more important in the Welsh economy than for the UK as a whole. In 1998 employment in manufacturing (including but not limited to the sectors studied in this project) accounted for 19.7% of Welsh employment. This contrasted with 16.6% for the UK – a difference of 3.4 percentage points. Projections for 2004 show manufacturing employment as a lower percentage of employment in both cases – 17.3% in Wales, against 14% for the UK. Although the percentages are smaller, the difference between Wales and the UK, at 3.3 percentage points, remains almost unaffected. (DfEE, Skillsbase/IER, June 2000).

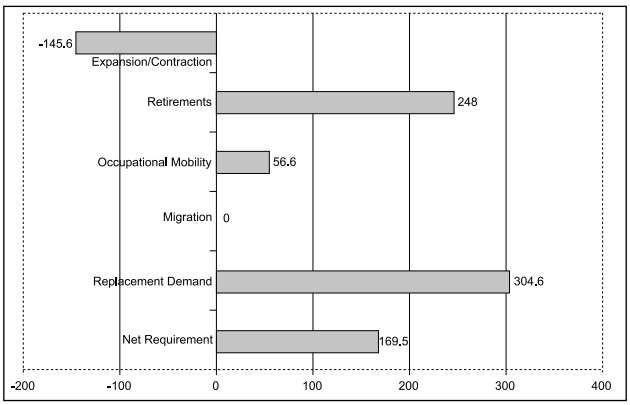
Although these projections show a fairly significant decline in the size of the manufacturing sector as a percentage of overall Welsh employment, the absolute numbers involved change less significantly. This is due to a projected rise in the total numbers employed in Wales over the period 1998-2004. Thus, the figure of 227,000 for those employed in manufacturing in 1998, becomes 205,000 in 2004 – a decline of 22,000, or just under ten percent.

When considering the future demand for skills it is important to keep in mind that, as illustrated above, relative decline in the manufacturing sector does not imply lack of future demand for manufacturing skills. This was one of the insights behind the original Future Skills Wales project methodology.

This point is further illustrated by the replacement demand projections for occupations associated with manufacturing. **Figure B.5** shows the replacement demand projection for skilled metal and electrical trades (SOC 52) for the period 1998-2004, across the UK. In this period, 145,600 jobs in these trades are expected to disappear – part of the overall decline in employment in manufacturing noted above. However, losses from these trades are projected consisting of 248,000 from retirement, and 56,600 from occupational mobility (movement into other jobs), a total of 304,600 workers to be replaced. This more than offsets the effects of declining employment, leaving a net requirement figure of 169,500. This represents the requirement for new, trained entrants to these trades in these six years. These may be new entrants to the workforce, or existing workers who have upgraded or added to their skills and qualifications.

Based on the assumption that Wales would require about 4.5% of this number (this being the approximate size of the Welsh workforce relative to that of the UK), this implies a net requirement for some 7,600 skilled metal and electrical tradespeople over this period for Wales.

Figure B.5: Replacement Demand: Skilled Metal and Electrical Trades, 1998-2004 (UK)



Source: DfEE Skillsbase/IER

Notes

Acknowledgements

Wynfford James – Food Directorate, WDA
Kevin Thomas – WDA
Huw Brodie – Agriculture Department National Assembly for Wales
Mick Barlow – Coleg Menai
Sara Marshall – ACCAC
Rebecca Styles – Food and Drink NTO
Steve Bibby – TEC South East Wales
Gareth Evans – South Caernarfon Creameries
Pat Lewis – Lewis Pies
Denise Murphy – St Merryn Foods
Viv Farmer – Radnorhills Mineral Water Company

The views presented in this report are those of York Consulting Limited.
Philip Wilson, August 2000.