

**KEY SECTORS IN THE
GLOUCESTERSHIRE
ECONOMY**

Final Report

Key Sectors in the Gloucestershire Economy

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Executive Summary

This report presents the findings of secondary research into employment in key sectors in Gloucestershire, undertaken for Gloucestershire First and Gloucestershire Learning and Skills Council.

The research consisted of desk-based collection and analysis of secondary labour market information on the key sectors in Gloucestershire, an employment forecasting exercise, a review of national sector-based literature, and interviews with local economic development officers and other key contacts.

Demographics

The labour force of Gloucestershire is around 290 thousand, and is expected to grow by about 800 people per year between now and 2010.

There is a strong manufacturing sector in the county, which accounts for 20 per cent of total employment, compared with the regional and national proportions of 15 per cent. Some service sectors such as financial services are also important employers in the county.

Unemployment in Gloucestershire is below the national rate and has been falling in recent years, although not as fast as in the country as a whole. The current rate of 2.3 per cent represents near full employment.

Key sectors

Current employment

The following sectors are over-represented in Gloucestershire compared to their proportion of total employment in the country as a whole:

- Medical/precision engineering
- Mechanical engineering
- Rubber and plastics

- Office machinery/computers
- Wood/paper/publishing
- Financial services
- Food supply chain
- Computing services

Employment in the following sectors in Gloucestershire is close to the national average:

- Education
- Hotels and catering
- Public sector/defence
- Automotive
- Distribution
- Aerospace/other transport

The following sectors are under-represented in Gloucestershire:

- Business Services
- Health
- Construction.

Recent trends in employment

An examination of trends in employees in employment over the period 1995 to 2000 shows that:

- Employment in the food supply chain sector has fallen in recent years, locally, regionally and nationally
- Among the manufacturing sectors in Gloucestershire, employment has fallen in rubber and plastics, office machinery/computer manufacturing, and aerospace.
- Employment has increased in the wood/paper/publishing sector, medical and precision engineering, and automotive sectors in Gloucestershire in recent years.
- The construction sector in Gloucestershire has declined in recent years, while regionally and nationally the sector has expanded in employment terms.
- Employment has increased in all of the service sectors in Gloucestershire, except in local government and defence, and in health.
- The largest increase was in computing services where employment doubled between 1995 and 2000, while employment in education increased by 40 per cent over this period.

Future employment projections

The key points about likely future employment changes among the key sectors in Gloucestershire are:

- Nationally and regionally, employment in all manufacturing sectors except wood, paper, printing and publishing is expected to decline.
- In Gloucestershire, employment in wood, paper, printing and publishing, and medical and precision engineering may increase to 2005.
- Employment in the mechanical engineering and automotive sector may remain stable.
- Employment in construction in Gloucestershire is likely to increase considerably.
- Employment in all service sectors in Gloucestershire is expected to increase, except in local government and defence.
- The largest increases in employment among the service sectors are expected in computing services and business services.

Next steps

In our view the best way to take the analysis further is to undertake individual studies into those key sectors which Gloucestershire LSC and the Gloucestershire First partners think warrant most attention.

We present three possible options for the range and scope of such sector studies:

- A short, mostly secondary-based report taking the analysis presented here a stage further, maybe by looking at likely future occupational and skills changes for the sector, and undertaking a more in-depth review of sector-specific literature.
- Taking the option above a stage further by including a small element of primary research, among employers and training providers. Telephone interviews or small focus groups could be used to obtain employer views on the key issues affecting the sector and possible responses. A telephone or email survey of education and training providers could be used to obtain information on local training provision for the sector, and provider views on key priorities for action.
- Finally, large-scale surveys of employers in the specific sectors could be undertaken, to obtain reliable information on: the markets for their products and services; employment levels and composition, and recent changes in employment; extent and nature of training undertaken; and the extent of recruitment difficulties, skills shortages, skills gaps.

Additional secondary data sources could be analysed, such as data on FE participation from the Responsive College Unit, which is held by Gloucestershire LSC; and the Census 2001 data when it becomes available. Sector studies could also examine further transport, premises and telecoms issues for each sector, which have only been touched upon in this report.

1. Introduction

This report presents the findings of secondary research into employment in key sectors in Gloucestershire, undertaken for Gloucestershire First and Gloucestershire Learning & Skills Council.

The project specification states that:

'As with all areas, the economy of Gloucestershire is affected by global and national issues as well as local developments. The partners who work together under the umbrella of Gloucestershire First need to understand better the degree of risk associated with the current portfolio of industries in the county.'

The results of the research therefore will be used to inform the discussions of the Economic Strategy Advisory Group for the county.

1.1 Methodology

There were a number of strands to the research:

- Desk-based analysis of employment and labour market information on Gloucestershire, the South West, and Great Britain.
- Literature review of sectoral reports on the key sectors, examining skills and demographic issues.
- Forecasting exercises to predict likely future employment changes in Gloucestershire.
- Interviews with key local contacts within Gloucestershire to obtain local views on issues affecting the key sectors and any likely future developments.

1.2 Key sectors

The research specification listed the key sectors that were to be examined during the research, some of which were regional key sectors identified by the South West Regional Development Agency, and some were sub-regional sectors of greatest significance to Gloucestershire and identified by Gloucestershire First.

The sub-regional key sectors were:

- Medical devices and precision engineering
- Automotive
- Other manufacturing sectors:
 - Wood and paper manufacturing, printing and publishing
 - Rubber and plastics
- Construction
- Retail and Wholesale Distribution
- Finance & Business Services
- Local Government and Defence
- Education
- Health

The regional key sectors identified for the South West were:

- Food supply chain (food and drink manufacturing, and agriculture)
- Aerospace
- Tourism
- Information and communications technology.

A further emerging sector of environmental technology was identified, although this sector was not examined during the research because of difficulties matching it onto the Standard Industrial Classification (SIC), and data confidentiality issues concerning obtaining information for detailed sub-sectors that may comprise the sector.

The definitions of the sectors are given in the respective chapters. Most of the definitions are based on 2-digit level SIC Divisions, as confidentiality restrictions of the 1947 Statistics of Trade Act would arise if we were to examine data at a more detailed industrial level, *eg* 3-digit level SIC.

1.3 Structure of the report

The structure of the report is as follows. In Chapter 2 we provide demographic background information for Gloucestershire to set the context of the examination of the key sectors. Chapter 3 describes the information that has been obtained for the key sectors, and presents tables and figures showing information on the key sectors. There then follow Chapters looking at each of the key sectors in turn. The final Chapter draws together the key issues and presents suggestions for further research.

2. Demographic Characteristics of Gloucestershire

This Chapter provides information on the demographics of Gloucestershire, to provide a backdrop against which the information on the key sectors can be considered. The Chapter covers:

- Size and characteristics of the labour force, *eg* gender, age, ethnicity
- Population and labour force projections
- Employment characteristics, *eg* employment by industry and by occupation
- Qualifications of the workforce.

2.1 Demographics and labour force

In 2000 there were 337,500 people of working age in Gloucestershire, of whom 275,800 were in employment (employees and self-employed), and 288,400 were economically active, that is in employment, or seeking employment (Table 2.1). Thus the working age employment rate was 81.7 per cent, which compares with 78.4 per cent in the South West, and 74.1 per cent in the UK. There were 12,600 people out of work and actively seeking work (ILO unemployed), which gives an ILO unemployment rate of 4.2 per cent, slightly above the South West rate of 4.0 per cent, but well below the national rate of 5.3 per cent.

Men make up 54 per cent of the employed population of working age, and 65 per cent of the ILO unemployed in Gloucestershire. The ILO unemployment rate for men is higher than that for women, at 5.1 per cent compared to 3.2 per cent for women.

Table 2.1: Labour Force summary, Gloucestershire, 2000

	All 16+	Economically active	In employment	ILO unemployed	Economically inactive	Economic activity rate	Employment rate	ILO unemployment rate	Economic inactivity rate
Aged 16 and over									
All	444,400	300,500	287,900	12,600	143,800	67.6	64.8	4.2	32.4
Male	217,700	162,300	154,100	8,200	55,400	74.6	70.8	5.1	25.4
Female	226,700	138,200	133,800	4,400	88,500	61.0	59.0	3.2	39.0
Working age (16-59/64)									
All	337,500	288,400	275,800	12,600	49,100	85.5	81.7	4.4	14.5
Male	178,200	158,400	150,200	8,200	19,800	88.9	84.3	5.2	11.1
Female	159,300	130,000	125,700	4,400	29,300	81.6	78.9	3.4	18.4

Source: Labour Force Survey LADB incorporating the Local LFS for England

Table 2.2 shows the age breakdown of those in employment in Gloucestershire in 2000, and for the South West and Great Britain as comparison. Overall, 13 per cent of those in employment were aged under 25, 60 per cent were aged 25 to 49, and 27 per cent were aged 50 and over. The age profile of the Gloucestershire workforce is slightly older than that of the South West workforce, and considerably older than the national workforce – nationally, 14 per cent of those in employment are aged under 25, and only 24 per cent are aged 50 and over.

Table 2.2: Employment by age, Gloucestershire, 2000

	All workers	%	South West %	Great Britain %
16-19	18,500	6.4	5.8	5.4
20-24	18,800	6.5	7.7	8.7
25-49	173,000	60.1	60.0	62.2
50+	77,600	27.0	26.5	23.8
Working age (16-59/64)	275,800	95.8	96.3	97.0
All 16+	287,900	100.0	100.0	100.0

Source: Labour Force Survey LADB incorporating the Local LFS for England

The minority ethnic proportion of the population resident in Gloucestershire in 2000 was 1.6 per cent. This compares with 1.5 per cent in the South West and 6.1 per cent in the UK.

2.2 Labour force projections

The labour force in Gloucestershire, that is people in work and those seeking work, is projected to increase from 301,100 in 2001, to 308,300 in 2010 (CE/IER LEFM estimates). This represents an increase of 800 people per year.

Although the total labour force is expected to increase, there are different patterns among the different age groups. In particular, the numbers aged under 35 years will decrease, and there will be a large increase in the numbers aged 45 and over. Thus in 1998, 39 per cent of the labour force was aged under 35 and 36 per cent aged 45 and over, but in 2010 it is expected that under 35 year olds will make up 37 per cent of the total, and 42 per cent will be aged 45 and over. However, there is expected to be an increase in the youngest age group, those aged 16 to 24 years, over the next decade.

2.3 Employment characteristics

In 2000 there were 240,000 employees in employment in Gloucestershire, and Table 2.3 shows the breakdown by industry, with regional and national comparisons.

Manufacturing is still an important sector in Gloucestershire, accounting for 20 per cent of total employment, compared with the regional and national proportions of 15 per cent. Among the service sectors, financial and business services are over-represented in Gloucestershire compared with the regional average, but not compared to the national picture.

Table 2.3: Employees in employment in Gloucestershire, 2000

	All workers	%	South West %	Great Britain %
Agriculture and fishing	3,556	1.5	1.5	1.0
Energy and water	2,637	1.1	0.7	0.7
Manufacturing	48,366	20.2	15.0	15.1
Construction	7,377	3.1	4.3	4.5
Distribution, hotels and restaurants	58,013	24.2	26.2	23.9
Transport and communications	10,448	4.4	4.8	6.1
Financial and business services	46,054	19.2	16.3	19.7
Public admin., education and health	54,216	22.6	26.5	24.1
Other services	9,040	3.8	4.5	5.0
Total	239,707	100.0	100.0	100.0

Source: Annual Business Inquiry, 2000

Table 2.4 shows the breakdown of both employees and the self-employed by occupation, with the proportions for the South West and for the country as a whole. The largest group in Gloucestershire is managers and administrators, who number 52,700 and make up 18.4 per cent of total employment, compared with 16.2 per cent in both the regional and national pictures. Clerical and secretarial occupations, craft and skilled manual

Table 2.4: Employment by occupation in Gloucestershire, 2000

	All workers	%	South West %	Great Britain %
Managers and administrators	52,700	18.4	16.2	16.2
Professional occupations	29,700	10.4	10.0	11.0
Associate professional occupations	29,600	10.3	10.4	10.7
Clerical and secretarial occupations	39,900	13.9	14.3	14.7
Craft and related occupations	31,800	11.1	12.7	11.8
Personal, protective occupations	29,300	10.2	11.2	11.0
Sales occupations	27,800	9.7	9.3	8.3
Plant and machine operatives	24,700	8.6	8.1	8.7
Other occupations	21,400	7.5	7.8	7.5
All in employment	286,900	100.0	100.0	100.0

Source: Labour Force Survey LADB incorporating the Local LFS for England

occupations, and personal service occupations are all under-represented in Gloucestershire, compared with the proportions in the South West and in the country as a whole.

2.4 Qualifications

The proportions of the working age population in Gloucestershire in 2000 who have attained qualifications at the different NVQ levels (or equivalents) are shown in Table 2.5. The Gloucestershire workforce is more qualified than the regional and national averages; 45.2 per cent of the population had attained NVQ level 3 or above in Gloucestershire, compared with 42.9 per cent in the South West, and 41.3 per cent in the UK.

Table 2.5: Working-age population by highest qualification (NVQ level) and gender, Gloucestershire, 2000

	All %	Male %	Female %
Level 4 equivalent and above	27.4	27.9	26.9
Level 3 equivalent	17.8	21.0	14.1
Level 2 equivalent	20.7	20.3	21.2
Level 1 equivalent	15.9	13.1	19.0
Other qualifications	7.0	7.7	6.3
No qualifications	11.1	10.0	12.4

Source: Labour Force Survey LADB incorporating the Local LFS for England

Men are more likely to be qualified to a higher level than are women in Gloucestershire, with 49 per cent of men qualified to NVQ level 3 or above compared with 41 per cent of women.

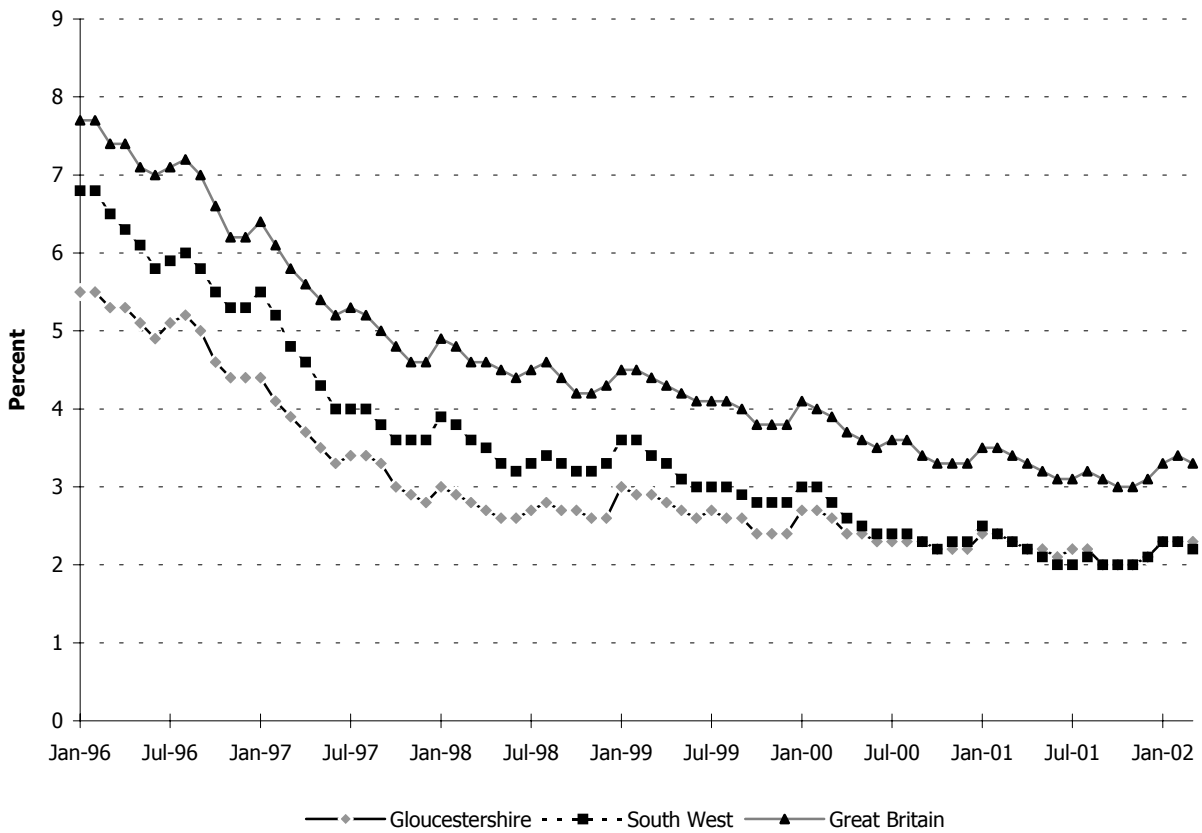
2.5 Unemployment

In March 2002 there were 6,600 people out of work and claiming benefits in Gloucestershire. This represents an unemployment rate of 2.3 per cent, close to the South West rate of 2.2 per cent, and below the national rate of 3.3 per cent. An unemployment rate of close to two represents near full employment.

The recent trend in unemployment in Gloucestershire, the South West, and Great Britain is shown in Figure 2.1. In 1996, the unemployment rate in Gloucestershire was around two percentage points below the national figure, and around one percentage point below the regional rate. However, in the economic recovery since then, unemployment in Gloucestershire has not fallen as fast as in the region or the country as a whole, so that in March 2002 the rate in Gloucestershire was the same as the regional rate, and only one percentage point lower than the national rate. The slower than average decrease in unemployment

in Gloucestershire is partly due to the large manufacturing sector in the county. Manufacturing continues to face difficulties across the country.

Figure 2.1: Unemployment rates, 1996-2002



Source: Office for National Statistics

3. Key Sectors in Gloucestershire

In this Chapter we outline the structure of the subsequent Chapters examining each of the key sectors, and present the data on which the analysis of the key sectors is based.

3.1 Current employment in the key sectors

Table 3.1 shows the number of employees in employment working in the key sectors in Gloucestershire, and the proportion of total employment accounted for by the sectors. The industrial breakdown of employment in the South West and the country as a whole is shown for comparison. Location quotients are presented for the comparisons with the South West and Great Britain. Location quotients express the proportion of employment in a sector in one area (Gloucestershire) relative to a benchmark area (South West or Great Britain). An LQ score of two, means that the percentage share of total employment accounted for by the sector is twice the regional or national average. Scores of above one indicate a regional specialisation.

Table 3.1 shows that:

- Most of the manufacturing sectors are over-represented in Gloucestershire compared to the South West and Great Britain. The exception is the aerospace sector which is under-represented in comparison with the South West.
- The construction sector is under-represented in Gloucestershire, compared with the regional and national averages.
- Distribution, tourism, public administration and defence, and education are under-represented in Gloucestershire compared with the regional picture.
- Financial business services and computing services are over-represented compared with the South West.
- The health sector is under-represented in Gloucestershire.

Table 3.1: Employees in employment in key sectors in Gloucestershire, and Location Quotients compared to regional and national benchmarks, 2000

	Gloucestershire		South West		Great Britain	
	No.	%	%	Reg. LQ	%	Nat. LQ
Food supply chain	8,303	3.46	3.47	1.00	2.89	1.20
Mining and extraction	395	0.16	0.29	0.56	0.29	0.58
Textiles	795	0.33	0.51	0.65	1.00	0.33
Wood/paper/publishing	6,992	2.92	2.07	1.41	2.10	1.39
Coke and chemicals	2,132	0.89	0.61	1.47	1.05	0.85
Rubber and plastics	3,987	1.66	0.97	1.71	0.90	1.86
Other non-metallic	1,225	0.51	0.43	1.18	0.52	0.99
Basic metals	987	0.41	0.19	2.12	0.45	0.92
Mechanical engineering	13,372	5.58	2.74	2.03	2.92	1.91
Office machinery/computers	*	0.36	0.18	1.95	0.20	1.76
Electrical engineering	2,890	1.21	1.51	0.80	1.17	1.03
Medical/precision engineering	4,516	1.88	0.76	2.47	0.52	3.59
Automotive	2,088	0.87	0.65	1.35	0.86	1.01
Aerospace/other transport	1,526	0.64	1.64	0.39	0.66	0.96
Furniture <i>etc.</i>	2,095	0.87	0.73	1.20	0.79	1.10
Recycling/energy and water	2,412	1.01	0.47	2.15	0.45	2.24
Construction	7,376	3.08	4.35	0.71	4.48	0.69
Distribution	42,006	17.52	18.82	0.93	17.52	1.00
Hotels and catering	16,006	6.68	7.41	0.90	6.39	1.05
Transport and communications	10,446	4.36	4.85	0.90	6.07	0.72
Financial services	12,526	5.23	4.08	1.28	4.24	1.23
real estate/renting	4,146	1.73	1.90	0.91	2.03	0.85
Computing	5,349	2.23	1.51	1.48	1.95	1.14
Research and development	506	0.21	0.22	0.95	0.37	0.56
Business Services	23,522	9.81	8.61	1.14	11.11	0.88
Public sector/defence	13,060	5.45	6.07	0.90	5.35	1.02
Education	20,647	8.61	8.99	0.96	8.23	1.05
Health	20,508	8.56	11.42	0.75	10.48	0.82
Other services	9,040	3.77	4.55	0.83	5.01	0.75
Total	239,704	100.00	100.00		100.00	

*Note: Key sectors in Bold; * indicates data confidential according to 1947 Statistics of Trade Act; Location Quotients express the % of employment in a sector in Gloucestershire relative to a benchmark area (SW, or GB), a LQ score of 2, means that the % share of total employment accounted for by the sector is twice the national (GB) average, therefore scores of above 1 indicate a sub-regional specialisation.*

Source: Annual Business Inquiry, 2000

Table A.1 in the Appendix shows the industrial breakdown of employment for each of the local authority districts within Gloucestershire.

3.2 Recent trends in employment

Table 3.2 shows the changes in employment between 1995 and 2000 in the key sectors in Gloucestershire, the South West, and Great Britain. The table shows that:

- Employment in the food supply chain sector has fallen in recent years, locally, regionally and nationally.
- Among the manufacturing sectors in Gloucestershire, employment has fallen in rubber and plastics, office machinery/computer manufacturing, and aerospace.
- Employment has increased in the wood/paper/publishing sector, medical and precision engineering, and automotive sectors in Gloucestershire in recent years.
- The construction sector in Gloucestershire has declined in recent years, while regionally and nationally the sector has expanded in employment terms.
- Employment has increased in all of the service sectors in Gloucestershire, except in local government and defence, and in health.

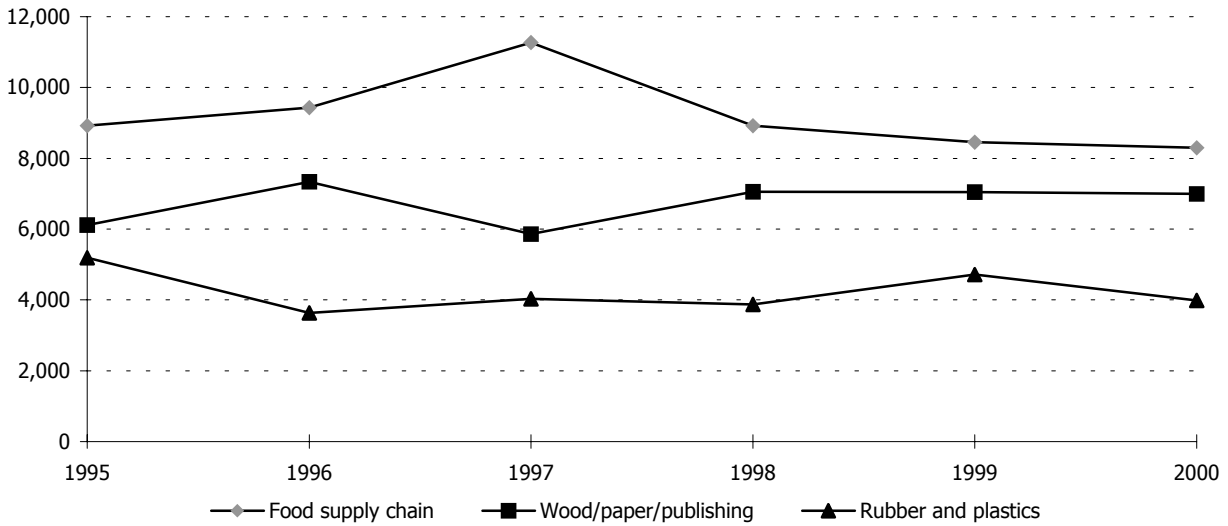
Table 3.2: Percentage change in employment in key sectors, 1995-2000

	Gloucestershire %	South West %	Great Britain %
Food supply chain	-7.0	-11.1	-2.3
Wood/paper/publishing	14.4	2.7	-1.1
Rubber and plastics	-23.2	-6.1	-1.9
Mechanical engineering	2.9	-5.6	-8.6
Office machinery/computers	-51.5	-5.3	14.6
Medical/precision engineering	59.9	5.1	-2.7
Automotive	34.4	11.3	-2.1
Aerospace/other transport	-28.5	24.6	13.8
Construction	-4.8	26.3	25.0
Distribution	14.5	14.6	11.9
Hotels and catering	8.5	5.4	13.3
Financial services	19.0	-4.5	4.2
Computing	100.8	77.5	107.5
Business Services	18.2	8.6	22.3
Public sector/defence	-13.0	0.3	-0.1
Education	39.4	31.8	23.5
Health	-3.9	1.6	5.4

Source: Annual Business Inquiry

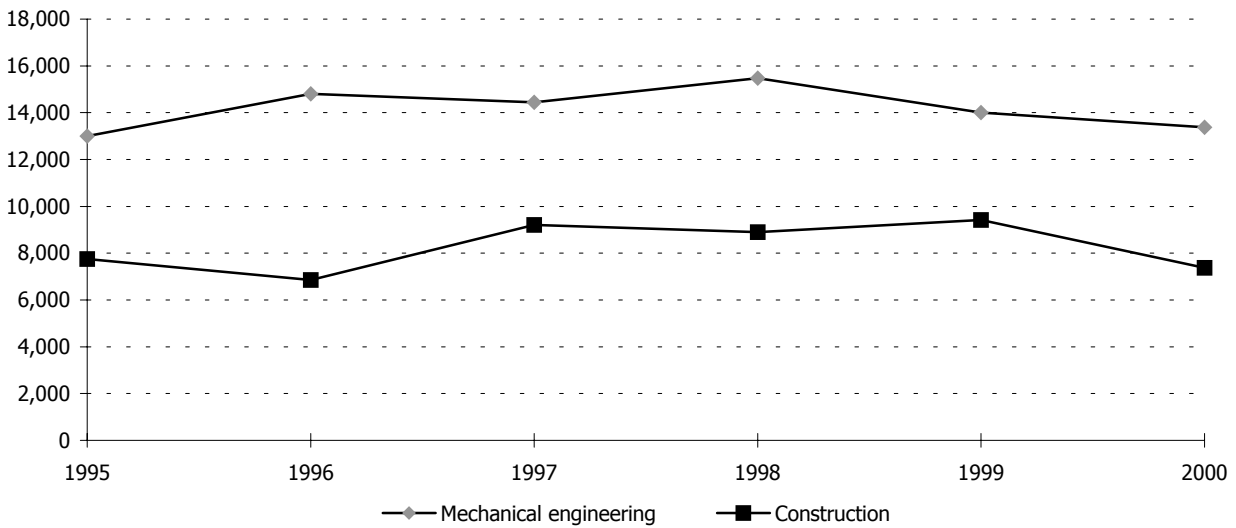
Figures 3.1 to 3.6 show the actual employment trends in the key sectors in Gloucestershire over the period 1995 to 2000, and Tables A.2 to A.4 show employment numbers in the key sectors from 1995 to 2000 for Gloucestershire, the South West, and Great Britain.

Figure 3.1: Recent trends in employment in key sectors in Gloucestershire, 1995-2000



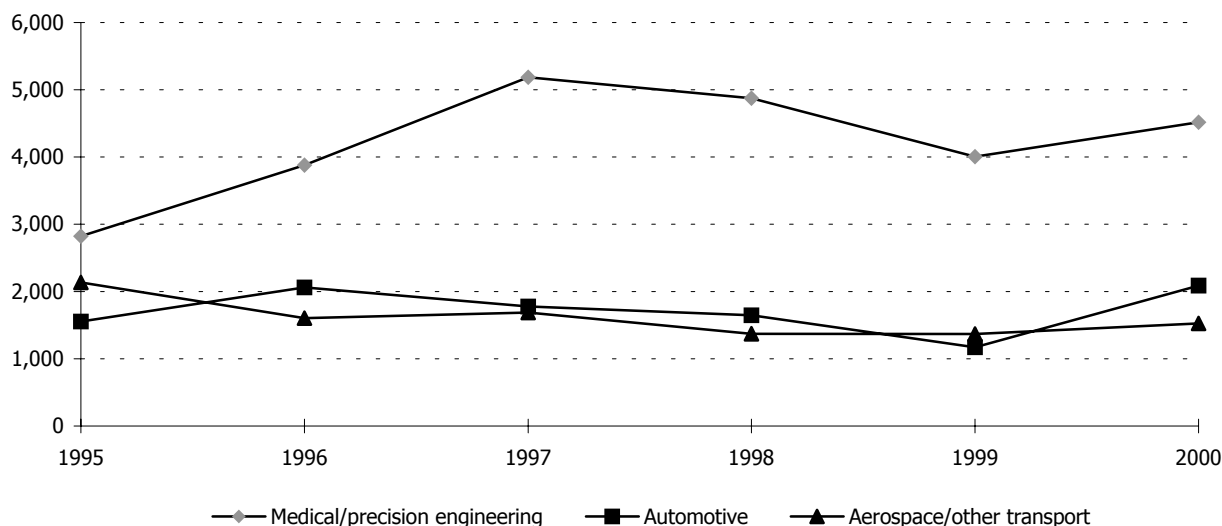
Source: Annual Business Inquiry, Annual Employment Survey

Figure 3.2: Recent trends in employment in key sectors in Gloucestershire, 1995-2000



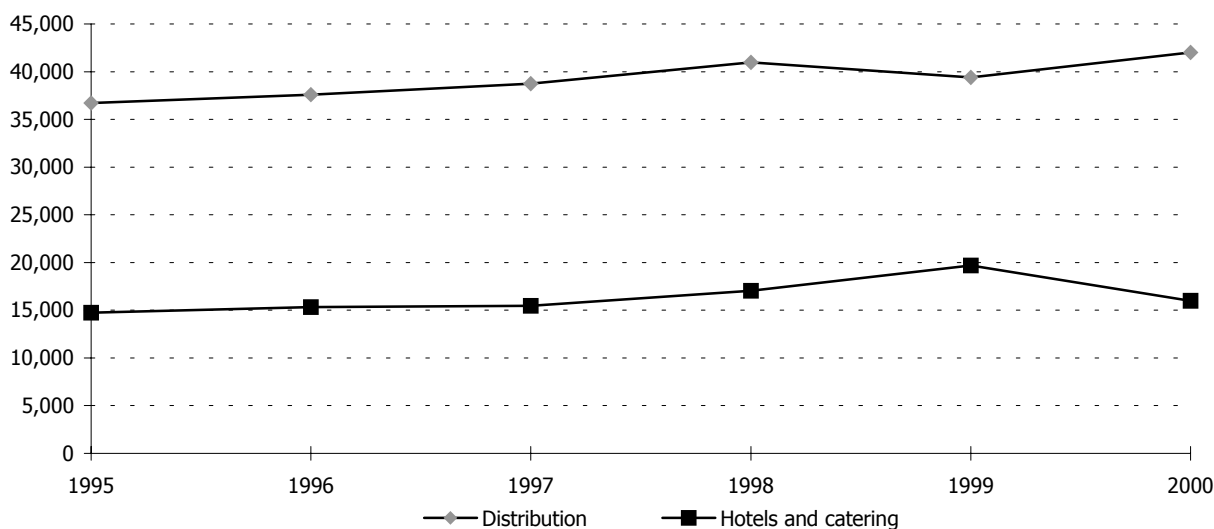
Source: Annual Business Inquiry, Annual Employment Survey

Figure 3.3: Recent trends in employment in key sectors in Gloucestershire, 1995-2000



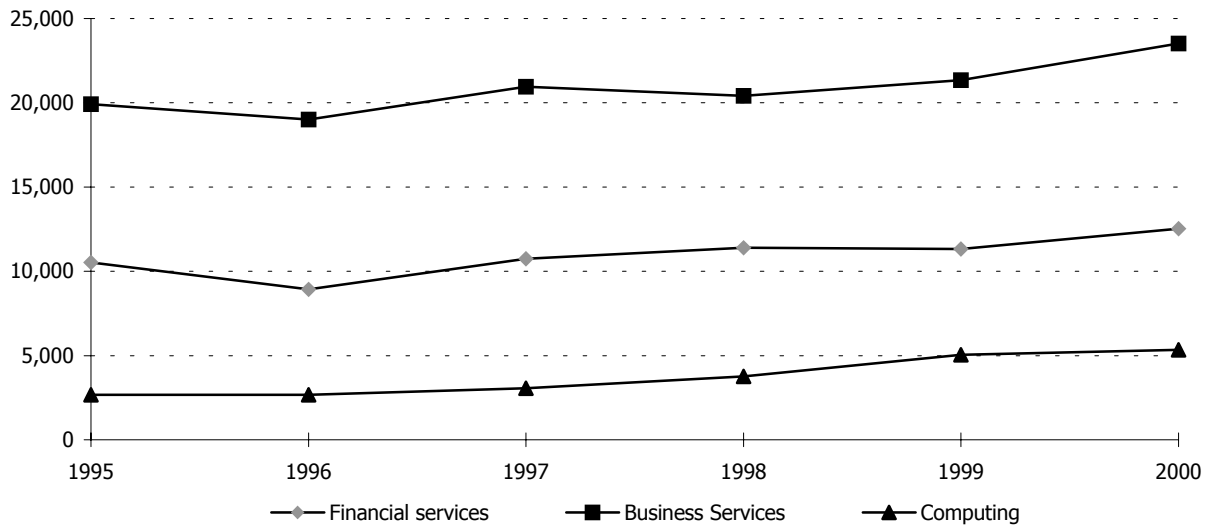
Source: Annual Business Inquiry, Annual Employment Survey

Figure 3.4: Recent trends in employment in key sectors in Gloucestershire, 1995-2000



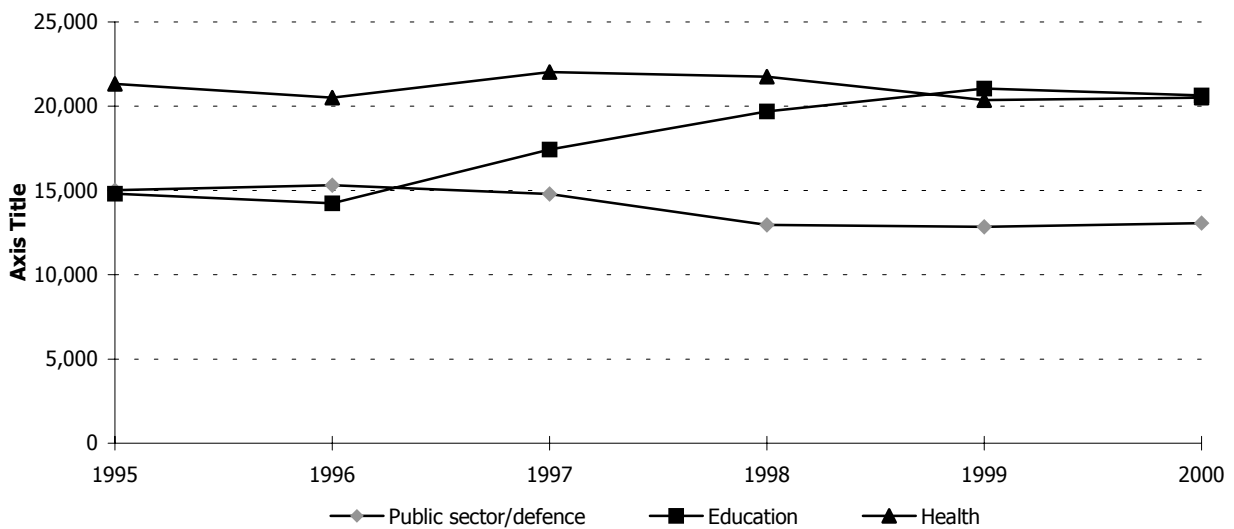
Source: Annual Business Inquiry, Annual Employment Survey

Figure 3.5: Recent trends in employment in key sectors in Gloucestershire, 1995-2000



Source: Annual Business Inquiry, Annual Employment Survey

Figure 3.6: Recent trends in employment in key sectors in Gloucestershire, 1995-2000



Source: Annual Business Inquiry, Annual Employment Survey

3.3 Future employment projections

In addition to looking at past trends in employment in the key sectors in Gloucestershire, the research undertook forecasting exercises to predict likely future changes in employment in the key sectors.

Two forecasting approaches were used. The first set of forecasts were obtained from the Local Economic Forecasting Model used by Gloucestershire Labour Market Intelligence Unit. This model produces local employment forecasts based on past historic trends and projections of employment at the regional (South West) level.

Employment projections are available up until 2010, although we have only looked ahead to 2005, as the further in the future the projections, the greater the scope for error.

The second approach was based on a shift-share analysis of past employment trends, combined with regional and national employment projections. Regional and national employment projections are produced jointly by Cambridge Econometrics (CE) and the Institute for Employment Research (IER). The most recent projections were published in their *Projections of Occupations and Qualifications: 2000/2001* report, and show employment projections from 1999 to 2005.

Shift-share is a tool to separate out different elements of changes in employment by comparing the local trends with national or regional trends. Three elements of change are identified:

- The national (or regional) component, that is the change that would have occurred had employment in each local sector changed in the same way as overall national (or regional) employment.
- The sectoral component, that is the change that would have occurred had employment in each local sector changed in the same way as that sector nationally (or regionally).
- The residual component, that is the difference between the actual employment change in each local sector, and the national and sectoral components.

The residual component encapsulates 'local' effects that indicate whether the local sector performed better or worse in employment terms than would be expected from national (or regional) sectoral trends. This residual component can then be used with national (or regional) sector projections to produce local sectoral projections.

We model six different shift-share scenarios, based on the two different comparator areas (South West and Great Britain), and three periods for past trends: 1995 to 2000; 1995 to 1999; and 1996 to 2000. The baseline scenario is based on a comparison with South West employment trends and projections, and using 1995 to 2000 as the historic trend period.

Table 3.3 presents employment projections for the key sectors in Gloucestershire under the different forecasting models, and the regional and national projections for the sectors. In addition to the baseline scenario under the shift-share approach, we have presented the most optimistic, and most pessimistic, of the other models.

Table 3.3 shows that:

- Nationally and regionally, employment in all manufacturing sectors except wood, paper, printing and publishing is expected to decline.
- In Gloucestershire, employment in wood, paper, printing and publishing, and medical and precision engineering may increase to 2005.
- Employment in construction in Gloucestershire is likely to increase considerably.
- Employment in all service sectors in Gloucestershire is expected to increase, except in local government and defence.
- The largest increases in employment among the service sectors are expected in computing services and business services.

Table 3.3: Medium term employment projections for key sectors, percentage change 1999/2000-2005

	South West	Great Britain	LEFM	Gloucestershire		
				Shift-share based projections		
				Baseline	Optimistic	Pessimistic
Food supply chain	-5.5	-5.4	-4.4	-1.4	-1.4	-15.2
Wood/paper/publishing	1.2	-1.0	-0.9	12.9	14.5	-2.9
Rubber and plastics	-5.6	-6.6	-5.7	-22.6	7.7	-27.9
Mechanical engineering	-8.0	-13.4	-3.4	0.5	4.9	-12.6
Office machinery/computers	-8.0	-13.4	9.4	-54.2	-44.3	-88.0
Medical/precision engineering	-8.0	-13.4	-8.2	46.8	49.2	12.7
Automotive	-8.0	-13.4	-8.9	15.0	23.1	-66.5
Aerospace/other transport	-8.0	-13.4	-31.9	-61.1	-31.1	-68.5
Construction	35.3	10.1	24.4	4.2	66.0	-19.7
Distribution	7.0	6.0	6.8	6.9	8.6	-5.1
Hotels and catering	7.0	6.0	3.9	10.1	71.6	0.7
Financial services	11.7	9.3	3.7	35.3	52.0	1.0
Computing	22.5	22.5	30.8	45.8	64.6	15.9
Business Services	15.7	14.7	11.0	25.3	29.4	-3.0
Public sector/defence	-2.5	-3.4	-4.8	-15.8	-10.1	-17.8
Education	9.9	7.1	2.8	17.5	36.7	17.5
Health	9.9	7.1	9.1	4.4	6.7	-2.2

Note: Projections for SW and GB are for period 1999-2005; projections for Gloucestershire are for 2000-2005

Source: CE/IER, LEFM, IES calculations based on CE/IER and ABI data

Table 3.4 shows the expected changes in numbers of employees in the key sectors to 2005, under the LEFM approach and the baseline shift-share scenario. The largest decreases in numbers are expected in aerospace and local government and defence, while the largest increases are expected in distribution, computing services and business services.

Table 3.4: Projected changes in employees in employment in Gloucestershire under different forecasting methods

	2000	LEFM		Shift-share baseline scenario	
		2005	Change	2005	Change
Food supply chain	8,295	7,931	-364	8,179	-116
Wood/paper/publishing	6,991	6,930	-61	7,893	902
Rubber and plastics	3,988	3,761	-227	3,087	-901
Mechanical engineering	13,373	12,916	-457	13,440	67
Office machinery/computers	850	930	80	389	-461
Medical/precision engineering	4,516	4,144	-372	6,629	2,113
Automotive	2,088	1,901	-187	2,401	313
Aerospace/other transport	1,525	1,038	-487	593	-932
Construction	7,377	9,175	1,798	7,687	310
Distribution	42,007	44,877	2,870	44,905	2,898
Hotels and catering	16,006	16,638	632	17,623	1,617
Financial services	12,527	12,996	469	16,949	4,422
Computing	5,350	6,999	1,649	7,800	2,450
Business Services	23,523	26,112	2,589	29,474	5,951
Public sector/defence	13,061	12,434	-627	10,997	-2,064
Education	20,646	21,222	576	24,259	3,613
Health	20,509	22,366	1,857	21,411	902

Source: Annual Business Inquiry, LEFM, and IES calculations from ABI and CE/IER data

The results for the six different models of the shift-share approach are presented in Table A.5 in the Appendix

3.4 Skills and demographic issues

Reports produced by the former National Training Organisations that cover the key sectors were reviewed to pick up national skills and demographic issues that each of the sectors may face in the future. The reports were most commonly *Skills Foresight* reports, *Sector Workforce Development Plans*, and *Skills Dialogue* reports.

3.5 Other issues

Where any other important issues regarding the key sectors were picked up during the interviews with local contacts, these are included in the final section of each chapter on the key sectors. Where relevant they have been listed under headings used by Gloucestershire First in other reports:

- transport
- telecoms
- land and premises.

4. Food Supply Chain (Agriculture and Food Manufacturing)

4.1 Definition

The food supply chain sector is defined as:

- agriculture, (SIC Division 01)
- forestry (SIC Division 02)
- fishing (SIC Division 03) and
- food manufacturing (SIC Division 15).

4.2 Current employment

In 2000 the food supply chain sector employed 8,300 people in Gloucestershire. This represents 3.5 per cent of total employment. This is the same as the proportion in the South West (3.5 per cent) but greater than the proportion nationally (2.9 per cent).

Food manufacturing comprised the larger part of the total sector, employing 4,700 employees, while agriculture, forestry and fishing employed 3,600 people. There are also significant numbers of self-employed workers in the agriculture sector, although these are not picked up by the Annual Business Inquiry. Nationally, it is estimated that there may be as many self-employed people in the industry as employees.

The sector is well represented in three of the six local authority districts in the county: Cotswold, where it makes up 4.6 per cent of total employment, mostly in agriculture; Forest of Dean (6.3 per cent) and again mostly in agriculture; and Stroud (4.9 per cent), mostly in food manufacturing. Gloucester has a large food manufacturing sector, dominated by Walls' ice cream factory. Cheltenham has the smallest food supply chain sector, accounting for just 1.1 per cent of employment in the borough.

In addition to Walls, another major employer in the food manufacturing sector is Glaxo SmithKline, who make nutritional soft drinks in the Forest of Dean and employ around 400 staff. The dairy and cheese making sub-sector is an important one for the

county, and Dairy Crest are a major employer in Stonehouse, with around 500 staff .

4.3 Recent trends in employment

Employment in the food supply chain sector in Gloucestershire has been declining in recent years, at a faster rate than in the country as a whole, but not as fast as in the South West.

Between 1995 and 2000 the numbers employed in the sector in Gloucestershire fell by seven per cent, while in the South West numbers fell by 11 per cent, and in Great Britain the decrease was only 2.3 per cent.

The two main sub-sectors have experienced differing fortunes. Employment in agriculture has fallen dramatically during the last six years, by 19 per cent, while employment in food manufacturing has actually increased since 1995, by 4.6 per cent.

Agriculture, in particular, has been undergoing profound change with severe economic recession leading to massive falls in farm income since 1997; Common Agricultural Policy reform and subsidy reductions along with increasing competition, have led to extremely challenging conditions within the industry.

The agriculture sector was hit very hard by the foot and mouth crisis, with Gloucestershire being the sixth worst county affected in the country. Also, farms that did not have to cull their herds were also badly hit because of the restrictions on movement.

4.4 Future employment projections

Employment in the food supply chain is expected to fall over the next few years, nationally and in the South West, by just over five per cent between 1999 and 2005. Employment is projected to fall in both sub-sectors - agriculture and food manufacturing.

Prospects for the sector in Gloucestershire are likely to be similar to the regional and national trends, with a decrease in employment of around five per cent. The LEFM model forecasts a decrease of 4.4 per cent between 2000 and 2005, while forecasts based on shift-share analysis of past employment trends have the decrease between 1.4 per cent and 15.2 per cent, with the baseline scenario at the optimistic end of this scale.

The future for the sector is thought to lie in either diversification, or developing niche 'organic' markets. Trying to build up the local 'Gloucestershire' brand, and promoting it both in the county and outside is also seen as important. Being able to track animals from birth to the table is a key element of developing 'Gloucestershire' branded products. Small producers are being squeezed on price

by the supermarkets, and many of them cannot sell to supermarkets anymore.

The presence of the Camden and Chorleywood Food Research Institute is a strength for the county, and there may be potential for it to contribute to developing the food processing side of the industry and developing engineering skills to add value to the sector.

4.5 Skills and demographic issues

4.5.1 Agriculture

The following demographic and skills issues facing the agriculture sector are taken from the LANTRA *Skills Dialogue Report*:

- Agriculture has an old age profile to the workforce, with 33 per cent of the workforce nationally aged 55 and over. Thus there are issues around attracting young people into the industry, and a need to recruit due to relatively high levels of retirement.
- Key current and predicted skill requirements include:
 - higher level job specific skills supported by generic skills such as communication, initiative and customer care;
 - the use and application of ICT within the workplace;
 - higher level business and management skills necessary to compete successfully in an increasingly commercial business environment.
- Across the land-based sector just under a fifth of businesses reported a skills gap within their existing workforce. Reported skills gaps were mostly concentrated within the skilled occupations, with job specific and generic skills reported as a skills gap.
- It is estimated that less than half of the workforce required to work at NVQ/SVQ levels 3 plus are qualified to this level. It is estimated that more than 1,000 people in agriculture in Gloucestershire will require training to upskill them to the higher skill levels required. In particular this includes a large proportion of owner-managers who are without the higher level business and management skills required.
- Implications for training are:
 - innovative methods of training delivery will be required to engage people and business effectively;
 - training delivery must become more flexible to allow easier access;
 - work-based training programmes will become increasingly important.

4.5.2 Food manufacturing

Skills shortages and gaps

There are widespread skills shortages and skills gaps within the food and drink manufacturing industry (the Food and Drink NTO's *Sector Workforce Development Plan*). Looking first at skills shortages, the report identifies the following shortages:

- High calibre engineers and engineers with a mix of IT/electric/electronic/PLC/mechanical skills.
- Operators with sufficiently adequate basic education in order to be trained and developed.
- Warehousing and logistics staff particularly for the milling sector.
- There are insufficient science and food students in FE and HE.
- There is a demand for technologists with a few years experience in the industry and who have acquired skills in new product development.
- Multi-skilled technicians. At a level down from the professional engineer the role of technician is extremely important and one that is growing in importance in correlation with the continuing introduction of new technology.
- First line managers, factory and production managers pose a similar problem to that of recruiting graduate level personnel.
- Development chefs are proving difficult to recruit.
- Maintenance and panel electricians are very much in demand by all industries that utilise large plant and panels to control systems and technologies. The electrical contracting industry is also very aware of the shortage of qualified electricians.

The biggest skills gaps that consistently appear are for production operatives with job-specific or vocational skills. These job-specific or vocational skills include understanding the operation of machinery, managing changeovers, managing routine machine maintenance, understanding and applying food safety and food hygiene practices. Other skills gaps issues include:

- Skills gaps are mentioned in relation to all generic skills, but most often those of showing initiative, team working and communication skills.
- For smaller companies very often it is skills such as sales and marketing which are lacking.
- Other skills gaps include financial skills, understanding consumer behaviour and gathering market intelligence.

- There is also a need for people with high level IT skills for networking systems and maintenance of software systems as well as lower level IT skills for monitoring.

Workforce development issues and priorities for action

The major strategic issues for the industry over the next five years can be summarised as being founded on changes driven by new technologies, demands from retailers and supply-chain pressures.

The industry is concerned with:

1. Developing or recruiting and retaining multi-skilled engineers and other high level processing and packaging technicians in the industry.
2. Developing the workforce to become multi-skilled; combining production skills with technical/first-fix skills to increase manufacturing capacity, flexibility and efficiency.
3. Improving basic and key skills in both entrants to, and the existing workforce of, the industry.
4. Ensuring a continuing supply of food technologists with a scientific basis to enable a sufficient skills-base for 'new product development'.
5. Encouraging micro and small businesses in the industry to go beyond the necessary level of training for food hygiene and health and safety and to gain business planning, marketing, export development and new product development skills.
6. Improving the image of the industry so that potential entrants can understand the rewarding career opportunities available.

The *Sector Workforce Development Plan* identified the following priorities for action:

- To improve the image of the food and drink manufacturing sector – the sector has a poor image, and there is ignorance about the industry, the production process and the career opportunities the sector holds.
- To reverse the skills shortfalls amongst engineers and technicians – the industry will face a serious shortfall in the number of engineers employed in the industry if present recruitment performance is not improved.
- To reverse the skills shortfalls amongst technologists – the industry faces a shortfall in the number of food technologists coming into the industry, due to falling FE and HE provision and competition from the catering and retail sectors. A basic skills gap has also been identified in this occupational area, and this also needs addressing.
- To ensure multi-skilled production staff and technical staff – the industry has problems with recruitment and retention of

operatives. Gaps exist in job-specific skills, change-overs and IT skills. There are also gaps identified in the areas of teamwork, problem-solving, ownership of problems, and general skills shortfalls in 'attitude' competencies. Barriers have been identified to the uptake of NVQ at levels 1 and 2 due to the qualification being too academic, too inflexible and difficult to arrange around the shift system.

- Progress the industry's relationship with supply chains – due to the increasing importance of the traceability of raw materials and food safety, the workforce needs the skills to effectively improve these channels of communication.
- Advancement of workforce development at a local level – this covers information on and access to local training providers, and working in partnership with the Food and Drink NTO to achieve effective workforce development.

5. Wood & Paper, and Printing & Publishing

5.1 Definition

The sector is defined as:

- Manufacture of wood and wood products (SIC Division 20)
- Manufacture of paper and paper products (SIC Division 21)
- Publishing, printing and reproduction of recorded media (SIC Division 22).

5.2 Current employment

In 2000 the wood, paper, printing and publishing sector employed 7,000 employees in Gloucestershire, and accounted for 2.9 per cent of total employment in the county. In the South West region, and in Great Britain, the sector accounts for 2.1 per cent of total employment.

Printing and publishing was the largest of the three sub-sectors, employing 4,300 people, while wood manufacturing employed 1,500 employees and paper manufacturing employed 1,200 employees.

The wood, paper, printing and publishing sector is over-represented in three local authority districts: Cheltenham, where it accounts for 3.2 per cent of total employment, mostly in printing and publishing; Forest of Dean (4.4 per cent), mostly wood and paper manufacturing; and Stroud (4.1 per cent), mostly paper manufacturing and printing and publishing.

Major employers on the paper side include J R Cromptons in Lydney, who make filter paper used in teabags and coffee filters, and who employ around 200 staff, and Vibixa who make cartons for breakfast cereals. On the printing and publishing side there are Gloucestershire Newspapers, with staff in Gloucester and Cheltenham, and Nelson Thornes who publish school books and employ over 200 people in Cheltenham.

5.3 Recent trends in employment

Employment in the wood, paper, printing and publishing sector in Gloucestershire was higher in 2000 than in 1995, by 14 per cent. In the South West, employment in the sector increased slightly over this time, by just under three per cent, while nationally employment in the sector fell very slightly, by one per cent.

The trend has not been a steady one. Between 1995 and 1998 there were large swings in employment in the sector, although since 1998 the employment level has been steady at around 7,000.

Within the sector, employment in wood manufacturing increased by 9.2 per cent, employment in paper manufacturing fell by 11 per cent, and employment in printing and publishing increased by 27 per cent between 1995 and 2000.

SCA Packaging used to make corrugated cardboard for the packaging industry in the Forest of Dean, but they pulled out recently with the loss of 200 jobs. The wood sector in the Forest has also been suffering from cheap wood imports from the Baltic states.

5.4 Future employment projections

Nationally employment in the wood, paper, printing and publishing sector is forecast to fall slightly, by one per cent, between 1999 and 2005, while prospects for the South West are somewhat better, with employment projected to increase by just over one per cent during this period.

Gloucestershire is likely to mirror these regional and national trends in the sector, with employment remaining fairly stable to 2005. The LEFM model predicts a decrease in employment of one per cent, while the shift-share forecasts range from a decrease, of three per cent, to a large increase in employment of nearly 15 per cent. However, these optimistic forecasts are influenced by a large rise in employment in the sector between 1995 and 1996, and in the last few years, since 1998, employment in the sector in Gloucestershire has been fairly stable, and this will most likely continue.

5.5 Skills and demographic issues

Reports from three NTOs covering Paper, Printing, and Publishing have been summarised.

5.5.1 Paper

The image of the sector and shift work deters young people. Young, high calibre people must be attracted to the sector through

enhancing its image and providing promising career opportunities.

The following recruitment difficulties have been reported in the paper sector:

- Difficulty in attracting graduates for development into specialist roles such as sales, marketing, purchasing and finance.
- Difficulty in recruiting suitable mechanical and electrical skills. Problem exacerbated by recent low levels of craft apprentices.
- Difficulty in attracting ICT specialists.

5.5.2 Printing

IT is impacting on occupations at all levels in the print and graphic communications sector, changing both the nature of the production process itself, and communications across and outside the business. As a result employees constantly have to adapt to upgrade and broaden their range of skills.

Workforce Development Needs and Issues

1. Technological Change – the future of printing is digital. The increasing use of digital communications links is occurring on different levels. This is against the backdrop of an ageing workforce and a decline in the number of young people coming into the industry.
2. Changing Customer Expectations – the print shop required today is bright, clean, modern, well stocked and efficient, with staff who need to be smart, intelligent, informed, attentive and helpful. The ‘one-stop’ shop, where customer needs can be explored, a design provided and the finished item collected from, is an increasingly attractive service. Also, on the management side there is an increasing need for sales, marketing and customer care skills.
3. Awareness by managers of the impact of technology – marketing, customer care and network management are becoming increasingly important and many small to medium sized firms lack managers with professional management training. Managers need a wider range of competencies and management skills than in the past, including developing a more flexible workforce, assimilating and capitalising on the changes in technology, and capturing the new markets that are opening up. There is a need for managers to identify skill and training needs systematically, and to establish a culture of co-operation between all members of the company, to establish flatter management structures and to encourage staff prepared to learn new skills.

4. Attitude to/ownership of learning – most employers state that they have no difficulty in finding or retaining employees with sufficient skills to meet current business objectives. However, limited financial and management resources means it is difficult for managers to find time to define and organise staff training and to fund it. Of the entire industry 22 per cent, had not provided training during 1999. Where meaningful training has been provided it has, in the main, been for machine printers, administrators, originators and clerical staff.

5.5.3 Publishing

Skills needed in the industry are increasing, driven by the need to cope with new technology and changes in working practices. New skills which will increasingly be needed over the next two to three years are also in this area:

- new media or web skills; and
- other advanced IT or software skills.

To deal with the changing skills needs, many employers have recruited new staff specifically because of their skills in the area of new media.

Vacancies are particularly likely to exist in editorial jobs, administrative, clerical and secretarial jobs, and for sales staff.

Whilst demand for journalists has increased, there has been an increase in supply, with more postgraduate trained journalists coming on to the market. Traditional 'print on paper' employers now perform interactive publishing as well. Whilst 'traditional' publishers have added to their skills in their ability to deliver content electronically, the 'new' publishers have provided electronic materials with few of the often necessary, traditional publishing skills.

6. Rubber and Plastics

6.1 Definition

The rubber and plastics sector is defined as SIC Division 25 – Rubber and plastics manufacture.

6.2 Current employment

In 2000 the rubber and plastics sector employed 4,000 people in Gloucestershire, and accounted for 1.7 per cent of total employment. In the South West region the sector accounts for 1.0 per cent of total employment, while nationally the proportion is 0.9 per cent.

The plastics sub-sector is the larger of the two, accounting for 70 per cent of total employment in the sector.

Rubber and plastics is over-represented in the Forest of Dean, where it accounts for 2.5 per cent of total employment, and in Tewkesbury, where it accounts for 4.0 per cent of total employment.

Watts Industrial Tyres is probably the largest employer in the county, with around 400 employees at Lydney.

6.3 Recent trends in employment

Employment in rubber and plastics has fallen nationally, regionally and locally since 1995, although employment in Gloucestershire has fallen at a faster rate than the regional and national declines.

The employment level in rubber and plastics in Gloucestershire in 2000 was 23 per cent lower than in 1995, while in the South West it was six per cent lower than the 1995 level, and nationally it was two per cent lower.

The trend since 1995 has been variable. Employment fell dramatically between 1995 and 1996, before rising between 1998

and 1999, and then falling back again in the last year. The employment level in 2000 is actually above the level in 1996.

6.4 Future employment projections

The decline in employment in rubber and plastics is projected to continue over the medium term. In the country as a whole employment in the sector is forecast to fall by 6.6 per cent between 1999 and 2005, while in the South West the projected decrease is slightly slower, at 5.6 per cent.

Employment in the sector in Gloucestershire is likely to fall by at least as much as in the South West and nationally. The LEFM predicts that local employment will perform in line with the regional future trend, while the baseline and pessimistic scenarios from the shift-share analysis show employment falling by 20 per cent or more, continuing the trend of the 23 per cent fall between 1995 and 2000.

6.5 Skills and demographic issues

The Polymer NTO has found that over half of employers in the rubber and plastics sector report internal skills gaps. A wide range of staff are affected, from managers/supervisors to skilled craft trades and plant and machine operatives. Skills that are lacking include very specific technical skills in the industry, and generic skills such as communication skills, and willingness to learn and adapt.

The priorities for action identified by the Polymer NTO are to:

- Increase availability of and access to external industry relevant training programmes.
- Design and implement a new innovative sub-degree technician programme.
- Create a network of knowledge bureaux for industry, containing information relating to training, education, employment, government and agency assistance and networking opportunities.
- Build the relationship between industry and the pre-18 education establishment.
- Facilitate access to and attainment of relevant best practice standards, with particular focus on investors in people and national/Scottish vocational qualifications.
- Establish regional strategic executive forums, comprising key stakeholders across relevant sectors of the industry, education and training.

7. Metal and Machinery Manufacturing

7.1 Definition

The sector is defined as:

- Manufacture of fabricated metal products (SIC Division 28) and
- Manufacture of machinery and equipment (SIC Division 29).

7.2 Current employment

In 2000 the metal and machinery manufacturing sector employed 13,400 people in Gloucestershire and accounted for 5.6 per cent of total employment. The sector is proportionally twice as large in Gloucestershire as it is in the South West region, where it makes up 2.7 per cent of total employment, and in the country as a whole, where it comprises 2.9 per cent of total employment.

The manufacture of machinery and equipment sub-sector is slightly larger than the manufacture of fabricated metal products sub-sector, employing 7,900 people compared with 5,500 in fabricated metal products manufacture.

The largest concentrations of metal and machinery manufacturing are in Cheltenham (6.7 per cent of total employment) and in Stroud (7.2 per cent). In the Forest of Dean and Tewkesbury the proportion of metal and machinery manufacturing employment is the same as the county average, at 5.6 per cent.

Federal Mogul Camshafts is a major employer in the sector in the Forest of Dean, employing nearly 500 people. Lister-Petter manufactures diesel engines in Dursley, and employs around 400 people. These are on the heavy engineering side of the sector. Spirax Sarco, who make steam control equipment in Cheltenham, and Mira Showers, are among the higher technology employers in the sector.

7.3 Recent trends in employment

Employment in metal and machinery manufacturing in Gloucestershire was higher in 2000 than in 1995, by just under three per cent. In the South West, employment in the sector fell by 5.6 per cent between 1995 and 2000, and in Great Britain the decrease was 8.6 per cent during this period.

There are differing fortunes for the two sub-sectors; employment in the manufacture of fabricated metal products has fallen since 1995, by 17 per cent, while employment in machinery and equipment manufacturing has increased by 24 per cent.

The overall trend in the sector over the period 1995 to 2000 shows employment increasing between 1995 and 1998, and then declining since 1998, although with the level in 2000 above that in 1995.

7.4 Future employment projections

Employment in engineering sectors is expected to continue to decline, following the long-term trend away from manufacturing sectors and towards service sectors. Nationally, employment in all engineering sectors, including mechanical engineering, is expected to fall by 13.4 per cent between 1999 and 2005, while in the South West the decline is less marked, with employment projected to fall by eight per cent over this period. However, the forecasters predict that mechanical engineering will bear the brunt of job losses in the engineering sectors, therefore the out-turn for mechanical engineering may be worse than these figures suggest.

Just as the sector in Gloucestershire out-performed the regional and national trend since 1995, so it is likely to do so again in the future. The LEFM model forecasts employment will fall over the medium term, but by less than the regional and national declines, with a decrease of 3.4 per cent between 2000 and 2005. The forecasts based on the shift-share analysis are even more optimistic, with a baseline scenario of stable employment and an optimistic scenario of five per cent growth in the sector; even under the pessimistic scenario employment in the sector in Gloucestershire will not decline by as much as the national trend.

7.5 Skills and demographic issues

The following points are made in the engineering Skills Dialogue report *An Assessment of Skill Needs in Engineering*, produced on behalf of EMTA and ECITB. While they cover all engineering sectors, including fast growing electronics and telecommunications sector, they will have at least some relevance for mechanical engineering.

Despite the long-term decline in much of engineering manufacturing, there continues to be strong demand for engineering skills in the UK economy. A number of engineering employers are experiencing difficulties in filling vacancies, mainly because of a shortage of people with relevant skills and experience. Skill shortages are apparent at all levels but especially at the higher end of the occupational spectrum, among professional engineers, and also in skilled (craft) trades. The main skill gaps are in specific technical and practical skills areas but personal and generic skills are also in short supply.

The engineering industry as a whole has shrunk and, at the same time, experienced enormous structural change over the last few decades. It is now a 'leaner but fitter' industry, and both productivity and output have been increasing in the 1990s. Despite all the upheaval it has experienced, engineering continues to make a significant contribution to the UK economy and to exports in particular.

A number of drivers of change are acting in unison to change skill requirements in a range of jobs. These include the increased use of technology, new materials and new processes throughout industry, an increasing emphasis on customers and meeting their requirements, new working practices, and the globalisation of many aspects of business. These demand higher-level skills and education, and also greater breadth of skill and greater flexibility in the applications of skills.

A range of new and specific technical skills is required to meet the demands of technology and of the business, but also of importance is the greater emphasis employers put on personal and generic skills in all work areas. The key role of managers and supervisors, and the importance of their generic skills, are increasingly being recognised, though perhaps not sufficiently within many small firms. The role of line manager/team leader has become increasingly critical, and requires a different mix of skills (both technical and communication skills).

Companies are having to change their skill mix, through upskilling of existing employees and recruiting at higher levels, at a time when some are experiencing job losses in areas where more traditional skills have been deployed. Several issues have been identified in the Dialogue as needing to be addressed including:

- The ability of the education sector to meet this need in terms of producing the 'raw material' that industry requires.
- The ability of engineering to attract the highly qualified people it needs through offering appropriate employment packages, training schemes and satisfying career opportunities.
- The development of the qualifications framework further, especially at NVQ Level 3, to help meet industry's needs better at the intermediate level.

While a lot of change is happening there is also continuity, and though declining, craft skills continue to be needed (in large numbers), along with the underpinning knowledge that goes with them.

These findings have wide-ranging implications, and many are quite detailed and specific to particular sectors or skill levels. However, there are some important conclusions for engineering as a whole:

- There is a continuing, substantial need for training provision in engineering. Despite the long-term decline in much of the sector, there continues to be strong demand for engineering skills.
- Within the broad picture, though, provision needs to match changes in demand, reflecting for example, the growing demand at professional engineering level and in electronics and telecommunications. However, even where employment is falling, such as in craft and lower-skilled occupations, replacement demand (to replace those retiring or changing careers) is strong. There is no justification for reductions in the overall level of provision.
- It is important that course content, curriculum and qualifications reflect the way skill needs are changing. A range of new and specific technical skills are required but education and training provision needs to reflect also the importance employers attach to personal and generic skills in all areas of engineering. This applies both to initial training of new recruits to the industry and to upskilling needed by those already working in it.

This has clear implications for publicly funded education and training and for providers. However, the industry itself needs to respond – for example, by improving work placement opportunities, by improving in-company training (particularly in small firms) and by continuing to work on improving the attractiveness of the industry.

8. Medical and Precision Engineering

8.1 Definition

This sector is defined as the manufacture of medical and precision instruments (SIC Division 33).

8.2 Current employment

In 2000 the medical and precision engineering sector employed 4,500 people in Gloucestershire, and accounted for 1.9 per cent of total employment, compared with 0.8 per cent in the South West, and 0.5 per cent in Great Britain.

The largest sub-sector is the manufacture of instruments for measuring, employing 3,100 people in 2000, while the manufacture of medical and surgical equipment employed 900 people.

The sector is concentrated in two districts within the county: Stroud, where the sector makes up 4.7 per cent of total employment; and Tewkesbury, where it comprises 5.0 per cent of the total.

Renishaw is the largest employer in the sector in the county, manufacturing meteorology equipment, located in Stroud district and employing around 1,200 staff.

8.3 Recent trends in employment

Employment in medical and precision engineering has increased rapidly in Gloucestershire in recent years, while in the South West employment has increased slightly, and in Great Britain it has fallen slightly.

Between 1995 and 2000 employment in the sector in Gloucestershire increased by 60 per cent, while in the South West it increased by five per cent, and nationally it decreased by nearly three per cent.

Employment in the sector in Gloucestershire increased rapidly between 1995 and 1997, before falling slightly for the next two years, and then increasing again between 1999 and 2000.

8.4 Future employment projections

National employment projections are not presented for the detailed medical and precision engineering, but only for all engineering sectors. Nationally employment in engineering is projected to fall by 13.4 per cent to 2005, while in the South West the decrease is expected to be eight per cent. However, the out-turn for medical and precision engineering may not be as bad as this, as the forecasters say that the traditional areas of mechanical engineering and basic metals are likely to bear the brunt of the forecast reduction in employment.

The two forecasting approaches produce quite different predictions for future employment in medical and precision engineering in Gloucestershire. The LEFM model shows employment falling in line with the regional trend for all engineering sectors, by 8.2 per cent. However, the forecasts based on the shift-share analysis predict substantial increases in employment in future, as in the past the sector in Gloucestershire has performed exceptionally well. While it is unlikely that the sector will grow in the future to the extent that it has in the past, there is a good chance that medical and precision engineering may be one manufacturing sector in which employment grows over the medium term.

Renishaw had been growing rapidly since it was established in 1981, and will have accounted for much of the increase in employment in recent years. However recently they have had to shed a few staff, and plans for expansion have been put on hold. They have been affected by uncertainties in the aerospace industry, but they are very research and development based so are likely to find new markets, and may develop more into the defence industry, which is likely to have better prospects than the civil aviation sector.

8.5 Skills and demographic issues

Many of the issues facing engineering employers in general, outlined in Section 7.5 above, will be relevant to the medical and precision engineering sector.

The medical equipment sector should be a growth sector, due to both demographic factors (ageing population) and new technological developments in health care products. However, it is important for the sector to remain competitive and get into the higher value added end of the market, rather than manufacture of basic and disposable medical equipment.

9. Automotive

9.1 Definition

The sector is defined as SIC Division 34 – manufacture of motor vehicles, trailers *etc.*

9.2 Current employment

In 2000, there were 2,100 people employed in the automotive sector in Gloucestershire, and they accounted for 0.9 per cent of total employment in the county. The automotive sector in Gloucestershire makes up the same proportion of employment as it does nationally, although it is over-represented compared with the South West region -- in the South West the sector comprises 0.7 per cent of total employment.

The manufacture of parts for motor vehicles is the largest sub-sector, comprising two-thirds of total employment in the sector, and this sub-sector is well over-represented in Gloucestershire compared with the regional and national pictures.

The sector is over-represented in Stroud and Tewkesbury. In Stroud the sector accounts for 1.4 per cent of total employment, while in Tewkesbury 2.3 per cent of all employees are employed in the automotive sector.

Automold Ltd make injection moulded car interiors and employ around 150 people in Stonehouse.

9.3 Recent trends in employment

The employment level in the automotive sector in Gloucestershire in 2000 was 34 per cent higher than in 1995, while in the South West the 2000 employment level was 11 per cent higher than the level in 1995, and nationally employment in the sector fell by two per cent over this period.

The trend since 1995 has been somewhat mixed. Employment increased by 33 per cent between 1995 and 1996, before falling

steadily for the next three years, and then between 1999 and 2000 employment jumped by nearly 80 per cent.

9.4 Future employment projections

As with medical and precision engineering, projections are not available for the automotive sector, only for the wider engineering sector, where nationally employment is projected to fall by 13.4 per cent, and regionally by eight per cent, between 1999 and 2005.

As with the medical and precision engineering sector, there is a divergence between the two local forecasting approaches. The LEFM predicts employment will decline in line with the regional trend for engineering sectors, by 8.9 per cent between 2000 and 2005. The baseline scenario under the shift-share approach has employment increasing by 15 per cent, although with possible out-turns anywhere between an increase of 23 per cent, and a decrease of 67 per cent. This is a reflection of the historic employment trend being somewhat erratic, with an increase of 80 per cent between 1999 and 2000. It is probably safest to assume that the future out-turn will be similar to the regional trend, particularly as much employment in the sector in Gloucestershire is part of supply chains for larger employers located outside the county.

9.5 Skills and demographic issues

Many of the issues facing engineering employers in general, outlined in Section 7.5 above, will be relevant to the automotive sector. Particular issues for the automotive sector are:

- The UK automotive components industry is likely to face a slowdown in orders as a consequence of the exchange rate and difficulties in making efficiency improvements. The latter is also likely to impact on the assembly part of the industry too.
- Vehicle assemblers are likely to take increasing advantage of international sourcing to remain cost-competitive, and thus re-think their relationship with local suppliers. This is expected to have a serious knock-on effect across UK manufacturing. There is also a threat from over-capacity in the European car manufacturing industry.
- There is a growth of outsourcing and devolution of responsibilities down the supply chain, with more work being pushed down the supply chain leading to new skill requirements for supplier companies.

10. Aerospace

10.1 Definition

The SIC Category 35.3 encompasses the manufacture of aircraft and spacecraft. However, because of the restrictions of the 1947 Statistics of Trade Act, employment figures for this sector are confidential. Therefore we have used the SIC Division 35 – manufacture of other transport equipment, as the basis for our analysis. However, it should be noted that the other categories in SIC Division 35, manufacture of ships/boats, railway vehicles, motorcycles and bicycles, and other transport equipment, employed fewer than 150 people in Gloucestershire.

10.2 Current employment

In 2000 the manufacture of other transport equipment sector in Gloucestershire employed 1,500 people, and accounted for 0.6 per cent of total employment, the same as the national average but below the proportion in the South West of 1.6 per cent.

The aerospace/other transport sector is concentrated in Tewkesbury district, which accounts for over three-quarters of employment in the sector across the county, and aerospace/other transport in Tewkesbury makes up 3.9 per cent of total employment in the district.

Smiths Industries, who make a wide range of aerospace components, and Messier Dowty, who make landing gear for Airbus, are the major employers in the sector. They each employ over 1,000 staff.

10.3 Recent trends in employment

The aerospace sector in Gloucestershire has been declining in employment terms in recent years, while in the South West and nationally the sector has been expanding.

Between 1995 and 2000 employment in the sector in Gloucestershire fell by 29 per cent, while in the South West employment rose by 24 per cent, and across the country as a

whole employment in the sector increased by 19 per cent during this time.

Although the overall trend has been downwards since 1995, between 1999 and 2000 employment in aerospace/other transport in Gloucestershire increased, by around ten per cent.

10.4 Future employment projections

National and regional employment projections are presented for all engineering sectors, and are not broken down for detailed sectors such as aerospace. Employment in all engineering sectors is projected to decline by 13.4 per cent in the country as a whole between 1999 and 2005, and by 8.0 per cent in the South West over this period.

Both the LEFM model and the shift-share approach predict a large decrease in employment in aerospace over the medium term, with the LEFM model predicting a fall of 32 per cent, and the shift-share approach predicting falls of between 31 per cent and 69 per cent. This sector is perhaps the most difficult to predict future employment changes, given the uncertainties in the global market following recent events; employment is highly unlikely to increase, but whether it will fall by 30 per cent or more depends on how the sector fares during the period of uncertainty this year.

10.5 Skills and demographic issues

Many of the issues facing engineering employers in general, outlined in Section 7.5 above, will be relevant to the aerospace sector.

One particular issue is that the aerospace sector is also looking to make changes to supply chains in order to remain cost-competitive. It will increasingly look to outsource production work (*eg* machining) at a global level to countries where labour is cheaper. At a local level the big companies have been trying to reduce the number of suppliers, and at the same time increase pressure on them to reduce costs and move to just-in-time production.

11. Construction

11.1 Definition

The sector is defined as SIC Division 45 – Construction. This encompasses all aspects from site preparation (demolition, earth moving, test drilling), building work and civil engineering, building installation work, building completion work, and renting of construction equipment with operator.

11.2 Current employment

In 2000 there were 7,400 employees in the construction sector in Gloucestershire, making up 3.1 per cent of total employment. Relatively fewer people are employed in construction in Gloucestershire than in the South West or the country as a whole; in the South West the construction sector employs 4.4 per cent of all employees, while in Great Britain in the proportion is 4.5.

The largest concentrations of construction employment in Gloucestershire in 2000 were in the Forest of Dean, and in Gloucester. In the Forest of Dean the sector accounted for 3.8 of all employees, while in Gloucester 3.6 per cent of employees were employed in construction.

There are a number of large construction projects in the county, with the redevelopment of GCHQ the largest, and indeed the largest construction project in Europe when it started. Other projects include Gloucester Docks, GlosCAT campus, University of Gloucestershire campus, redevelopment of Lister-Petter site, and a number of retail developments including Waitrose in Cheltenham.

11.3 Recent trends in employment

The employment level in construction in Gloucestershire in 2000 was five per cent lower than the level in 1995, while regionally and nationally construction employment increased by around 25 per cent between 1995 and 2000.

Employment in construction in Gloucestershire fell between 1995 and 1996, before increasing dramatically between 1996 and 1997, by 34 per cent. During 1998 and 1999 employment remained fairly stable, before falling between 1999 and 2000, by 22 per cent.

11.4 Future employment projections

Future employment prospects for the construction sector are good, with employment projected to increase by ten per cent in the country as a whole between 1999 and 2005, while in the South West the increase is expected to be over three times greater, at 35 per cent.

Local forecasts for Gloucestershire predict construction employment will increase, although not by as much as in the South West. The LEFM model expects construction employment to increase by 24 per cent, and the baseline shift-share scenario has employment increasing by just four per cent, with the optimistic scenario predicting an increase of two-thirds and the pessimistic scenario predicting a fall of 20 per cent. However, given the amount of construction work that has recently started, is planned to start soon, and is going through the planning stages, construction employment in the county is likely to match or exceed the regional projections.

11.5 Skills and demographic issues

The following information is from the Construction Industry Training Board's *Sector Workforce Development Plan* and *Skills Foresight Report*.

The construction industry will face significant skills and training challenges over the next few years. It will need to recruit new people into the industry, both for expansion, and to replace leavers, and will also need to up-skill much of its existing workforce. The occupations with the largest annual recruitment will be, in descending order: carpenters and joiners, managers, electricians, clerical staff, bricklayers and plumbers. The need for plasterers is expected to decrease.

Except for the Building Trades and Building Services, informal training remains the most common form of skill development for construction site occupations. For the Building Trades, some 90 per cent of the required intake is met through formal training. For Specialist Building and Civil Engineering there is potential to expand and formalise skills in the workforce, either by training new recruits or the certification of existing workers.

More highly skilled labour will be required across all occupations. As quality rather than price becomes more important, the industry must rely less on inferior or inadequate labour and more on

skilled labour. This means employing more highly skilled employees or up-skilling existing employees. The key skill requirements that need to be addressed in order to raise efficiency and the rate of return in the industry are:

1. Move to an all-qualified labour force: this will ensure the industry recognises the capabilities of all its employees.
2. Better technical and practical skills throughout skilled craft occupations: this will ensure higher quality production and output, and address the problem of shortages and gaps created by people leaving the industry.
3. Enhanced managerial skills: this will ensure better project management, marketing and customer service.
4. Improved project management skills: as contracting and pre-fabrication become more widespread, project management skills need to be improved at both managerial and supervisory level. Enhanced project management skills are also vital to ensure that budgets are met and timescales are kept.
5. Changing portfolio of skills for professionals: the requirement for low cost building and low long-term maintenance costs requires more high value input from designers.
6. Raising technology skills for professionals: a growing area of skill needs is information and communications technology for professionals and managers. The biggest impact is the emergence of computer-aided processes for mapping, drawing, design and analysis, changing skill requirements for engineers and architects.
7. Increased multi-skilling of skilled craft workers: further improvements for craft workers in terms of flexibility and problem solving, team working and customer care are necessary.
8. Improved customer service skills: this will improve client satisfaction, particularly as this becomes an increasingly important area on which organisations compete.
9. Up-grading supervisor and senior craft workers to managers and professionals: the shortage of graduate workers for professional and managerial positions will not be overcome in the short-term. Raising skill levels of the more able supervisors through internal and external training will help to overcome this problem.

According to an internal CITB survey undertaken in Spring 2000, 85 per cent of employers in the South West experienced difficulties in recruiting skilled staff. The recruitment of bricklayers was worst affected, followed by carpenters & joiners, managers and professionals. Recruitment difficulties are unlikely to ease in the South West since 60 per cent of employers expect an increase in workload over the next six months.

12. Distribution

12.1 Definition

The sector is defined as:

- Sale and maintenance/repair of motor vehicles (SIC Division 50)
- Wholesale trade (SIC Division 51)
- Retail trade, except of motor vehicles (SIC Division 52).

12.2 Current employment

In 2000 the distribution sector in Gloucestershire employed 42,000 people, and accounted for 17.5 per cent of total employment. This is the same as the proportion of total employment as in the country as a whole, but slightly below the proportion in the South West of 18.8 per cent.

The retail sub-sector makes up the majority of the whole distribution sector and employed 27,800 people in 2000, accounting for 11.7 per cent of total employment, below the proportion in the South West of 12.2 per cent, but above the national proportion 10.8 per cent. The sale and maintenance of motor vehicles sub-sector employed 6,200 people, and is slightly over-represented in Gloucestershire compared with the regional and national pictures. The wholesale sub-sector employed 8,000 people, and is under-represented compared with the South West, and Great Britain.

Distribution is over-represented in three districts in the county, Cheltenham (17.6 per cent of total employment), Cotswold (20.5 per cent), and Gloucester (19.9 per cent). These districts all have larger than average retail sectors, making up around 13 per cent of total employment. Cotswold has a larger than average motor vehicle retail sector, along with the Forest of Dean, and a larger than average wholesale sector, along with Tewkesbury.

12.3 Recent trends in employment

Employment in distribution in Gloucestershire has increased in recent years, in line with the regional trend, and slightly faster than the national trend.

Between 1995 and 2000 distribution employment in Gloucestershire grew by 14.5 per cent. In the South West distribution employment grew by 14.6 per cent during this period, and national employment in the sector grew by 11.9 per cent over this time.

There are marked differences between the three sub-sectors. Employment in retailing has grown by 29 per cent since 1995, while employment in motor vehicles retailing has decreased by four per cent, and employment in wholesale distribution has decreased by nearly nine per cent.

The employment trend in the sector overall in Gloucestershire has been a fairly steady increase since 1995, albeit with employment falling between 1998 and 1999, before increasing again to 2000. Employment in motor vehicle retailing and in wholesaling has been on a steady downward trend between 1995 and 1999, although employment in both sub-sectors picked up between 1999 and 2000.

12.4 Future employment projections

Employment in the distribution sector is expected to increase modestly over the medium term. Between 1999 and 2005, employment in the sector nationally is projected to increase by six per cent, while in the South West the increase is forecast to be slightly greater, at seven per cent.

It is likely that Gloucestershire will match the regional forecast for distribution. The LFM predicts employment increasing by 6.8 per cent between 2000 and 2005, while the shift-share baseline scenario has distribution employment increasing by 6.9 per cent.

There are a number of new retail sites that will be recruiting staff in the near future, including Waitrose in Cheltenham (600 staff), Tesco in Tetbury (200 staff), Matalan (60 staff), while Sainsbury and Safeway are expanding in the county.

12.5 Skills and demographic issues

The following skills and demographic issues for the distribution sector are identified in the Distribution NTO's (DNTO) *Skills Foresight* and *Workforce Development Plan* reports.

Training & qualifications

The workforce in distribution is not highly qualified. Experience and interpersonal skills tend to be regarded as more important than qualifications.

National standards/initiatives like NVQs and National Traineeship Foundation Modern Apprenticeships (NT/FMA) are considered irrelevant to employers. Completion of an NT/FMA in retail demands IT skills but many employers feel this is not necessary at junior levels where staff are unlikely to have access to the IT system (though supervisors do need IT skills for electronic stock ordering, sales data and staff rotas). In contrast customer service is not a component of the retail NVQ despite its importance. In addition, the bureaucracy of assessment puts employers off NVQs.

In-house training and qualifications from large prestigious chains is considered valuable and provides an informal quality seal on an NVQ or NT/FMA.

Concern over the quality of training was noted, with the quality of establishments in the South West reported as being below average and with only 25 per cent of establishments graded as outstanding or good by the Training Standards Council (1999-2000).

To take up training, small and medium sized businesses want clear concise information on vocational qualifications, sector specific information, face-to-face explanations of initiatives and help with keeping up with IT applications. More generally, employers want a menu of short, part-time courses.

Staff shortages & turnover

There are very few skills shortages, the only ones listed being skilled drivers in distribution and warehousing and bakers in grocery retailing.

Generally supply of labour is sufficient but turnover is very high and is generally accepted as a fact of life. Employers are reluctant to invest training in staff who are likely to leave while also recognising that training opportunities can help to attract and retain staff.

Traditionally the industry has attracted a high number of school leavers but with recent government initiatives to encourage young people into further and higher education, the pool is likely to shrink.

The pool of early retirees is expected to become a valuable source of staff. Women returners have already become a major source of labour. Both these groups are considered to have key personal skills (eg communication, maturity).

Increasingly the sector is competing with the financial services sector for staff.

Management skills

There are some concerns about the quality of senior management both now and in the future. Junior level staff are affected because managers are lacking in people skills, training and mentoring skills *etc.* The role of senior managers is changing from 'policing' to business development and change management. Also enabling people to work flexibly puts additional pressure on managers.

Flatter management structures and lack of obvious career progression means the pool from which higher level management can be drawn is small. Managers being recruited from other industries to meet the shortfall of management potential within the industry means managers are not as industry specific as they have been in the past.

Although women dominate the retail sector in terms of overall numbers, they are under-represented at management level. One way to increase the pool of talent is to pay more attention to women and part-time workers – including tailored training to enable them to take on these positions.

The DNTO and the British Institute of Retailing recently co-operated in a pilot scheme in the South West to boost the business skills of small retailers by linking them up with a mentor in a large retailer (Oct 2000 to March 2001).

Gap between floor staff and supervisors/managers

Floor staff are generally unlikely to progress to supervisory or management roles. This is affecting both turnover at lower levels and the quality of supervision/management. Training to help bridge this gap is essential (along with suitable training positions in companies).

Customer Service/Sales skills

The retail sector has tended to focus on merchandise and needs to pay more attention to sales and customer service. Selling and customer care is becoming more important in non-sales jobs – *eg* delivery drivers are now often the point of contact with the customer.

Many employers believe that while product knowledge and sales skills can be taught, good customer care depends on personality, leading some recruiters to introduce personality testing or to replace interviews with auditions.

ICT skills

E-commerce is a major issue for the retail and distribution sectors but more research is needed into the implications of this new development for the skills needs of the sectors. Generally it is expected that demand will outstrip supply for ICT skills and the industries will have to compete with other sectors for the skills to develop new business processes and design and build the new systems.

Some operational staff are expected to be more computer literate, while managers are expected to need more knowledge of complex IT systems. E-mail communication increasingly requires some workers in the industry to be more literate.

12.6 Other issues

Transport

Improvements to Junctions 12 and 11a of the M5 will open up new areas to potential distribution sites, and should increase the strengths of the county in attracting wholesale distribution companies.

Land and premises

Potential sites for development or further development for wholesale distribution include Sharpness Docks, where there are some distribution companies already, and the Xerox site once it is vacated. The potential for distribution companies at Quedgely will increase with the all-ways access at J12 of the M5.

13. Tourism

13.1 Definition

The sector is defined as SIC Division 55 – Hotels, restaurants and catering.

13.2 Current employment

In 2000 there were 16,000 employees in the tourism sector in Gloucestershire, and they made up 6.7 per cent of total employment. This is below the proportion in the South West of 7.4 per cent, but slightly above the national proportion of 6.4 per cent.

Within the sector as a whole, 3,700 people are employed in hotels and other accommodation, 4,000 people are employed in restaurants, pubs and bars employ 5,600 people, and 2,700 people are employed in catering. Catering is the only sub-sector that is over-represented compared with the regional and national picture, while hotels and other accommodation, and pubs and bars, are over-represented compared with Great Britain.

The tourism sector is concentrated in two districts, Cheltenham and Cotswold. In Cheltenham the sector employs 4,100 employees and accounts for 6.9 per cent of total employment, while in Cotswold district just over one in ten employees (10.6 per cent) work in the sector, some 3,300 people.

Cheltenham has more hotel beds than the rest of the county put together. Forest of Dean has a lack of overnight accommodation.

13.3 Recent trends in employment

Employment in tourism in Gloucestershire increased by 8.5 per cent between 1995 and 2000. This is above the increase in the sector in the South West of 5.4 per cent, but below the increase nationally of 13.3 per cent.

However, while the overall trend in the sector in Gloucestershire has been upward since 1995, in the last year employment in tourism in the county fell, by 19 per cent.

13.4 Future employment projections

National employment forecasts present data for distribution, hotels and catering combined, therefore projections for the tourism sector are the same as for the distribution sector, that is a national increase of six per cent, and a regional increase of seven per cent, between 1999 and 2005.

Local forecasts predict an increase in employment in the sector close to the regional projection. The LEFM model predicts an increase of four per cent, while the baseline shift-share scenario predicts an increase of ten per cent. The optimistic scenario of an increase of 72 per cent is highly unlikely, although employment in the sector could reach its 1999 level again, which would represent an increase of around 20 per cent, or even exceed it slightly.

13.5 Skills and demographics issues

Many of the issues facing the distribution sector, such as high turnover and more emphasis on personal attributes rather than formal qualifications, are also important in the tourism industry. The Hospitality Training Foundation has identified the following key issues for the sector nationally.

13.5.1 Recruitment

Demand Side

- The industry is suffering from chronic recruitment difficulties, particularly in recruiting chefs & cooks, bar staff, table waiting staff and catering assistants.
- The industry needs low-skilled, seasonal workers and so provides labour market entry opportunities for unskilled, low-qualified and disadvantaged groups, which require support into the world of work and with skills such as languages, basic skills and key skills.
- The industry shows an inability to market itself competitively against other service industries, such as retail or call centres.
- Much of the workforce is under 25 which provides an opportunity to present a modern image. However, younger people often stay for short periods and employers are not capitalising on the pool of prime-aged workers.

Supply side

- Lack of practical cooking and food in the curriculum does not engender an early appreciation/knowledge of the industry and hospitality-related occupations. There is no clear pathway from Key Stage 1 to further and higher education.

- Generic career networks, including schools, do not appear to promote hospitality as a meaningful career choice, which in turn affects parental attitudes.
- Employers report a mismatch between the demand and supply of learning provision, which is worsening as FE College enrolments fall.
- Lack of promotion and dissemination of guidance to employers and students on work placements negatively influences young people's career choices.

13.5.2 Retention

Demand Side

- The workforce is predominantly young, female, part-time and under-qualified. Use of seasonal and casual workers discourages employers from providing training.
- The industry attracts young people but does not retain them. Young people perceive little opportunity for skills development and career progression. Salaries are rarely linked to attainment or qualifications.
- The industry offers relatively low wages although there are opportunities at management level for competitive salaries at a relatively young age.
- Penetration of Investors in People and other quality initiatives is relatively low.

Supply Side

- The industry is perceived as a good source of temporary opportunities while people are travelling or studying. Opportunities to influence them by formally recognising the skills they require are being missed.
- Demographic changes are expected to worsen the acute recruitment difficulties. The ageing of the population means that there will be a higher proportion of older workers in the labour force, seeking employment security and career progression not offered by the sector.

13.5.3 Skills Shortages

Demand Side

- There is a lack of awareness of the need for training among employers, particularly SMEs.
- The preference amongst employers for work-based training offers opportunities for the workforce to develop job-related

competencies quickly. However, external assessment may be discouraging uptake of work-based programmes.

- Employers, especially SMEs, often do not know how to access information on what learning provision is available.

Supply Side

- Employers report that colleges are not meeting their needs with regard to technical knowledge and skills.
- Hospitality learning programmes are expensive to run and assess and several FE colleges have closed their catering departments as a result.
- Historically, training providers could not access funding for short training courses/qualifications and mainstream provision, such as NVQs, is not always appropriate for small and micro businesses.
- Lack of awareness of skills and labour market trends and lack of comparable data between industries means that learning providers may not be shaping programmes to meet industry trends.
- Employers report the need for providers to produce 'work ready' recruits. There is a need for a foundation level programme to introduce new entrants to the industry and provide them with employability skills.

14. Financial and Business Services

14.1 Definition

The sector is defined as:

- Financial intermediation, except insurance and pension funding (banks and building societies *etc.*) (SIC Division 65)
- Insurance and pension funding, except compulsory social security (SIC Division 66)
- Activities auxiliary to financial intermediation (support services in banking and insurance) (SIC Division 67)
- Other business activities (*eg* legal, accounting and auditing activities; market research; management consultants; technical consultants; advertising; recruitment agencies; security activities; industrial cleaning) (SIC Division 74).

14.2 Current employment

In 2000 there were 12,500 people employed in financial services (SIC Divisions 65-67) in Gloucestershire, accounting for 5.2 per cent of total employment. This is above the regional and national proportions of 4.1 and 4.2 per cent respectively. The business services sector in Gloucestershire employed 23,500 people in 2000, which comprised 9.8 per cent of total employment. This is above the regional proportion of 8.6 per cent, but below the national proportion of 11.1 per cent.

Within the financial services sector, there are 5,200 employees in the banking and finance sub-sector, 4,500 employees in insurance, and 2,800 employees in supporting services to banking and insurance. It is in insurance that Gloucestershire has the greatest degree of over-representation; insurance accounts for 1.9 per cent of Gloucestershire employment, compared with 1.1 per cent in the South West, and 0.9 per cent in Great Britain.

The financial services sector in Gloucestershire is concentrated in the two urban districts. In Cheltenham there were 5,000 financial services employees in 2000, making up 8.5 per cent of total employment. Over half of these worked in the insurance sector. In

Gloucester, the financial services sector employed 5,200 people in 2000, accounting for 9.0 per cent of total employment, and banking and finance was the largest sub-sector, employing just over half the total number of employees.

The major employers in the sector include Cheltenham and Gloucester Building Society, Zurich (formerly Eagle Star), Endsleigh Insurance, Ecclesiastical Insurance, Stroud and Swindon Building Society, and the Chelsea Building Society. All of these employ several hundred staff, and the C&G, Zurich and Endsleigh employ over 1,000.

In the business services sector there is an over-representation in the Cotswolds, Forest and Dean, and Gloucester. In Cotswold district the sector accounts for 11.5 per cent of total employment; in the Forest of Dean, 13.9 per cent of employees work in business services; and in Gloucester, 10.7 per cent of total employment is in business services.

14.3 Recent trends in employment

Employment in the financial services sector in Gloucestershire has increased since 1995, at a faster rate than the increase nationally, and in contrast to the decline in the sector in the South West. Employment in business services in Gloucestershire has also increased, and at a faster rate than in the South West, but below the increase in business services nationally.

Employment in financial services in Gloucester increased by 19 per cent between 1995 and 2000, while nationally the increase in the sector was four per cent, and in the South West financial services employment fell by 4.5 per cent over this period.

Within the sector as a whole the three sub-sectors experienced differing fortunes. Employment in banking and finance fell by nearly 30 per cent between 1995 and 2000, mirroring falls in the sector regionally and nationally. By contrast, employment in insurance, and in supporting services to banking and insurance, has risen in Gloucestershire since 1995, by 50 per cent and 106 per cent respectively.

Between 1995 and 1996 employment in financial services fell dramatically, although since then there has been fairly steady recovery and growth in the sector. This fall was driven largely by substantial decrease in employment in banking and finance, and although banking and finance employment recovered somewhat by 1997, it has been on a downward trend since then. There have been general upward trends since 1995 in employment in insurance, and supporting services, albeit with some downturns.

Employment in business services in Gloucestershire increased by 18 per cent between 1995 and 2000, a similar increase to that

experienced in the financial services sector. In the South West, business services employment increased by nine per cent between 1995 and 2000, while nationally the increase was 22 per cent over this time.

Business services employment in Gloucestershire has been on a steady upward trend since 1995, albeit with slight falls between 1995 and 1996, and between 1997 and 1998.

14.4 Future employment projections

Employment in financial and business services is projected to increase over the medium term, continuing the trend of strong employment growth in these sectors.

Employment in financial services is expected to rise by 9.3 per cent in the country as a whole between 1999 and 2005, while employment in the sector in the South West is projected to increase slightly faster over this period, by 11.7 per cent. Employment increases are forecast to be greater in business services than in financial services; nationally employment in business services is projected to increase by around 15 per cent, and in the South West employment is forecast to rise by around 16 per cent.

Employment in financial services in Gloucestershire is expected to grow, although the two forecasting models come up with different rates of growth. The LEFM model predicts modest employment growth of 3.7 per cent, below the regional and national projections, while the baseline shift-share model predicts growth of over one third. This is assuming that stronger than average growth experienced in the past will continue in the future and this may be a bit unrealistic. Also there is a feeling amongst those in the industry that the national forecasts are over-optimistic and the actual out-turn will be below these forecasts, with the Financial Services NTO *Skills Dialogue Report* saying 'employment is forecast to grow in some sectors although in reality it is most likely to consolidate'. However, given the presence of many HQ functions in the sector in Gloucestershire, rather than back office functions, it is likely that future employment trends will at least match the national fortunes of the sector.

The forecasts for business services employment in Gloucestershire are a bit more optimistic. The LEFM model predicts employment growth of 11 per cent by 2005, although this is still below the regional and national projections. The baseline scenario of the shift-share forecasts is for growth of 25 per cent, based on the assumption that business services in Gloucestershire will continue to out-perform the sector in the South West. This again might be a bit over-optimistic, but employment growth close to the regional and national averages could be reasonably expected.

14.5 Skills and demographics issues

The UK financial and business services industry has a long established international reputation, and has been one of the key growth areas in terms of GDP and employment over the last two decades.

However the industry is currently facing a number of changes which have already, and will continue, to influence how the sector operates in the future. The key changes identified in the Financial Services National Training Organisation's Skills Dialogue report include:

- Information and Communication Technologies (ICT) and the impact of the internet. This is already revolutionising the industry, and changing the skills base required by the industry.
- Globalisation leading to increased competition, and thus placing a greater emphasis on the recruitment, retention and training of key staff whose contribution will make a difference.
- Regulation is a key feature, which has tightened the need for technically correct and competent selling, and has in turn influenced companies' training needs and directly impacted on their ability to perform and indeed survive.
- Increasing focus on client-driven rather than product-driven services, which is associated with the increase in ICT and the growth in call centres, with their ability to access clients so directly and personally.

These changes will have an impact on the skills needed by the industry, placing greater emphasis on IT skills, as well as softer communication and customer handling skills. Current skills gaps in these areas are likely to persist.

A further issue is the relative autonomy of the industry, which sees little, if any, role for the public sector, and has preferred to broker its own solutions in the area of training and skills development rather than engage in relationships with public agencies.

Skills shortages

The Financial Services Skills Dialogue report presents information on hard-to-fill vacancies and skills shortages. In 2000/01, of the total number of vacancies in the financial services sector, 39 per cent were classed as hard-to-fill, and 23 per cent were hard-to-fill for skills-related reasons. There were occupational differences in hard-to-fill vacancies, with the largest category being clerical and secretarial workers, followed by professional workers, sales and related workers.

The main causes of skill-related, hard-to-fill vacancies were a low number of applicants with skills, a lack of work experience, and a lack of qualifications. There was also a feeling among employers that many candidates lack motivation and in particular a business perspective, and also that there is a lack of financial knowledge within the current education system.

The skills which financial services' employers reported as being most hard to find included:

- advanced IT and software skills amongst professionals and associate professionals, and a lack of basic computer literacy among clerical and secretarial workers
- a shortage of managerial skills amongst professionals and associate professionals
- and a general lack of technical and practical skills in most occupations.

A common response among financial services employers to skills shortages has been to buy their way out of trouble by paying higher wages. However, this is becoming less of an option within some sub-sectors such as insurance, accountancy and call centres.

Skills gaps

Skills gaps among financial services' employers are most commonly reported for clerical occupations, managerial occupations, and sales occupations, according to the *Financial Services Skills Dialogue* report. The skills which financial services workforces were reported to be lacking included a wide range of generic skills, for example:

- Communication skills
- Customer handling skills
- Team working skills
- Problem solving skills
- Management skills.

These results are particularly important when bearing in mind the sector is moving towards being client-driven rather than product-driven, and experiencing strong growth in areas such as call centres.

The main reasons given for a lack of full proficiency among staff were a failure to train and develop staff, and recruitment difficulties, *ie* not being able to recruit staff with sufficient skills. The implications of internal skills gaps were difficulties introducing new products or services, new working practices, or new technologies.

Priorities for action

The Financial Services NTO, in their Sector Workforce Development Plan, identified the following priorities for action:

- Promote the sector and entry to the industry – if the industry as a whole is to get the staff it needs at the level it needs, especially in areas of tight labour markets, such as Gloucestershire, a concerted effort must be made to promote the sector and to facilitate entry into the various sectors.
- Develop good practice in people retention, development, motivation and deployment – if the industry is to compete for talent with major competitors it needs to identify and adopt good practice in how to retain people, harness talent, manage performance and develop skills in a way that is measurable and has impact on the bottom line.
- Review qualifications in the industry – a key issue raised by employers is that the qualifications available in the industry are not wholly appropriate to their needs. If employees are to be given the technical expertise to benefit themselves and the business, a review of the qualifications is needed to ensure those needs are met.
- Improve competence in the industry – competence of employees is crucial to the competitiveness of the industry. A single framework of competence is sought, which combines those elements of competency frameworks that work and refining those elements that do not.
- Improve the business management and enterprise for small businesses – small businesses are crucial to the competitiveness of the UK. Much should be done to improve their access to relevant learning and acquisition of skills, which will provide them with the tools to be successful.

14.6 Other issues

Transport

The poor rail links with London may be a factor discouraging companies relocating operations to Gloucestershire or setting up new operations in the county.

15. Information and Communication Technology

15.1 Definition

The ICT sector is defined as:

- Manufacture of computers and office machinery (SIC Division 30)
- Computing and related activities (SIC Division 72).

However, employment figures for SIC Division 30 are restricted by the Statistics of Trade Act, and so we are unable to present exact figures of numbers employed.

15.2 Current employment

In 2000 in Gloucestershire there were under 1,000 people working in the manufacture of computers and office machinery, accounting for 0.4 per cent of total employment, while regionally and nationally the sector accounts for 0.2 per cent of total employment. However, the vast majority of employment in the sector in Gloucestershire is in the manufacture of office machinery, rather than computers. Xerox in Mitcheldean is the major employer in the sector, manufacturing photocopiers.

The computing services sector employed 5,300 people in Gloucestershire in 2000, who comprise 2.2 per cent of the total. In the South West the sector makes up 1.5 per cent of total employment, while nationally, 2.0 per cent of all employees work in computing services.

Computing services are over-represented in two districts within the county, Cheltenham, and Tewkesbury. In Cheltenham the sector accounts for 2.8 per cent of total employment, and employs 1,600 people, while in Tewkesbury, 1,300 employees work in the sector, accounting for 4.3 per cent of all workers.

15.3 Recent trends in employment

Computing services has been an area of rapid employment growth in recent years, in Gloucestershire, the South West, and the country as a whole. Between 1995 and 2000 employment in the sector in Gloucestershire doubled. This is slightly less than the increase nationally of 108 per cent, but above the growth in the South West of 78 per cent.

Employment in computing services in the county was stable between 1995 and 1996, before it started to increase, and at an accelerating rate, between 1996 and 1999. However, the increase between 1999 and 2000 was less marked than in previous years.

The experience in the manufacture of computers and office equipment sector has been less good. Between 1995 and 2000 employment in the sector in Gloucestershire fell by just over 50 per cent. This compares with a fall of five per cent in the South West, and an increase in the sector nationally of 15 per cent.

Xerox have been relocating their manufacturing away from Gloucestershire, to the Czech Republic, and this process will be complete by the end of this year.

15.4 Future employment projections

Employment projections for the manufacture of computers and office machinery sector are not available; however, while employment in all engineering sectors is projected to decrease, the Engineering Employers Federation forecast that employment in electrical equipment and electronics sectors will rise in the future, although they do not quantify the projected increase.

The LEFM model predicts an increase in employment in the electronics sector in Gloucestershire, of 9.4 per cent, while the baseline shift-share scenario for the office machinery and computers sector is a decrease of 50 per cent. Given that employment in the sector has fallen by 50 per cent in the last five years, and that Xerox will have relocated their manufacturing operations out of the county by the end of this year, it is likely that employment in office machinery and computer manufacturing will fall substantially over the next few years, unless an inward investor comes in to the county to pick up the displaced Xerox staff.

Employment in computing services is expected to increase rapidly over the medium term, with a forecast increase in employment of 22.5 per cent between 1999 and 2005, both nationally and regionally.

Local forecasts suggest that the increase in Gloucestershire could exceed the regional and national projections. The LEFM model

predicts an increase in employment in the sector of 31 per cent between 2000 and 2005, while the baseline shift-share scenario is an increase of 46 per cent. It is therefore likely that computing services will be one of the fastest growing sectors in Gloucestershire over the next five years, subject to any constraints caused by deficiencies in the communications infrastructure and local skills supply.

15.5 Skills and demographic issues

The following skills and demographic issues are summarised from e-skills NTO *Workforce Development Plan, 2001-2004* (Draft for consultation), and e-business.nto *Skills Foresight: Setting the Agenda for the IT Services Industry* (2000).

There are insufficient number of recruits into IT careers which is severely limiting industry growth. The industry is not attracting a large enough proportion of graduates and school leavers. Women are also very under-represented in the sector. In addition to the current staff shortages, reported growth predictions of 20 - 38 per cent in industry (between 2000 and 2004) would necessitate a demand for an extra 362,000 to 800,000 staff nationally. One cited reason for the deficiency of school leavers, IT graduates and women are image problems. It was felt that negative stereo-typing and misconceptions about job content and skills was a factor.

Another issue was that employers were unhappy with the business, interpersonal and even technical skills amongst new recruits from HE and FE. Sandwich courses and work experience are particularly valued by employers and students. Both the *Skills Foresight* report and *Sector Workforce Development Plan* called for more industry-education links, urging employers to specify their requirements at an industry level and work with education and training organisations to make technical elements more relevant and improve personal skills.

In view of the quantitative and qualitative issues mentioned it was felt that the industry is not looking at a sufficiently broad pool of potential recruits. The problems are being exacerbated by short term recruitment tactics within the sector; the preferred recruitment option being to bring in appropriately trained/experienced staff from within the sector, inevitably leading to poaching from other employers. This pattern of recruitment is driving up salaries to the point where the UK is beginning to lose competitiveness and hence growth.

Alternative strategies are proposed, urging an increase in emphasis on induction and conversion training to ensure those from outside the industry (who are likely to have better personal skills) can quickly increase their technical competence. This could widen access and attract more mature candidates. Also the idea of using non-IT graduates and training them in the language and

dynamics of the sector was proposed, using law and accountancy as exemplar models of this approach. Graduate Apprenticeships (GA) have been piloted by a range of employers and fifteen universities are developing GA components to their courses, creating a new pipeline of more employable recruits.

Another major issue for the sector is the role of the 800 different vendor qualifications. In general vendor qualifications are well respected within the industry, fare much better than IT degrees in employer surveys , and are requested much more frequently than NVQs in job adverts. However, the proliferation of courses developed by vendors, whilst providing choice for employers and individuals, creates confusion and cost. It was felt that simpler ways to assess the content and quality of courses and 'kitemarking' were needed.

Looking more specifically at future skill needs, a major shift was identified from problem solving to problem prevention. The customer base is expected to continue to expand, but overall will be less IT literate and less tolerant of system failures and will expect more robust systems. There will be more prevention than repair and more on-line upgrades than installations. IT professionals will be more involved in creating and managing a system architecture that can accommodate many different applications from many different suppliers. Measures of success will be level of invisibility and time between system failures.

15.6 Other issues

Telecoms

While there is good telecommunications infrastructure in Gloucester, Cheltenham and other large towns in the county, the rural areas are poorly served. There is a question mark over whether broadband will be available right across the county, and if so, how quickly it will be available. This may hamper growth in the sector in rural areas. It is worth noting that there has been an expansion of small IT companies at Staverton, which had fibre-optic cabling laid two or three years ago.

16. Local Government and Defence

16.1 Definition

The sector is defined as SIC Division 75 – public administration, defence, and compulsory social security.

16.2 Current employment

In 2000 there were 13,100 employees in local government, defence and other public services in Gloucestershire, and they made up 5.5 per cent of total employment. In the South West, the sector accounted for 6.1 per cent of total employment in 2000, while nationally the sector accounted for 5.4 per cent of all employment.

Within the sector, there were 5,500 employees in local government and public administration, 6,100 employees in defence activities, and 1,500 employees in other public services such as police and fire services, judicial activities, and compulsory social security.

The public administration and defence sector is concentrated in Cheltenham and in Tewkesbury. There are 5,900 employees in the sector in Cheltenham, making up 10.1 per cent of the workforce, while in Tewkesbury there are 2,100 public administration and defence workers who comprise 6.9 per cent of total employment. Despite the presence of the city and county councils in Gloucester, the proportion of employment in public administration and defence is below the county average, at 4.9 per cent.

16.3 Recent trends in employment

Employment in the public and defence sector in Gloucestershire has been declining in recent years. Between 1995 and 2000 the employment level in the county fell by 13 per cent, while in the region and in the country as a whole, the employment level in the sector has remained stable over this time.

Employment in public services and defence in the county increased between 1995 and 1996, before declining for the next three years. However, between 1999 and 2000 the employment level has picked up somewhat.

16.4 Future employment projections

Employment in public administration and defence is projected to decrease slightly over the next few years. Between 1999 and 2005, employment in the sector nationally is expected to fall by 3.4 per cent, while in the South West it is expected to decrease by 2.5 per cent over the same period.

Gloucestershire is expected to mirror these regional and national trends of decreasing employment in the sector. The LEFM model predicts local government and defence employment will decline by five per cent, while the optimistic scenario of the shift-share analysis is a decline of ten per cent by 2005.

16.5 Skills and demographic issues

Local authorities employ a wide range of staff, in more than 300 occupations. General issues facing local authorities, taken from the Local Government NTO's *Workforce Development Plan*, are summarised below.

A major issue for Local Authorities is the Modernising Government Agenda. Local Authorities are now responsible for providing the strategic lead for their communities (in England and Wales), empowering them to promote economic, social and environmental well-being for their area and giving them new freedoms to be more innovative and entrepreneurial. Senior managers will need to add leadership skills to their personal and technical management skills.

They are required to engage in partnership working as a way of co-ordinating 'joined-up' service delivery with other public agencies, local businesses and voluntary organisations.

Best value, a review process all authorities are required to apply to all their services, will require better skills in

- procurements
- contract management
- project management
- risk management.

Political arrangements are undergoing modernisation with the creation of cabinets, elected mayors and other executive structures. This has had a particular effect on 'Democratic Services Officers'.

The new 'e' government initiative requires new skills to make services available electronically by 2005.

Customer expectations continue to increase and services are more likely to be individually tailored, flexible, and available 24 hours a day, seven days a week.

There is difficulty recruiting into certain occupations, especially:

- Environmental Health Officers
- Trading Standards Officers
- IT specialists
- Accountants
- Planners.

The staff profile is narrow and there is a need to increase the proportion of employees from ethnic minorities, attract younger recruits and encourage women into more senior positions.

Tied into the changing skill requirements is an issue of culture change and there is a felt need to attract new staff to the sector – ie developing current staff can only go so far in facilitating a culture change.

More action is needed to ensure staff development – an average authority spends only £152 per employee and 1.6 days off-the-job training per annum. In addition, employees on the front line are particularly disadvantaged.

17. Education

17.1 Definition

The sector is defined as SIC Division 80 – Education. This covers both school education, post-16 education, and private and community-based training.

17.2 Current employment

There were 20,600 employees in the education sector in Gloucestershire in 2000, who made up 8.6 per cent of total employment in the county. The proportion of education employment in Gloucestershire is close to the regional average of 9.0 per cent, and the national average of 8.2 per cent.

Within the education sector, 8,300 people work in primary education, 7,200 people work in secondary education, higher education employs 4,000 people, and there are 1,100 employees in other adult education.

There are four districts in the county that have a higher than average proportion of employment in education. In Cheltenham, 11.2 per cent of all employees work in education, while in the Cotswolds this proportion is slightly higher, at 11.8 per cent. One in ten (9.9 per cent) of employees in Stroud work in education, while in the Forest of Dean the education sector employs 9.4 per cent of the local workforce.

17.3 Recent trends in employment

Employment in education in Gloucestershire has been increasing in recent years, and at a faster rate than in the South West or in Great Britain.

Between 1995 and 2000 the education employment level in the country increased by nearly 40 per cent, while in the South West the increase was 32 per cent, and in the country as a whole employment in the sector increased by 24 per cent.

Although the overall trend in employment in the sector in Gloucestershire has been upwards, between 1995 and 1996, and in the last year since 1999, education employment fell slightly.

17.4 Future employment projections

National and regional employment projections are produced for the education and health sectors combined, and forecast increases in employment in the sector between 1999 and 2005, of 7.1 per cent nationally, and 9.9 per cent in the South West.

Employment in the sector in Gloucestershire is projected to increase, although the two forecasting models come up with different magnitudes of the increase. The LEFM model predicts employment will increase only slightly, by three per cent, between 2000 and 2005, while the shift-share analysis predicts an increase of at least 18 per cent. Employment has been a major growth sector in recent years, and developments such as the new GlosCAT campus, and the new University campus at Oxstalls in Gloucester, should ensure continued employment growth in the sector in the future.

17.5 Skills and demographic issues

Skills and demographic issues for post-16 education have been summarised from the Further Education NTO (FENTO) and Higher Education Skills Development Agency *Skills Foresight* reports and *Sector Workforce Development Plans*.

The post-16 education sector has an older age profile than the overall pattern found in the workforce. There are particular issues for replacing senior professionals and managers in the sector when they retire.

17.5.1 Skills shortages

Further education

The FENTO *Skills Foresight* report presented the analysis of a survey of FE colleges conducted during 1999/2000. Among the areas covered was recruitment difficulties, and the report presented the proportions of colleges reporting recruitment difficulties for different categories of vacancies. Recruitment difficulties were most widespread for:

- IT lecturers
- Engineering lecturers
- Construction lecturers
- Course/programme leaders

- Accounts lecturers
- IT instructors
- Key/core skills support.

The reasons given for recruitment difficulties were less to do with a shortage of skilled and qualified people and more to do with colleges finding it difficult to offer pay and conditions packages to attract such applicants. The reasons included difficulty for colleges in offering competitive salaries, and competition for staff from other sectors during a period of low unemployment and relatively tight labour market conditions.

There were also problems finding applicants with the combination of technical qualifications with teaching qualifications and up-to-date experience to take-up positions as programme leaders and managers of cross-college functions.

Higher education

1999 research by UCEA (*Recruitment and retention in employment in UK higher education, 1999*) found that while recruitment difficulties were not a major problem, there were localised problems filling posts for:

- academics in business subjects, information technology, engineering and some other specialisms; professors, researchers and senior academics in a range of subjects
- administrative/professional staff in IT, accountancy/finance and HR
- technical staff in IT
- secretarial and junior clerical grades, particularly fixed-term staff
- cleaners, caterers and security staff.

It should be noted, however, that difficulty recruiting cleaning, catering and security staff are largely a product of the relatively low wages for such posts, *ie* they are not a product of skills shortages.

17.5.2 Skills gaps

Further education

FENTO's *Skills Foresight* research examined the extent of skills gaps among FE colleges. The research looked at skills gaps among three particular groups of staff, lecturers, college managers, and support staff.

More than half of colleges in the survey reported that their lecturers lacked IT skills, either using IT in the curriculum, teaching on-line, or IT for personal use. Around a third of colleges reported skills gaps related to teaching the disaffected, and business development, among their lecturers. Research, pedagogy and new curriculum developments (Curriculum 2000) are recognised as significant gaps by around one-fifth of respondents.

Turning to skills gaps among managers, the most widespread gaps were in performance management and people management, each cited by around one-third of respondents, and using IT for management and generic management skills, with around a fifth of colleges reporting weaknesses in these management skills.

IT emerges as an important skills gap among support staff, with one-third of colleges reporting weaknesses in providing support on-line, and a quarter reporting weaknesses in supporting ICT. Other problem areas among support staff included business development, languages, learning centre management, and supporting the disaffected.

18. Health

18.1 Definition

The sector is defined as SIC Division 85 – Health and social work.

18.2 Current employment

The health sector in Gloucestershire employed 20,500 employees in 2000, and accounted for 8.6 per cent of total employment. The health sector in Gloucestershire is under-represented compared with the regional and national picture; in the South West 11.4 per cent of all employees work in the health sector, while in the country as a whole the sector employs 10.5 per cent of all employees.

Within the sector in Gloucestershire, 12,700 employees work in hospitals and other health activities, while 7,800 people are employed in social work activities.

The health sector is over-represented in three districts in the county, Gloucester, Stroud and the Forest of Dean. There are 8,100 employees in the health sector in Gloucester, and they make up 13.9 per cent of all employees in the city. In Stroud, the 4,000 health sector employees make up 10.4 per cent of total employment, while in the Forest of Dean the health sector employs 9.6 per cent of the local workforce, some 2,200 employees.

18.3 Recent trends in employment

Employment in the health sector in Gloucestershire has fallen slightly over the last few years, while in the South West and Great Britain it has increased slightly. Between 1995 and 2000 employment in health in the county fell by four per cent, while in the South West it increased by 1.6 per cent, and in the country as a whole the increase was 5.4 per cent.

Although the overall trend has been downward over the last six years, employment in the health sector in Gloucestershire

increased between 1996 and 1997, and again between 1999 and 2000.

18.4 Future employment projections

National and regional employment projections are produced for the education and health sectors combined, and forecast increases in employment in the sector between 1999 and 2005, of 7.1 per cent nationally, and 9.9 per cent in the South West.

The LEFM model predicts that health employment in Gloucestershire will rise by nine per cent, somewhere between the national and regional projections. Projections from the shift-share analysis are more modest, with the baseline scenario of an increase of 4.4 per cent. The future prospects for the public health sector in the county are a bit uncertain, with the shake up of the NHS trusts. However, it is likely that there will be growth in the private health and social care market, partly as a result of demographic changes towards an ageing population.

18.5 Skills and demographics issues

The *Healthwork UK Sector Workforce Development Plan* identifies a number of key issues facing the health sector now and in the future.

The sector is very short of professional staff for a wide range of reasons (some historical) and the demand is likely to increase for a number of reasons (ageing population, advances enabling treatment of more conditions, prosperity and increased healthcare spending, popularity of complementary therapies). Therefore a major issue for the sector is how to rapidly increase the workforce through upgrading current staff, and recruiting and retaining more staff from a wider range of sources.

A number of non-clinical skills shortages and skills gaps have been identified:

- IT skills - changing technologies affect the range of skills and competencies staff are required to gain
- communication skills – particularly interpersonal communication skills for clinicians
- management and leadership skills – senior managerial jobs becoming harder to fill
- voluntary sector skills such as fund-raising and trustee/board membership skills
- work-based assessment, clinical supervision, mentoring skills
- academic/teaching staff (in some disciplines)

- research skills
- counselling skills
- basic skills, particularly among the staff of contractor organisations.

Other important issues facing the sector are:

- Changes in the pattern of healthcare delivery, towards a patient-centred approach which will require more flexibility, reduced boundaries between staff, and specialists to be more involved in advice/training than in hands-on care.
- More knowledgeable and empowered consumers mean that healthcare workers will need to adopt new ways of working (partnership approach).
- Increase in non-hierarchical team-working require different set of attitudes and skills.
- Links between health and social care are becoming closer.
- Demand for better regulation and training of support workers.

19. Key Issues and Next Steps/Areas for Further Analysis

In this final Chapter we summarise the key issues arising from the analysis of the key sectors, and suggest areas where further research may be required, and how the research may best be undertaken.

19.1 Key issues

19.1.1 Food supply chain

The food supply chain sector is an important one in Gloucestershire, as it is across most of the South West. The sector has been hit hard by the recent foot and mouth outbreak, although money is being spent on promoting agriculture since the crisis, and the farmers markets are thriving in parts of the county *eg* Stroud. The food manufacturing sector has a few significant employers, notably Walls and Glaxo SmithKline.

Future prospects for the sector are that it will continue its slow but steady decline in employment terms. Walls has had slight reductions recently, outsourcing its transport and selling off parts of its site. There is growth potential in niche organic markets, and in developing the Gloucestershire brand. However, there are likely to be skills gaps among employers, both technical skills and generic skills including management, which may restrict the development of the sector.

19.1.2 Wood, paper, printing and publishing

The wood, paper, printing and publishing sector is over-represented in Gloucestershire. However, there are only a few major employers across these sectors.

Future prospects are fairly optimistic for a manufacturing sector, with employment likely to remain fairly stable. The education publishers Nelson Thornes are likely to do well as funding for schools continues to increase. However, there have been some closures among printers in Stroud district.

The printing and publishing sectors are likely to undergo dramatic change in the future, with the impact of IT on printing and publishing, and there will be demand for IT skills in the sector.

19.1.3 Rubber and plastics

The rubber and plastics sector is over-represented in Gloucestershire, although it has been in decline recently, as some production has moved overseas *eg* Marigold rubber gloves manufacturer moved to Malaysia, and Mercia Rubber went into receivership recently. However, there are some pockets of relatively high-technology manufacturing in the sector, with some plastics manufacturers being part of the supply chain for engineering sectors, and Dupont Nylon in Tewkesbury.

Prospects for the sector are that it will continue to decline, particularly at the lower technology end.

19.1.4 Metal and machinery manufacturing

The metal and machinery manufacturing sector is a major employer in Gloucestershire, with proportionately twice as much employment as in the South West. The sector is a mixture of heavier industry such as Lister Petter and Federal Mogul, and more high technology companies such as Spirax Sarco and Mira showers. Many small employers are the 3rd or 4th level in the supply chain to the automotive and aerospace sector.

Future prospects for the sector in Gloucestershire may be better than the regional and national trends, although employment is likely to fall slightly. Spirax Sarco and Mira are likely to do relatively well, as they are brand leaders and have cornered their markets. The heavier industry is likely to decline, although Lister Petter are down to their core functions and research and development, so are unlikely to shrink much more. Some production might be vulnerable to moving overseas to reduce costs, *eg* Alan Dick antenna tower manufacturer is considering moving production overseas.

As the sector moves to become 'leaner but fitter', there may be shortages for higher level engineering and technical skills. There are challenges for the education sector to supply the talent that the industry requires, and for the industry to compete with other sectors to attract the qualified people it needs through appropriate employment packages.

19.1.5 Medical and precision engineering

The medical and precision engineering sector has been growing rapidly in Gloucestershire in recent years. Renishaws will account

for much of the recent expansion, and the sector has been making use of the skills leaving the aerospace industry.

Employment in the future is likely to grow slightly, but not at the levels experienced in the past, or be stable. Although Renishaws has shed jobs recently, it is likely to pick up again in the near future as it develops into new markets. Also the clustering of medical equipment manufacturers should continue to do well, as demographics and technological developments expand the market, providing the supply of skills is there.

19.1.6 Automotive

As with the precision engineering sector, the automotive sector has benefited from the skills and expertise coming out of the aerospace sector. The recent trend in the sector has been strong, and it is in a good location to supply to not only Honda in Swindon, but also Jaguar in Cardiff and BMW in Birmingham. Stoneridge Pollack, who make switches, Woodward Diesel (formerly Lucas) who make diesel fuel injectors, and Automold who make plastic moulded interiors are among the major hi-tech employers, and have been doing well recently.

Short to medium term prospects are good, as long as the car industry prospers, nationally and in the South West and neighbouring regions. However, skills shortages may emerge, for example Automould have recently been complaining of shortages.

19.1.7 Aerospace

The aerospace sector has historically been the key engineering sector in Gloucestershire. However, the peace dividend has caused job losses throughout the 1990s. The two big players are Smiths Industries, Messier Dowty, with Dowty Propellers and Ultra Electronics also significant employers. However, the SME sector in aerospace supplying these large employers has been squeezed recently, with the big players trying to reduce their supplier base and develop closer links with a smaller number, and at the same time putting pressure on reducing costs and having more just-in-time production and supply.

Although there are global uncertainties in the sector, business prospects are fairly good. Airbus has not reacted as much in the wake of the events of September 11th as Boeing has; and the defence market is increasing with the recent military campaigns. However, this is unlikely to be translated into increased employment, rather productivity will increase. Smiths and Messier Dowty have been making some redundancies recently, and have not been taking people on either.

On the skills side, among SMEs there is a growing need for multi-skilling as a way of reducing costs, which is hitting SMEs hard.

19.1.8 Construction

Although the construction sector has been fairly flat in the late 1990s, it is likely to boom in the future. There is a long list of major construction projects going ahead or in the pipeline, headed by the new GCHQ site, and most of it is public sector funded so is firmly committed and should not be affected by any recession.

The key issue for the sector will be availability of both staff and skills. There are already difficulties recruiting at the low skill end, with staff coming in from other areas across the country, although relatively high house and rental prices in Gloucestershire compared with the Midlands and North of the country may deter this. At the high skill end, staff may be attracted in by higher wages, but the sector will need to look to up-skill its own local workforce, and to encourage the development of local construction skills.

19.1.9 Distribution

Employment in the distribution sector has been increasing in recent years, and is likely to continue doing so.

On the retail side, Cheltenham has a buoyant retail sector, but there is still room for improvement. Gloucester's retail sector is less strong, but there is a lot of potential to improve from this lower baseline, particularly with the Docks and western waterfront developments. Longer term, the Blackfriars development to link the town centre with the docks will improve things, but this is likely to be at least three years off. In the near future Waitrose in Cheltenham and Tesco in Tetbury will be recruiting several hundred people at each site.

On the wholesale side, the county has good roads infrastructure with the M5 and M50, and the improved A417/419 link to Swindon and the M4. Improvements to Junctions 12 and 11a will add to this strength. There is potential for distribution sites at Quedgely Business Park, Sharpness Docks in Stroud district, and possibly the Xerox site in Forest of Dean when it is vacated. Wincanton logistics at Quedgely have been expanding recently, but are now reporting recruitment difficulties, and GoldCrest are finding it difficult to recruit drivers.

The sector may need to direct recruitment away from young people and towards older workers, as more young people go on to further and higher education. There are few skills shortages and gaps, except particular instances such as drivers, as the distribution workforce is generally not highly qualified. However, there is increasing emphasis on customer service, sales, management and IT skills in the sector.

19.1.10 Tourism

Gloucestershire has a strength in tourism, with the Cheltenham racecourse and festivals, Gloucester Cathedral, and the natural attractions of the Cotswold and the Forest of Dean some of the big draws. There are also developments in the pipeline, such as plans for a conference centre and arena for concerts in Cheltenham, the restoration of the canal, and on a smaller scale the revamping of Cirencester Town Hall. However, tourism in the county could be exploited better, particularly having more to offer around the city to visitors to Gloucester Cathedral, and increasing overnight accommodation in the Forest of Dean.

Employment in the sector is likely to increase in the future. There is a need however to stay one step ahead of competitor areas.

Recruitment difficulties are emerging, particularly in the Cotswolds, due to poor transport, low pay, and better jobs available in Cheltenham. Demographic changes towards an older workforce will not help this. The industry may need to work hard to market itself better, retain more staff, and work with local training providers to improve the supply of skills and people for the sector.

19.1.11 Financial and business services

Gloucestershire has a strong financial services sector. Cheltenham and Gloucester Building Society, Zurich (formerly Eagle Star), and Endsleigh Insurance all employ at least 1,000 staff, and there are a number of other major employers. There has been strong growth in the sector over the last two decades. Much of the employment is in head office functions rather than back office functions, and so is more secure.

Employment in financial services is likely to increase, although not at the rates seen in the past. One example is Edotech in Tewkesbury, who print and distribute bank statements and are planning on doubling in size. However, there are potential threats in the out-sourcing of functions such as data processing to cheaper locations overseas, and also mergers and take-overs may impact on local employment, with divisions of departments being relocated out of Gloucestershire to other areas in the country. The poor train links to London are a weakness in attracting inward investors or relocators into the county.

There is less of a strength in business services, although Cheltenham and Gloucester have as many legal, accountancy and consultancy firms as would be expected for towns of their size. Kraft foods also have their European HQ in Cheltenham, with 600 office-based staff. Growth prospects for business services are good. Among the SME sector there is good potential for growth,

for example providing financial advice to retirees in the Cotswolds.

As with many other sectors, IT and management skills will be in great demand, in addition to communication, customer handling and team working skills.

19.1.12 ICT

The computing services sector has been growing rapidly in Gloucestershire in recent years. Marlborough Stirling is one of the largest employers in the sector, providing software and IT services for the financial services sector. The company has been expanding rapidly and constantly in recent years. Intercall, who provide internet conferencing, are also expanding, precipitated by people being less willing to fly after recent world events. The small and micro-business sector has also been expanding, often attracted to the area by the 'lifestyle' factors. However, there have been some casualties and job losses, for example Xebec closing down in Nailsworth with the loss of 100 jobs.

Future prospects for the sector are good, and it is likely to be one of the most rapidly growing sectors over the next few years. However, one issue that may constrain growth is the lack of communications infrastructure outside of the major towns, and there is uncertainty of whether broadband will be available in rural areas, and if so, how quickly it will be rolled out. Another possible constraint is that the supply of both people and skills will not keep up with the demand for them.

The computer and office machinery manufacturing sector has been declining in recent years, and with Xerox reducing its presence in the county there is likely to be only a few hundred people left in the sector by the end of the year.

19.1.13 Local government and defence

The defence sector is a major employer in the county, with GCHQ and some civil and military employment in the forces. The local government sector is what would be expected, with the county council and local authorities. The Countryside Agency and UCAS are also important public sector employers.

The sector has been in gradual but steady decline in employment terms in recent years, and this is likely to continue, particularly in local government with pressures to reduce costs. On the defence side, there may be a slight increase in numbers at GCHQ when they move to the new site, and recent world events may lead to increased opportunities there.

19.1.14 Education

The education sector is well represented in Gloucestershire, with the new University and a number of Further Education colleges. Employment growth in the sector in the county has been outstripping that in the region and the country as a whole in recent years.

Employment prospects for the sector are good, with both GlosCAT and the University building new campuses. Student numbers at the University have increased from 8,000 to 10,000 in the last five years, and will continue to grow. However, even though it employs a highly qualified workforce, the post-16 education sector is still experiencing skills shortages and gaps, which paradoxically it needs to look to itself to help overcome.

19.1.15 Health

Gloucestershire has a smaller than average health sector, and it has been falling slightly in recent years. Future prospects are better, with a small increase in employment. However, there is uncertainty with the shake-up in the NHS trusts in the county. The private care market is likely to do well, with the changing demographic profile and an older population, and the attraction of areas like the Cotswolds and Forest of Dean for retirees.

19.2 Further research

The current report has painted a broad picture of trends and prospects for 15 key sectors in Gloucestershire. Further research may add most value by providing detail for individual sectors.

These individual sector reports could take the form of:

- A short, mostly secondary-based report taking the analysis presented here a stage further, maybe by looking at likely future occupational and skills changes for the sector, and undertaking a more in-depth review of sector-specific literature.
- This could be expanded by including a small element of primary research, among employers and training providers. Telephone interviews or small focus groups could be used to obtain employer views on the key issues affecting the sector and possible responses. A telephone or email survey of education and training providers could be used to obtain information on local training provision for the sector, and provider views on key priorities for action.
- Finally, large-scale surveys of employers in the specific sectors could be undertaken, to obtain reliable information on:
 - the markets for their products and services

- employment levels and composition, and recent changes in employment
- extent and nature of training undertaken
- the extent of recruitment difficulties, skills shortages, skills gaps.

The research could also draw on additional secondary data sources:

- The 2001 Census of Population will be a very valuable data source to explore local employment issues by individual sector, although the data will not be available until 2003 at the earliest.
- Data from the Responsive College Unit, which are held by the Learning and Skills Council, can show student numbers and characteristics for particular courses or sub-programme areas.

Appendix Tables

Table A.1: Employees in employment by industry in Gloucestershire LADs, 2000, per cent

	Cheltenham	Cotswold	Forest of Dean	Gloucester	Stroud	Tewkesbury
Food supply chain	1.14	4.60	6.27	3.32	4.93	2.96
Mining and extraction	0.16	0.59	0.31	0.00	0.05	0.08
Textiles	0.13	0.21	0.17	0.39	0.92	0.10
Wood/paper/publishing	3.20	1.92	4.37	1.79	4.06	2.97
coke and chemicals	0.39	0.39	1.16	0.67	0.48	3.12
Rubber and plastics	1.20	0.78	2.48	1.02	1.71	4.02
Other non-metallic	0.10	1.25	1.12	0.39	0.33	0.54
Basic metals	0.40	0.09	2.20	0.14	0.09	0.32
Mechanical engineering	6.70	2.95	5.55	4.77	7.21	5.61
Office machinery/computers	0.03	0.38	2.81	0.03	0.06	0.04
Electrical engineering	2.46	1.12	1.22	0.25	0.91	1.09
Medical/precision engineering	0.20	1.18	0.40	1.02	4.69	5.04
Automotive	0.35	0.84	0.71	0.37	1.39	2.32
Aerospace/other transport	0.16	0.01	0.00	0.27	0.25	3.87
Furniture <i>etc...</i>	0.29	1.85	0.94	0.79	1.41	0.42
Recycling/energy and water	0.38	0.07	0.31	1.91	2.50	0.08
Construction	2.58	2.67	3.76	3.61	2.91	3.13
Distribution	17.63	20.50	13.28	19.94	15.93	14.99
Hotels and catering	6.95	10.56	4.98	5.53	6.36	6.10
Transport and communications	2.35	3.09	4.72	4.92	4.82	7.58
Financial services	8.53	1.98	0.56	9.03	1.78	2.93
Real estate/renting	1.84	2.90	1.73	1.11	1.81	1.39
Computing	2.80	2.31	2.05	0.83	1.89	4.32
Research and development	0.02	1.23	0.05	0.01	0.01	0.31
Business Services	9.68	11.50	13.92	10.69	7.27	6.74
Public sector/defence	10.12	3.26	2.50	4.78	1.84	6.86
Education	11.19	11.83	9.37	4.79	9.87	5.47
Health	5.14	5.76	9.56	13.94	10.42	4.54
Other services	3.90	4.21	3.50	3.67	4.10	3.06
Total employment	58,302	30,996	23,460	57,898	38,754	30,297

Note: Key Sectors labelled in **bold**; key sectors that are over-represented in LADs are **bold and italicised**

Source: Annual Business Inquiry, 2000

Table A.2: Recent trends in employees in employment in Gloucestershire, 1995-2000

	1995	1996	1997	1998	1999	2000
Food supply chain	8,917	9,427	11,268	8,923	8,457	8,295
Mining and extraction	297	394	360	675	559	395
Textiles	761	1,513	1,543	766	791	796
Wood/paper/publishing	6,113	7,337	5,856	7,053	7,050	6,991
Coke and chemicals	2,210	989	1,255	2,267	1,798	2,132
Rubber and plastics	5,191	3,633	4,032	3,872	4,713	3,988
Other non-metallic	1,197	1,094	1,365	1,750	1,904	1,225
Basic metals	862	950	704	1,104	1,132	986
Mechanical engineering	12,997	14,809	14,446	15,479	14,004	13,373
Office machinery/computers	1,754	*	1,544	*	*	*
Electrical engineering	2,950	2,819	2,473	3,616	2,640	2,892
Medical/precision engineering	2,824	3,881	5,184	4,874	4,006	4,516
Automotive	1,554	2,062	1,779	1,648	1,171	2,088
Aerospace/other transport	2,133	1,605	1,688	1,371	1,369	1,525
Furniture <i>etc.</i>	1,193	1,358	1,498	1,625	1,587	2,095
Recycling/energy and water	3,411	3,211	3,200	2,866	3,049	2,412
Construction	7,748	6,854	9,211	8,894	9,415	7,377
Distribution	36,700	37,596	38,726	40,962	39,407	42,007
Hotels and catering	14,752	15,341	15,463	17,059	19,709	16,006
Transport and communications	8,556	7,967	8,685	8,319	9,057	10,448
Financial services	10,525	8,932	10,747	11,394	11,319	12,527
Real estate/renting	3,573	2,973	3,353	3,924	4,544	4,147
Computing	2,664	2,665	3,060	3,773	5,054	5,350
Research and development	451	551	481	523	520	507
Business Services	19,909	18,997	20,948	20,418	21,347	23,523
Public sector/defence	15,009	15,307	14,786	12,947	12,837	13,061
Education	14,815	14,240	17,436	19,688	21,051	20,646
Health	21,333	20,509	22,028	21,757	20,352	20,509
Other services	8,270	9,578	9,740	8,546	10,313	9,040
Total employment	218,669	218,293	232,859	237,098	240,055	239,707

Note: Key Sectors labelled in **bold**

* indicates confidential under 1947 Statistics of Trade Act

Source: Annual Business Inquiry

Table A.3: Recent trends in employees in employment in South West, 1995-2000

	1995	1996	1997	1998	1999	2000
Food supply chain	78,372	77,871	96,651	80,720	77,458	69,687
Mining and extraction	5,692	5,307	5,206	6,392	7,048	5,900
Textiles	17,686	15,942	14,595	14,025	13,768	10,234
Wood/paper/publishing	40,479	41,804	41,333	42,697	43,105	41,552
Coke and chemicals	12,802	12,094	12,067	13,284	12,093	12,177
Rubber and plastics	20,807	19,858	23,286	22,195	21,319	19,530
Other non-metallic	9,075	8,957	8,412	8,864	8,638	8,677
Basic metals	4,133	4,676	4,175	4,085	4,024	3,909
Mechanical engineering	58,406	60,701	62,722	62,660	58,140	55,130
Office machinery/computers	3,861	4,112	2,850	3,291	3,502	3,655
Electrical engineering	29,899	26,976	29,966	28,475	28,611	30,329
Medical/precision engineering	14,570	18,606	17,509	17,973	15,471	15,309
Automotive	11,682	13,784	13,424	12,615	12,568	13,004
Aerospace/other transport	26,544	28,010	28,130	28,569	32,122	33,064
Furniture etc.	11,661	13,637	15,014	15,250	15,524	14,660
Recycling/energy and water	19,373	17,050	17,881	14,086	12,502	9,412
Construction	69,216	62,103	78,627	86,445	87,733	87,439
Distribution	330,256	340,430	347,490	365,423	374,095	378,474
Hotels and catering	141,414	142,837	145,507	148,424	143,169	149,049
Transport and communications	88,346	93,594	94,921	93,878	99,934	97,427
Financial services	85,958	82,080	80,193	79,543	85,564	82,060
Real estate/renting	32,644	32,252	34,992	36,205	37,869	38,113
Computing	17,074	19,097	21,399	25,333	29,306	30,304
Research and development	3,786	5,408	4,183	3,890	4,562	4,457
Business Services	159,436	157,164	175,816	162,511	166,221	173,074
Public sector/defence	121,661	128,450	125,236	104,747	111,332	122,054
Education	137,189	141,675	153,875	155,985	161,818	180,798
Health	226,050	222,503	224,419	229,796	233,486	229,638
Other services	76,892	86,756	84,981	83,745	92,506	91,379
Total employment	1,854,964	1,883,734	1,964,860	1,951,106	1,993,488	2,010,495

*Note: Key Sectors labelled in **bold***

Source: Annual Business Inquiry

Table A.4: Recent trends in employees in employment in Great Britain, 1995-2000

	1995	1996	1997	1998	1999	2000
Food supply chain	743,150	742,479	866,126	760,811	749,992	725,964
Mining and extraction	63,487	76,590	73,103	72,818	68,607	71,676
Textiles	372,910	372,998	347,226	331,249	287,687	250,506
Wood/paper/publishing	534,624	545,659	542,617	545,004	541,718	528,601
Coke and chemicals	275,865	274,977	274,173	280,984	267,124	263,154
Rubber and plastics	229,614	235,847	245,944	244,056	232,223	225,262
Other non-metallic	143,357	142,231	140,894	137,429	134,568	130,027
Basic metals	140,271	142,163	137,972	132,627	119,484	113,033
Mechanical engineering	803,816	818,834	809,230	779,745	760,788	735,019
Office machinery/computers	44,316	40,790	40,192	48,755	51,365	50,781
Electrical Engineering	293,984	314,043	312,822	307,255	298,857	295,068
Medical/precision engineering	135,532	146,096	150,187	139,036	131,750	131,834
Automotive	221,156	226,372	228,351	235,410	205,660	216,438
Aerospace/other transport	146,283	150,278	148,641	162,221	164,377	166,408
Furniture <i>etc.</i>	184,890	189,565	198,476	203,176	200,890	199,125
Recycling/energy and water	176,365	160,838	156,426	141,395	130,193	113,090
Construction	901,104	873,015	1,003,802	1,109,580	1,118,715	1,126,627
Distribution	3,937,610	4,031,807	4,147,906	4,347,822	4,374,307	4,404,712
Hotels and catering	1,417,072	1,465,129	1,508,052	1,567,722	1,606,567	1,605,537
Transport and communications	1,344,082	1,356,928	1,366,693	1,417,656	1,500,888	1,525,498
Financial services	1,022,639	1,006,555	1,023,771	1,034,437	1,075,083	1,065,269
Real estate/renting	410,339	391,445	416,592	449,053	482,306	509,940
Computing	236,458	272,074	314,358	368,719	430,458	490,565
Research and devt.	82,823	97,223	89,428	96,335	96,472	94,012
Business Services	2,282,713	2,305,688	2,489,174	2,577,336	2,625,398	2,792,644
Public sector/defence	1,345,005	1,369,405	1,293,607	1,376,403	1,325,311	1,343,983
Education	1,676,554	1,750,271	1,741,968	1,826,345	1,998,743	2,070,192
Health	2,500,681	2,505,765	2,530,982	2,510,011	2,547,793	2,635,475
Other services	1,062,168	1,132,072	1,148,897	1,149,038	1,228,122	1,260,130
Total employment	22,728,868	23,137,137	23,747,610	24,352,428	24,755,446	25,140,570

Note: Key Sectors labelled in **bold**

Source: Annual Business Inquiry

Table A.5: Percentage change in employment 2000-2005 under different shift-share model assumptions

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	SW 95-00	SW 95-99	SW 96-00	GB 95-00	GB 95-99	GB 96-00
Food supply chain	-1.4	-7.7	-7.0	-10.1	-9.8	-15.2
Wood/paper/publishing	12.9	11.0	-2.9	14.5	14.0	-2.6
Rubber and plastics	-22.6	-2.2	5.8	-27.9	-1.8	7.7
Mechanical engineering	0.5	4.9	-8.6	-2.0	4.4	-12.9
Office machinery/computers	-54.2	-44.3	-47.0	-79.6	-76.7	-88.0
Medical/precision engineering	46.8	13.2	26.0	49.2	16.4	12.7
Automotive	15.0	-66.5	-1.1	23.1	-61.3	-7.8
Aerospace/other transport	-61.1	-68.5	-31.1	-55.7	-65.5	-29.2
Construction	4.2	66.0	2.2	-19.7	37.2	-11.3
Distribution	6.9	-5.1	7.6	8.6	-4.1	8.4
Hotels and catering	10.1	71.6	7.0	1.2	55.4	0.7
Financial services	35.3	8.2	52.0	24.2	1.0	43.7
Computing	45.8	32.8	64.6	15.9	23.0	43.0
Business Services	25.3	7.7	29.4	10.5	-3.0	17.4
Public sector/defence	-15.8	-10.1	-12.2	-16.3	-17.8	-16.2
Education	17.5	36.7	27.3	22.9	32.5	33.8
Health	4.4	1.2	6.7	-2.2	-0.2	1.9

Source: IES calculations from ABI and CE/IER data