

A report by Beyond 2030 on future skills needs in the York, North Yorkshire and East Riding Local Enterprise Partnership Area

More Developed Area: York and North Yorkshire

Food and Drink Manufacturing: Processing and Preserving of Food

A report completed on behalf of Calderdale College as part of the College's 2017-18 ESF funded Skills Support for the Workforce programme across the York, North Yorkshire and East Riding Local Enterprise Partnership Area.

August 2017.

1 Introduction

The EU's Cohesion policy aims to reduce economic and social disparities at regional level across the EU. Consequently, the European Commission has three categories of regional funding:

- **Less Developed regions**, whose GDP per capita is below 75% of the EU average
- **Transition regions**, whose GDP per capita is between 75% and 90% of the EU average
- **More Developed regions**, whose GDP per capita is above 90% of the EU average

Within the YNYER LEP, York and North Yorkshire at nearly 98% GDP per capita is considered a More Developed Area (MDA), while East Riding at 83% is considered a Transition Area (TA) (Eurostat, 2016).

This report considers the Processing and Preservation of food subsector within the More Developed Area (MDA) of York and North Yorkshire.

1.1 York and North Yorkshire MDA

North Yorkshire covers an area of 8,654 square kilometres (3,341 sq mi), making it the largest county in England. The majority of the Yorkshire Dales and the North York Moors lie within North Yorkshire's boundaries, and around 40% of the county is covered by National Parks.

York and North Yorkshire is divided into a number of local government districts: Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough, Selby and the City of York.

It has a resident population of 809,200, which equates to 71% of the LEPs resident population (ONS, 2017). Nearly 380,000 individuals are employed in the area. Employment rates stand at 81.9% for North Yorkshire and 78% in York compared to LEP average of 79.9% (Table 1).

Using YNYER LEP as the standard, we can see various differences in the productivity, skills and employment across North Yorkshire and York. Table 1 highlights where the area performs better (green) or worse (red). For example, self-employment in North Yorkshire stands at 14.1% - greater than within York, the LEP as a whole and the English average. However, the number of individuals qualified to level 4 or above is lower and the proportion with no qualifications is greater in North Yorkshire.

Table 1 Productivity, skills and jobs:

Measure	North Yorkshire	York	YNYER LEP	England
Gross Weekly pay full time (£)	£475.40	£505.40	£504.70	£544.20
Job density (the ratio of total jobs to population aged 16-64.	0.96	0.85	0.86	0.84
Employment Rate	81.9%	78.0%	79.9%	75.0%
Self-Employment	14.1%	9.6%	12.2%	10.6%
Full-time workers	63.1%	62.7%	63.8%	69.1%
Unemployment Rate	2.3%	3.2%	3.0%	4.7%
Economically Inactive	16.1%	18.8%	17.6%	21.2%
Level 4+	35.9%	42.7%	37.5%	37.9%
No Qualifications	6.5%	6.2%	6.3%	7.8%

Source: Office for National Statistics: LEP and National Labour Market Profiles; GVA for Local Enterprise Partnerships

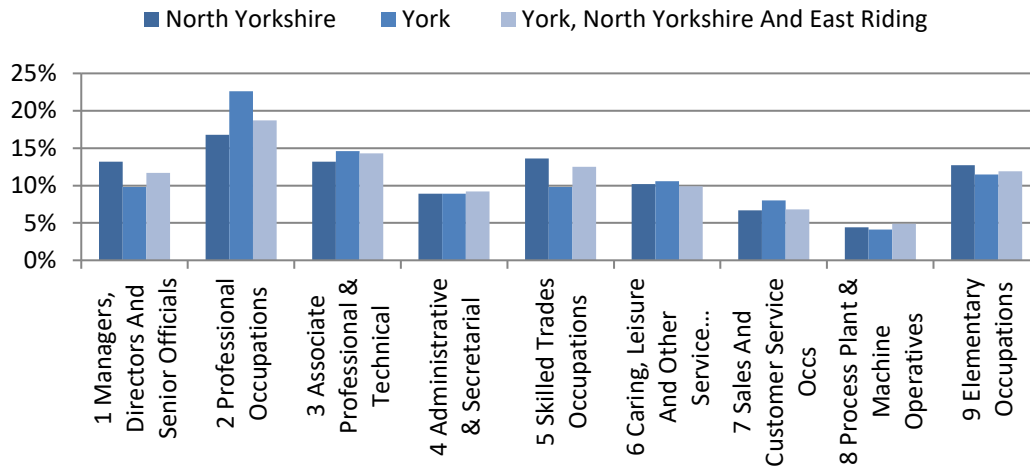
As previously mentioned nearly 380,000 individuals work across the York and North Yorkshire area. The largest employment sectors are (ONS, 2015):

- Health and Social work, employing 13% of all workers
- Accommodation and food services, employing 11% of all workers
- Retail, employing 10% of the workforce

The occupational profile across York and North Yorkshire has some variations compared to the LEP and national data (Figure 1). For example:

- There are more managers in North Yorkshire - 13% compared to 10% in York and 12% at a YNYER LEP level
- Nearly a quarter (23%) of the workforce are professional occupations in York, compared to 17% in North Yorkshire
- North Yorkshire has more skilled trade personal than York (14% compared to 10%)

Figure 1 Employment by broad occupation (Jan 2016 - Dec 2016)



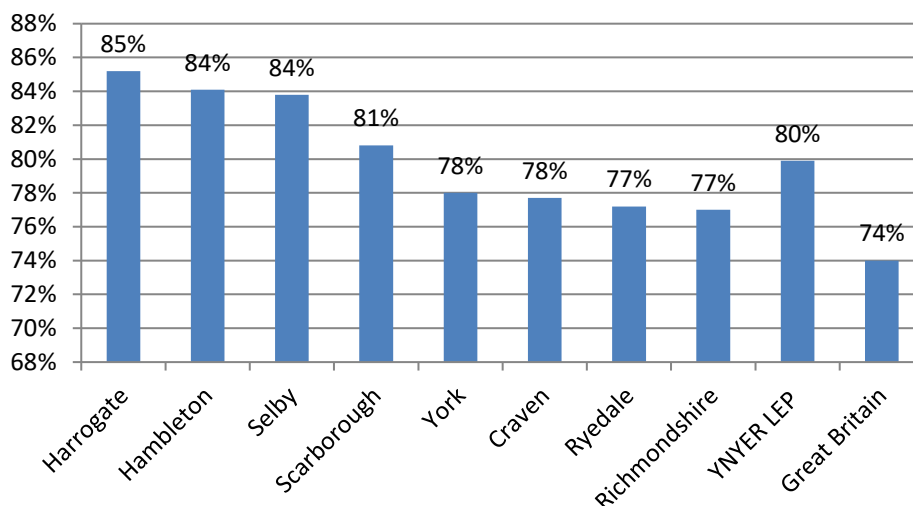
Source (ONS, 2017)

1.1 Local Authorities

The York and North Yorkshire MDA is made up by a number of local government districts: Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough, Selby and the City of York.

Looking in more detail at Local Authority level, we can see that there are variations in the employment rate: Harrogate has the highest at 85% while Richmondshire has the lowest at 77%. However the employment rate in all local authorities is greater than the national average (Figure 2).

Figure 2 Employment rate across the LEP and North Yorkshire Local authorities



Source (ONS, 2017)

Using YNYER LEP as the standard, additional variations in the job, skills and productivity levels of each of the local authorities are highlighted in the table below. Where the area performs better, we have highlighted this in green with relatively poor performance being highlighted in red in Table 2.

In summary:

- Four authorities have a lower weekly wage than the LEP average (Craven, Hambleton, Ryedale and Scarborough).
- In three authorities the job density is above one - meaning that there is more than one job for every resident aged 16-64. These are Craven, Harrogate, and Ryedale. However Craven and Ryedale employment rate is lower than the LEP average.
- Self-employment is particularly high in Harrogate and Scarborough and also in Scarborough, the proportion of full-time workers is low.
- The proportion of workers with a level four qualification ranges from 23.5% in Hambleton to 50.4% in Craven.

Where the local authority area performs better than the YNYER standard we have highlighted this in green or worse in red in the table below.

Table 2 Productivity, skills and jobs by local authorities in York and North Yorkshire MDA

	Craven	Hambleton	Harrogate	Richmondshire	Ryedale	Scarborough	Selby	York	YNYER LEP	England
Gross Weekly pay full time (£)	£413.10	£496.80	£535.50	£507.20	£443.10	£460.30	£549.40	£509.60	£504.70	£544.70
Job density (the ratio of total jobs to population aged 16-64.	1.16	0.98	1.06	0.8	1.02	0.93	0.73	0.85	0.86	0.84
Employment Rate	77.7%	84.1%	85.2%	77.0%	77.2%	80.8%	83.8%	78.0%	79.9%	75.0%
Self-Employment	*	14.7%	19.2%	*	12.7%	18.0%	*	9.6%	12.2%	10.6%
Full-time workers	60%	65%	61.5%	62.5%	69.9%	58.5%	68.6%	62.7%	63.8%	69.1%
Unemployment Rate	3.2%	2.8%	2.7%	2.8%	3.3%	3.7%	3.8%	3.2%	3.0%	4.7%
Level 4+	50.4%	23.5%	42.9%	25.3%	36.8%	37.5%	31.0%	42.7%	37.5%	37.9%
No Qualifications	*	9.1%	*	*	*	7.4	8.9%	6.2%	6.3%	7.8%

(ONS, 2017) * data not available, sample too small

1.2 Emerging developments in York and North Yorkshire MDA

The York and North Yorkshire area is not standing still. Improvements in transport, infrastructure, and housing continue to attract employers and business opportunities. Speaking with stakeholders we understand that each local authority has or is in the process of updating Local Plans and Investment Strategies. For example, Hambleton Inward Investment Strategy and Action Plan has just been published, with the aims to attract quality jobs to the district by looking at its unique selling qualities and how they can be recognised nationally. The initial focus will be on potential employment sites around Leeming Bar. The plan will look at the land, skills, support and opportunity the area has to offer investors, ensure a sufficient supply of good quality sites over the next five years, and encourage links between existing and potential new businesses in the area. It will also promote the creations of centres of excellence in some sectors.

Examples of growth, investment and development in the area includes:

The Fitzwilliam Malton Estate has received planning to change a vacant unit in Malton to form a gin or vodka distillery. This will include a retail area and office space. In addition the Estate is seeking permission for a new restaurant in Malton, an area which is being marketed as the 'Food and Drink' capital of Yorkshire,

Al Khaleej International is looking at a site next to the Allerton Park waste incinerator, near the A1/A59 junction for a new sugar beet processing plant. The company has asked Harrogate Council planners for environmental opinions before it puts in a full planning application. If the new plant goes ahead, the company claims it would create employment for 200 to 300 jobs, and would buy sugar beet from 3500 farmers mainly across the North East of England (Prest, 2017).

Sirius Minerals PLC is seeking to become a leading producer of multi-nutrient fertilizer and current focus is the development of North Yorkshire Polyhalite project. Located 3.5km South of Whitby, the project will involve the extraction and granulation of the mineral. The project involves the construction of an underground mine, along with the necessary infrastructure above and below grounds that will be necessary for transporting processing and distributing the minerals. The project is expected to deliver 2,500 direct and indirect jobs (Sirius Minerals PLC, 2017)

Covance, a global drug development business, currently based in Harrogate where more than 1,000 people are employed, are expanding on the National Agri-Food Innovation Campus, at Sand Hutton near York. Opening in late 2017, the laboratory extension in York will employ up to 30 scientists (Knowlson, 2017).

ACM Global Laboratories, a medical diagnostic testing company, has added a second specialised building to its laboratory block in Hospital Fields Road, York. The jobs generated will be high tech and include laboratory scientists, life sciences project managers, quality assurance professionals and data managers (York Press, 2017).

Furthermore in York, York Central - a 72 hectare site formed mainly of former railway land behind the station - could see the development of thousands of new homes and enough office space for 7,000 new jobs (City of York Council, 2017)

Near Whitby, a new 60-lodge holiday could be built on a hotel estate. The Classic Lodges hotel group has submitted an application to build a holiday park on its estate at Grinkle Park, following two years of extensive planning and consultation with the relevant authorities (Copeland, 2017). The development would see the restoration of the hotel's Grade II listed stable block, the re-introduction of a derelict caravan site, and the formation of two new lakes to complement the existing water feature. The lodges would be created in an environmentally considerate way and are aimed at the 'staycation' market of families who prefer to holiday in England than abroad. In addition to the construction jobs, once fully operational, the lodge park would create 25 jobs.

Discussions with Selby District Council highlighted a number of planning applications, including housing applications, the construction and operation of a combined cycle gas turbine (CCGT) power station, While Harworth Group Plc has recently secured the resolution to grant planning consent from Selby District Council to redevelop Kellingley Colliery, 151 acre site into a major new manufacturing and distribution centre, which could create 2,900 new jobs and bring investment into the region of £200m (Bean, 2017).

Newby Wiske Hall, formerly the North Yorkshire Police's Headquarters has been sold to PGL, a company that runs educational activities for schools and young people in March 2017. PGL plan to open the site in Spring 2018 and reported that they will create more than 100 jobs, not only in instructing activities, but in catering, housekeeping, site maintenance and management roles.

The above demonstrates some of the opportunities in the area where new firms are entering and currently resident employers are expanding. These developments will have multiplier effects across the supply chains and wherever consumption occurs.

2 Processing and Preserving Foods in North Yorkshire

2.1 Introduction

Food processing is a way or technique implemented to convert raw ingredients into consumer-ready products with the objective of stabilising food products by preventing or reducing negative changes in quality. Examples of food processing methods include: chopping, mixing, homogenizing, cooking, pasteurising, emulsifying, and spray-drying.

Food preservation is the process of treating and handling food in such a way as to stop or greatly slow down spoilage to prevent foodborne illness and extend its shelf-life.

Some techniques and methods used to convert raw materials into processed or preserved food include:

- **Preservation process:** this includes heating or boiling to destroy micro-organisms, oxidation, toxic inhibition, dehydration or drying, osmotic inhibition, freezing, and cold pasteurization which destroys pathogens and various combinations of all these methods.
- **Drying:** this is probably the most ancient method used to preserve or process food. Drying reduces the water content in the product and lack of water delays bacterial growth. Drying is the most common technique to preserve or process cereal grains like wheat, maize, oats, rice, barley, grams and rye etc.
- **Smoking:** many foods such as meat, fish and others are processed, preserved and flavoured by the use of smoke mostly in big smoke houses. This process is very simple as the combination of smoke to preserve food without actually cooking it and the aroma of hydrocarbons generated from the smoke processes the food and makes it even tastier to eat.
- **Freezing:** probably, the most common technique used in the modern world to preserve or process the food both on a commercial and domestic basis. This freezing is conducted in big cold storages which can stockpile huge amounts of food stuffs which can be further used in some natural emergencies.
- **Vacuum packs:** in this method, food is packed in airtight bags and bottles in a vacuum area. This method is used in processing the food as the air-tight environment does not allow oxygen needed by bacteria.
- **Salting:** the method of salting is used in food processing as it sucks out the moisture from the food. This is done through the process of osmosis. Meat is the best example of the food processed by salting as nitrates are used very frequently to treat meat.
- **Sugaring:** the method of using sugar to preserve or process food is very frequent where it comes to preserve fruits. In this method fruits such as apples, peaches and plums are cooked with sugar until they are crystallized and then it is stored dry.
- **Pickling:** in this method of preserving or processing food, food is cooked in chemicals and materials which destroy micro-organisms.

Without these processes, we would not be able to store food from time of plenty to time of need nor to transport food over long distances.

For the following report, data has been analysed using the following Standard Industrial Codes:

SIC	Description
10.1	Processing and preserving of meat and production of meat products
10.2	Processing and preserving of fish, crustaceans and molluscs
10.3	Processing and preserving of fruit and vegetables

Across York and North Yorkshire there are a number of processing and preserving food establishments, with a number planning growth:

Malton has been remoulded as the ‘food and drink capital’ of Yorkshire, and subsequently is home to a number of processes, manufacturers and breweries.

Malton’s Navigation Wharf, an area of former riverside warehouses, is being developed by Fitzwilliam Estate as a second phase of food production units with the first phase at Talbot Yard almost fully let. Costello’s will be one of the first producers to arrive, with its new production unit allowing more space to produce their craft baking products for Costello’s shops in Malton and Driffield. The new facility is anticipated to create 20 new jobs.

McCain employs almost 1,000 people in the Scarborough area, with roles ranging from engineering, finance, and product innovation. In March 2017, McCain’s announced that they are looking to invest more than £100m in its Scarborough factory. The investment is expected to help meet increased demand for its products, upgrade equipment and increase sustainability at the factory. The plans include installing odour reduction technology, landscaping around the perimeter of the factory and implementing renewable technology to reduce the company’s environmental impact.

Holmesterne is a highly successful, privately owned food company, established since 1994, operating from two processing /manufacturing plants based in North Yorkshire.

- Brompton on Swale (Richmondshire): Here in-house butchers operate from licensed meat cutting plant processing raw, chilled and frozen red meat and poultry. In addition they also manufacture stuffings, meatballs and BBQ products at this site.
- Leeming Bar: This cooking facility produces cooked meat products, roast and steamed vegetables either chilled, frozen, or ambient stable.

As previously mentioned a new sugar beet processing facility is planned for Allerton, by Al Khaleej International. The proposed developed will generate the site and provide employment at the plant for up to 300 people. In addition the facility would involve a supply chain of about 3,500 British farmers in sourcing of sugar beet.

2.2 Processing and Preserving Foods economy and employment

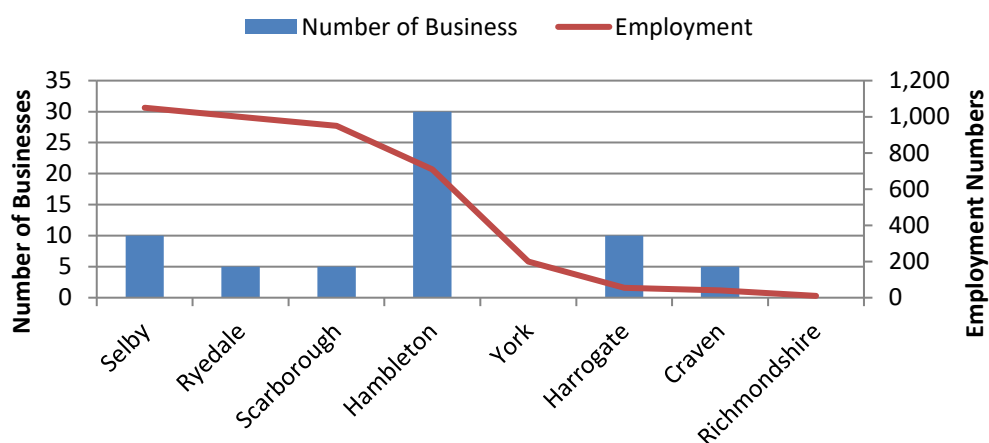
In total the York and North Yorkshire MDA has 85 businesses operating in the food processing and preservation subsector, employing 5,500 individuals. The greatest employment is found within Selby district accounting for 26% of the workforce. A further 25% are employed in Ryedale district.

Hambleton has the greatest number of businesses in the district, but only accounts for 18% of employment.

Three in five (59%) businesses employ less than 10 individuals and 6% employ more than 250.

69% of the businesses in the North Yorkshire area are involved in the processing and preserving of meat products, 23% in fruit and vegetables and just 8% in the processing and preserving of fish, crustaceans and molluscs.

Figure 3 Distribution of food processing and preservation businesses and employment in North Yorkshire



Source (ONS, 2015) & (ONS, 2016)

The job roles which have the greatest number employed in processing and preservation of food subsector across Yorkshire and Humber are:

- Packers, bottlers, canners and fillers.
- Food, drink and tobacco process operatives (See Annex for more details of role).
- Fork lift truck drivers.

Other skilled positions such as include fishmongers and poultry dressers, butchers and process engineers.

2.1 Skills needs – Primary research testing the data

2.1.1 Planning for the future

Data tells us that across the LEP economy 58% of firms have a Business Plan which specifies objectives for the coming year, which is slightly lower than national findings of 62% (UKCES, 2016). 39% of firms had a training plan, again less than national average of 42%.

Our primary research highlights that employers in the subsector in the MDA frequently do not have either of the above, particularly the smaller firms. Smaller establishments are clearly focussing on operational matters, and whilst there is some understanding of the need to plan this is clearly a gap.

2.1.2 Recruitment and retention

There is a high level of recruitment demand across the food and drink manufacturing sector and this is mirrored in the processing and preserving subsector. Nationally we have seen that 22% of firms in the food and drink sector reporting at least one vacancy; greater than UK findings (19%) (UKCES, 2016).

The subsector has struggled to attract, recruit and retain qualified engineers and technicians. This is partly linked to the fact that nationally there is a shortage of engineers but also engineers are more attracted to sectors such as automotive and aerospace.

Firms also reported the need for food technologists to identifying/create new food recipes, supervisors, financial positions and general production and warehouse staff.

Skilled Butchers are also in demand with several companies including Taste Tradition Ltd, R&J Finest Farmers & Butchers, Langthorne's Buffalo Produce, and Herb Fed amongst the firms seeking workers in this area.

Recruitment of migrants is also common in this subsector – 51% of the workforce in the subsector was born overseas. Reasons cited for the recruitment of migrants include a lack of local labour and unwillingness of local labour to perform roles.

But it is not just recruitment; many firms also report retention issues and these appear to be worsening. In 2015, 13% of firms in the sector reported retention issues particularly for process, plant and machine operative positions – the main employment occupational in this subsector (UKCES, 2016).

R&J Finest Farmers & Butchers, Kirkby

In May 2017 the firm was recruiting for several positions including Butchers, Packing Assistants, Weigh Scale Operatives, Sausage Manufacturers and Night Shift Operatives.

- Catering Butcher: High skill level with particular emphasis on portion control. Work as a key part of the team to ensure products are compliant with food safety and high quality standards
- Night Operative: Picking orders according to customer requests and specifications, Acting as Quality Control, Responsible for scanning each product based on traceability and the cut of meat, Working as a team, Working safely in the factory environment following company rules and regulations
- Production Operative: Operate machinery in order to package meat to a high quality for customer delivery, Good team player and keen to get involved, Excellent attention to detail, Highly organised with a sense of responsibility, Enthusiastic and Motivated

2.1.3 What are the current skills needs and skills gaps?

Skills levels

At a national level the food processing and preservation subsector has a very different qualification profile to the all sector average (

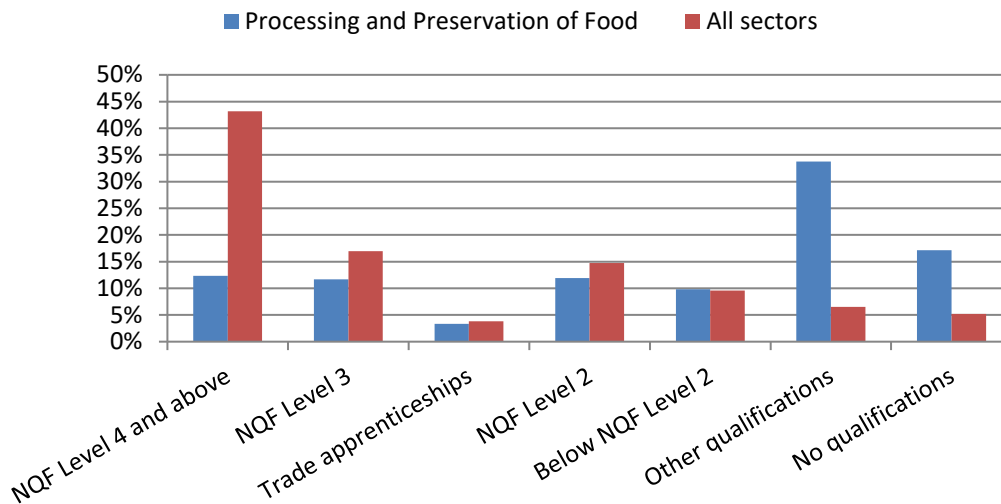
Figure 4). It is much lower skilled.

Only 12% of the workforce hold a level 4 qualification or above compared to all sectors in which 43% have this qualification. 17% having no qualifications at all and 34% other qualifications.

There is some variation within the subsector. For example 31% of those working in the processing of fish, crustaceans and mollusc have no qualifications, compared to 15% in the processing of meat products. However a greater proportion of workers have a trade apprenticeship in processing of fish (17%).

The largest occupational group in the subsector is process, plant and machine operatives (accounting for 43%) and elementary occupations (23%) and these roles traditionally require lower levels of qualifications.

Figure 4 Qualifications levels of food processing and preservation subsector (UK)



Source (Office for National Statistics, et al., 2016)

Skills gaps

Across all sectors in the LEP, 15% of firms report having a skills gap - i.e. where an employee is deemed by their employer to be not fully proficient, i.e. is not able to do their job to the required level (UKCES, 2016). Overall it has been calculated that over 21,200 individuals in the LEP are not proficient in their job.

From our primary research firms that report skills gaps confirmed that main causes are generally due to individual's being new to the role and their training is currently only partially completed.

These two factors are both predominantly transient: that is to say one would expect skills gaps resulting from these causes to be eliminated when staff are settled into their new roles and/or existing training has been completed.

From our primary work we can suggest that the following skills are particularly needed and valued by employers:

- Health and safety training is a necessity for many roles working in the subsector.
- For lower level positions, employers seek practical skills such as manual dexterity and a certain level of hand-eye coordination.
- Skilled trades such as meat processing skills (butchery and boning) and knife- and fishmongery skills.
- Engineering and technical skills.

2.1.4 Training

Across all sectors in the LEP, 65% of firms had funded or arranged training for staff in the previous 12 months, while across the UK food and drink manufacturing sector 70% of firms had done so (UKCES, 2016). The vast majority of training and development is targeted at initial training and development and statutory areas such as health and safety.

Our primary research found similar findings in this area. Key areas of training for employers in the processing and preserving sector are health and safety – particularly food hygiene.

Cost and time were the main drag factors on engaging non mandatory training,

McCain

McCain supports education and training not only within their workforce but also looking forwards to the next generation of workers.

They have the 'McCain Engineering Apprenticeship Scheme'. This scheme forms part of an industry-wide approach to help develop future engineers and inspire young people to join the food manufacturing sector. As well as Government required modules, apprentices receive bespoke training in a range of topics specific to McCain and the food manufacturing industry.

But they also backed the development of the University Technical College in Scarborough. A number of roles within the company require skills in STEM subjects and the UTC will play a huge part in training student that might in the future work for the company.

2.1.5 Apprenticeships

Across York and North Yorkshire there has been a steady number of individuals starting an apprenticeship. In 2011/12, just over 11,400 individuals started one, while by 2015/16 this had risen slightly to 11,570 (Table 3). Two in five (39%) of all starts have been within Richmondshire and 15% in York and 12% in Scarborough (DfE, et al., 2017).

The majority (70%) of apprenticeship starts were at an intermediate level. 4% were at a higher level. A quarter of all starts were by individuals under the age of 19 and 35% over the age of 25.

Table 3 Apprenticeship Programme Starts by level and age, York and North Yorkshire

Year	Total	Level (%)			Age (%)		
		Intermediate	Advanced	Higher	Under 19	19-24	25+
2011/12	11,400	75%	25%	*	31%	36%	33%
2012/13	11,520	72%	27%	1%	29%	38%	34%
2013/14	9,770	76%	22%	1%	27%	44%	28%
2014/15	12,920	76%	22%	2%	23%	45%	32%
2015/16	11,570	70%	27%	4%	25%	40%	35%

Source (DfE, et al., 2017) Apprenticeships geography data tool: starts 2011/12 to 2016/17

The most popular frameworks across the area were across the subject area of health, public services and care (49% of all starts). Business, administration and law accounted for a further 17% starts and Retail and commercial enterprise contributing 15% (Table 6Error! Reference source not found.).

The Food and Drink apprenticeship framework is one of 37 frameworks classified under the sector subject area of 'Engineering and manufacturing technologies'. So while we can see that 1,140 starts have been on engineering and manufacturing technologies frameworks in the MDA, it is important to note that not all of these will be on frameworks relating to this subsector.

Nationally, data reveals that there were 2,700 starts on a Food Manufacture apprenticeship in 2014/15 with the most popular pathway being Food Industry Skills, followed by Food Manufacturing Excellence (Table 4). 72% were at an intermediate level and 28% at advanced level (Table 5).

In contrast to the York and North Yorkshire all sector data in which we see 35% of starts by those over 25 years of age, 62% of food manufacture apprenticeship starts are by those over 25 (Table 5).

Table 4 Apprenticeship Programme Starts by Pathway (national)

Food Manufacture pathways	2013/14	2014/15
Baking Industry Skills	500	420
Brewing Industry Skills	10	20
Dairy Industry Skills	20	-
Fish and Shellfish Industry Skills	250	220
Food Industry Skills	710	710
Food Industry Skills and Technical Management	140	350
Food Industry Team Leading	50	20
Food Manufacturing Excellence	470	460
Fresh Produce Industry Skills	190	70
Meat and Poultry Industry Skills	600	430
No Pathway Assignment	70	-

Source (DfE, et al., 2017)

Table 5 Food Manufacture Apprenticeship Starts by level and age (national)

Year	Total	Level (%)			Age (%)		
		Intermediate	Advanced	Higher	Under 19	19-24	25+
2013/14	3,010	80%	20%		12%	33%	54%
2014/15	2,700	72%	28%	-	13%	24%	62%

Source (DfE, et al., 2017)

In our primary work we explored this and the reasons will be familiar to people working in the skills sector. Whilst there is a general support for the principle of Apprenticeship, it was felt that they were often too large an intervention for this subsector. 59% of firms in this subsector employ less than 10 individuals.

The sector has apprenticeships ranging from level 2 (i.e. Food & Drink process Operator) which is mainly where take-up is. However the need for higher level skills has been recognised. Consequently more advance standards have recently been developed. For example there is now a level 5 Dairy Technologist and level 6 Food Industry Technical Professional and Food & Drink Manufacturing Manager which are seen as relevant and valuable in the subsector.

From our primary work we can see that the challenge, particularly for SMEs, in hiring apprenticeships continue to be significant. There are issues around awareness, relevance and perceived bureaucracy.

Table 6 Apprenticeship Programme Starts by district and Sector Subject Area (2014/15)

Sector Area	Craven	Hambleton	Harrogate	Richmondshire	Ryedale	Scarborough	Selby	York	North Yorkshire	MDA Area
Agriculture, Horticulture and Animal Care	20	50	30	30	40	10	20	10	200	220
Arts, Media and Publishing	-	-	-	-	-	-	-	10	10	-
Business, Administration and Law	110	200	370	160	100	300	290	460	1,520	1,810
Construction, Planning and the Built Environment	50	60	50	50	40	50	70	160	370	440
Education and Training	10	-	30	-	10	20	10	10	80	90
Engineering and Manufacturing Technologies	80	120	180	100	90	170	150	230	910	1,060
Health, Public Services and Care	70	200	380	4,000	100	330	190	410	5,270	5,460
Information and Communication Technology	-	20	30	10	10	20	10	60	100	110
Languages, Literature and Culture	-	-	-	-	-	-	-	-	-	-
Leisure, Travel and Tourism	10	20	30	10	20	40	20	30	160	180
Preparation for Life and Work	-	-	-	-	-	-	-	-	-	-
Retail and Commercial Enterprise	90	170	310	180	80	250	150	340	1,220	1,370
Science and Mathematics	-	-	-	-	-	-	-	-	10	-
Unknown	-	-	-	-	-	-	-	-	-	-
Total	440	850	1,420	4,540	490	1,190	920	1,720	9,850	10,770

Source (DfE, et al., 2017) Apprenticeships by parliamentary constituency 2011/12 to 2014/15

2.2 Future requirements

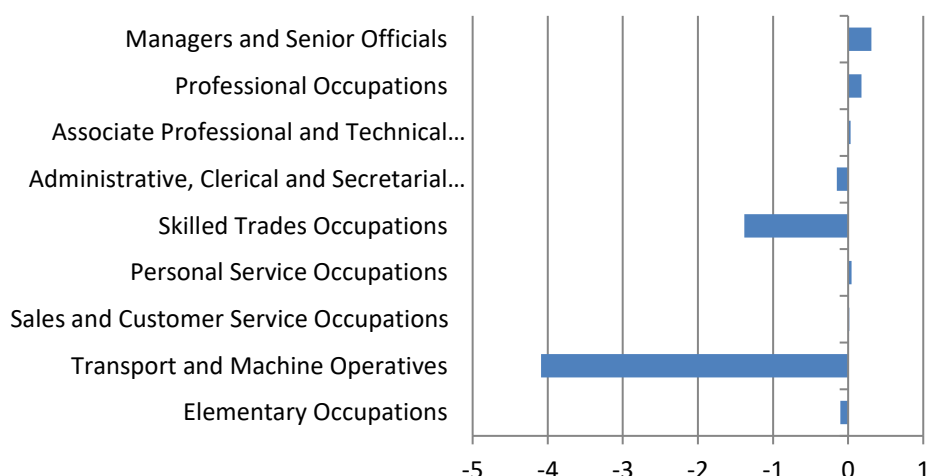
2.2.1 Sector growth

Future workforce projections for the subsector are available at the wider region of Yorkshire and Humber rather than the North Yorkshire area but this still provides a useful indication of changes in the workforce moving forward.

Employment in the Yorkshire and Humber food products manufacturing¹ subsector is expected to decline 10% between 2014 and 2024 – or by 5,000. This is in contrast to the region's all sector economy where growth of 5.5% is anticipated (UKCES, 2016).

We expect to see small employment growth for higher level occupations, including managers, professional occupations and associate professionals and technical roles (Figure 5). However, the overall number employed in plant, process and machine operative roles and skilled trades is expected to decrease.

Figure 5 Food products manufacturing occupational change, 2014 -2024 (000s), Yorkshire and Humber



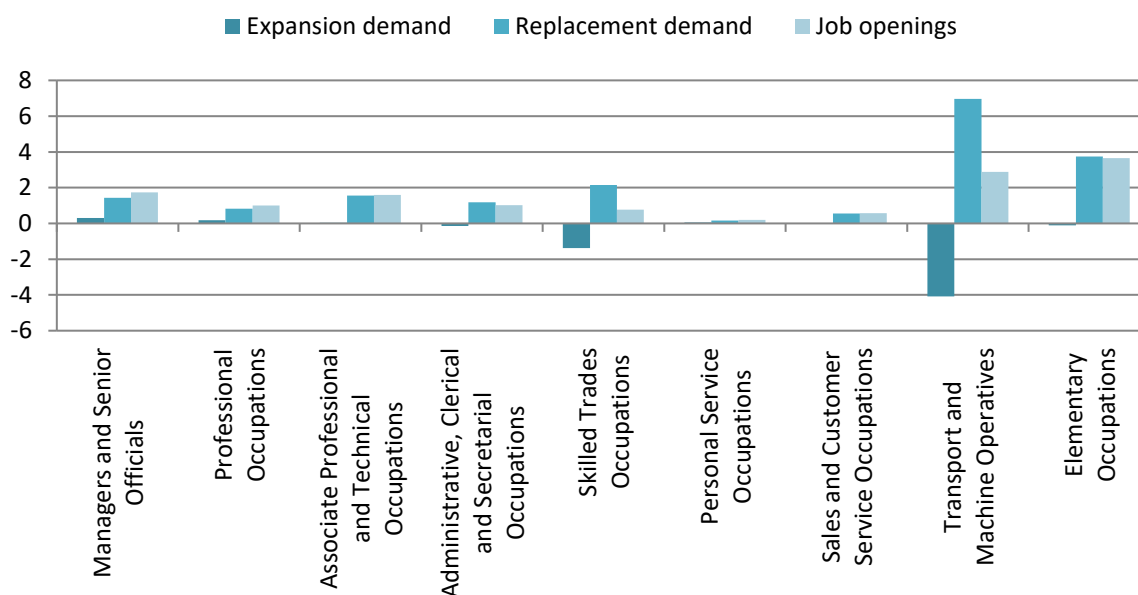
Source: UKCES Working Futures VI

2.2.2 Replacement need and total demand

Overall the subsector in Yorkshire and Humber is expected to have approximately 13,500 job openings between 2014 and 2024: 18,500 will be replacement demand, but there will be a net sector decline of 5,000. A quarter (26%) of all job openings will be within elementary occupations and a further 21% in process, plant and machine operatives (Figure 6).

¹ The whole of SIC 10 Manufacture of food products

Figure 6 Job openings in the Food products manufacturing by occupation 2014 - 2024 (000s) in Y&H



Source: UKCES Working Futures VI

19,000 of the new staff needed to replace existing employees is largely a consequence of its older workforce. 33% of the subsector workforce are over 50 years of age.

2.2.3 Qualifications

The change in qualification levels of the workforce shows that there will be a shift towards more people holding higher qualifications (Table 7).

By 2024, 32% of people employed in the food products manufacturing subsector are expected to be qualified at level 4 and above (Lower than Yorkshire and Humber region all sector proportion of 47%), whilst the proportion of people with no formal qualifications or level 1 is expected to fall to 6%.

Table 7 Change in qualification profile food products manufacturing subsector, Yorkshire and Humber

	No qualifications and level 1	Level 2	Level 3	Level 4 – 6	Level 7 – 8
Qualification example	GCSE (grades D – G) BTEC level 1	GCSE (grades A* – C) NVQ Level 2	AS & A level BTEC National	Certificate of higher education (L4) Foundation degree (L5) Bachelor's degree (L6)	Master's degree (L7) Doctorate (L8)
2014 level	19,469	12,415	9,854	7,966	1,251
2024 level	11,469	10,812	8,997	12,960	1,569
2014 – 2024 % change	-41%	-13%	-9%	63%	25%
2014 % share	38%	24%	19%	16%	2%
2024 % share	25%	24%	20%	28%	3%

Source: UKCES Working Futures VI

2.2.4 Future roles and skills

The above Working Future projections demonstrate that there will be limited growth across the higher occupational groups and a decline in lower skilled roles, but there will be replacement need for all positions.

Employers have not necessarily identified any new roles developing in the next 6 years; rather they expect to be recruiting for the same sorts of positions as they currently exist.

2.3 Drivers of change

2.3.1 Political

Election and Leaving the European Union

The result of the British General Election has left food and drink companies facing an uncertain immediate future, with a weak pound already increasing costs.

Uncertainty over the political situation of the UK may have an impact on the sector. It is only once the future regarding leaving the EU is clearer that companies will feel comfortable committing to long term investment programmes. Equipment suppliers are likely to be the biggest losers of this, as companies will push existing machinery to work longer and wait to see if consumer confidence remains at a level where investing in upgrades or expansions is worthwhile.

The effect on inward migration particularly from EU countries could affect the sector's ability to recruit and retain skilled staff and is by far the biggest issue employers have raised with us. This is perhaps not surprising given that 51% of the national workforce in this subsector was born overseas.

Legislation / Regulations

As with other industries which provide a service, this is a subsector which is heavily regulated, particularly in terms of food safety, quality and traceability and nutrition labelling.

Employers are not expecting there to be significant new legislation in the next few years, rather they are anticipating many current standards to simply move from EU legislation into UK law.

2.3.2 Economic

Rising Costs

The whole subsector is affected by rising operating costs. For example the increasing cost of raw products impacts on the whole sector. Consequently, resource management and budgetary controls are important.

Wage levels

The National Minimum Wage (NMW) was first introduced in the UK in April 1999 at a rate of £3.60 per hour for over 21-year-olds. Prior to that there was no statutory minimum. In April 2016 the government introduced the National Living Wage (NLW) at a level of £7.20 per hour for those over 25 years old, increasing to £7.50 in April 2017. It is expected to rise to at least £9 per hour by 2020. The impact of this is likely to be significant on this subsector.

Firms will undoubtedly face higher payroll costs and this is challenge they face. The BDO Food and Drink Report (2017) states that 66% of food and drink manufactures were increasing its investment in automation. Many are doing so as a result of, or partly liked to the national living wage increases.

Labour availability

Following the recession, the economic situation across the UK and North Yorkshire has been improving. Unemployment rates in the area have declined from a high of 7.5% in 2011 to 2.3% at the end of 2016. Of those claiming JSA, 43% have been out of work for six months or more (ONS, 2017) and are therefore more of a challenge to get back into work. Consequently it is becoming harder to recruit.

Demographic changes mean that there are fewer younger people entering the job market, which has an adverse effect. Employers need to find ways to attract and then retain staff. Recruitment and retention are two important issues.

2.3.3 Social

Consumer needs

Consumers are not only concerned about the sensory characteristics of foods products (e.g. texture, flavour, aroma, shape, colour and after taste) they also pay attention to the nutritional value. In general, consumers are demanding less processed and additive-free food products than before. Thereby food processors/manufactures are seeking to develop and employ processing technologies that retain or create the desired sensory and nutritional qualities.

New product development is a massive opportunity for businesses in the near future. There are several consumer trends shaping product development, including 'free-from', health foods, vegan and plant-based foods, and niche specialities such as snacks and craft beers.

2.3.4 Technological

Driven by new knowledge and new techniques developed through research findings and by market demand, the food industry is very active in technological innovations with a track record of developing new ways of processing foods.

Alternative or novel food processing technologies continue to be explored and implemented to provide safe, fresh tasting, nutritional foods without using heat or chemical preservatives. One such process is the application of high-pressure processing (HPP), which is seen as an alternative to thermal treatments. Here food material is subjected to elevated pressures with or without the addition of heat to achieve microbial inactivation with minimal damage to the food.

Automation

Automation has one of the highest impacts on the food industry with 63% having some level of automation (BDO, 2017). Some companies have been slow to adopt automation and upgrade production lines due to the downtime and retraining period needed. However 51% of food and drink manufacturers were looking to increasing its investment. This is important as we think of the future skills profiles of the sector. Increasingly manufacturers will rely on engineers and technical skills to keep a factory working rather than filling it with lots of low skilled workers.

The types of automation equipment include: refrigeration, handling and filling, automated packing and packaging, weighing, mixing, machine controls, software and remote centralised SCADA monitoring and control.

However, with automation also comes the risk of cyber-attacks. Companies embracing automation should pay close attention to cyber risk governance. Focus needs to be on security controls for both operational technology and information technology systems. User education is essential.

2.3.5 Environmental

Many processing plants consume vast amounts of water during the cleaning stages of products.

Firms are thereby increasingly seeking methods of production which are both resource efficient and environmentally considerate..

Newby Foods, based in Newby Wiske, North Yorkshire

As part of their commitment to the environment, Newby Foods Limited has utilised the reed beds spread along the east of the site as its primary water treatment source.

Reed beds, or constructed wetlands, are a now well proven, sustainable, low energy, low maintenance solution for wastewater treatment.

With this system Newby convert waste water, using natural ecological processes, into a non-polluting high quality effluent suitable for discharge into our rivers and streams.

<http://www.newbyfoods.com/responsibility/>

2.4 Key Points

What follows is a presentation of the key findings from the above.

- 85 businesses operate in the food processing and preservation subsector across the MDA area, employing 5,500 individuals. The greatest employment is found within Selby district accounting for 26% of the workforce. A further 25% are employed in Ryedale district.
- 69% of the businesses in the North Yorkshire area are involved in the processing and preserving of meat products.
- The subsector has struggled to attract, recruit and retain qualified engineers and technicians. This is partly linked to the fact that nationally there is a shortage of engineers but also engineers are more attracted to sectors such as automotive and aerospace.
- There is need for food technologists to identifying/create new food recipes, supervisors, financial positions and general production and warehouse staff.
- 51% of the workforce in the subsector was born overseas. Reasons cited for the recruitment of migrants include a lack of local labour and unwillingness of local labour to perform roles.
- At a national level the food processing and preservation subsector has a very different qualification profile to the all sector average (Figure 4). It is much lower skilled.
- Overall employment in the Yorkshire and Humber food products manufacturing subsector is expected to decline 10% between 2014 and 2024. However there are still expected to be 13,000 job openings, mainly in lower skilled occupations.
- In the medium term future automation is likely. Increasingly manufacturers will rely on engineers and technical skills to keep a factory working rather than filling it with lots of low skilled workers.

3 Annex

Table 8 Employment by Industry in the LEP and Local Authorities

Industry	Craven	Hambleton	Harrogate	Richmondshire	Ryedale	Scarborough	Selby	York	North Yorkshire	East Riding of Yorkshire	YNYER LEP
2 : Mining, quarrying & utilities	125	500	350	225	200	200	2,000	400	4,000	1,250	5,000
3 : Manufacturing	3,000	6,000	5,000	1,000	5,000	5,000	7,000	4,500	36,000	17,000	53,000
4 : Construction	1,500	2,250	3,000	1,000	1,500	1,500	1,750	4,000	17,000	6,000	23,000
5 : Motor trades	450	900	1,750	350	700	600	500	1,500	7,000	3,000	10,000
6 : Wholesale	1,500	2,250	4,500	700	1,000	1,000	2,000	2,500	15,000	5,000	20,000
7 : Retail	3,000	3,500	8,000	2,000	1,750	5,000	2,250	14,000	39,000	12,000	51,000
8 : Transport & storage (inc postal)	1,000	1,750	3,000	600	600	1,250	3,500	4,500	17,000	6,000	23,000
9 : Accommodation & food services	3,000	3,500	8,000	3,000	3,000	7,000	2,000	11,000	42,000	9,000	51,000
10 : Information & communication	350	600	2,000	150	150	300	800	2,500	7,000	2,250	9,000
11 : Financial & insurance	2,500	450	2,500	150	350	600	300	4,500	12,000	1,250	13,000
12 : Property	450	800	1,500	400	800	1,000	300	2,000	7,000	1,750	9,000
13 : Professional, scientific & technical	1,750	2,250	8,000	1,000	1,500	1,250	3,000	8,000	27,000	7,000	34,000
14 : Business administration & support services	6,000	3,000	6,000	1,000	1,250	2,000	3,500	8,000	30,000	7,000	37,000
15 : Public administration & defence	450	3,500	2,000	800	700	1,250	700	5,000	15,000	10,000	24,000
16 : Education	3,000	3,000	7,000	1,500	2,250	3,500	3,500	12,000	36,000	12,000	48,000
17 : Health	2,250	5,000	12,000	1,500	1,750	8,000	3,000	16,000	50,000	17,000	67,000
18 : Arts, entertainment, recreation & other services	1,000	1,750	3,500	1,250	2,000	2,500	700	5,000	19,000	4,500	23,000
Column Total	31,000	41,000	80,000	17,000	25,000	43,000	36,000	105,000	379,000	122,000	500,000

(ONS, 2015)

3.1 Food, Drink and Tobacco Process Operatives

Food, drink and tobacco process operatives set, operate and attend machinery to bake, freeze, heat, crush, mix, blend and otherwise process foodstuffs, beverages and tobacco leaves.

Typical Entry Routes and Associated Qualifications

There are no formal academic entry requirements, though some GCSEs/S grades can be an advantage. Off- and on-the-job training is available. Vocational qualifications are available.

Tasks

- sets, operates and attends machinery and ovens to mix, bake and otherwise prepare bread and flour confectionery products;
- operates machinery to crush, mix, malt, cook and ferment grains and fruits to produce beer, wines, malt liquors, vinegar, yeast and related products;
- attends equipment to make jam, toffee, cheese, processed cheese, margarine, syrup, ice, pasta, ice-cream, sausages, chocolate, maize starch, edible fats and dextrin;
- operates equipment to cool, heat, dry, roast, blanch, pasteurise, smoke, sterilise, freeze, evaporate and concentrate foodstuffs and liquids used in food processing;
- mixes, pulps, grinds, blends and separates foodstuffs and liquids with churning, pressing, sieving, grinding and filtering equipment;
- processes tobacco leaves by hand or machine to make cigarettes, cigars, pipe and other tobacco products

Related Job Titles

- Bakery assistant
- Brewery worker
- Dairy worker
- Process worker (food products mfr)