



UK COMMISSION FOR  
EMPLOYMENT AND SKILLS

# Understanding Skills and Performance Challenges in the Logistics Sector

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# **Understanding Skills and Performance Challenges in the Logistics Sector**

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## Foreword

The UK Commission for Employment and Skills is a social partnership, led by Commissioners from large and small employers, trade unions and the voluntary sector. Our ambition is to transform the UK's approach to investing in the skills of people as an intrinsic part of securing jobs and growth. Our strategic objectives are to:

- Maximise the **impact** of employment and skills policies and employer behaviour to support jobs and growth and secure an internationally competitive skills base;
- Work with businesses to develop the best market solutions which leverage greater investment in skills;
- Provide outstanding labour market intelligence which helps businesses and people make the best choices for them.

The third objective, relating to intelligence, reflects an increasing outward focus to the UK Commission's research activities, as it seeks to facilitate a better informed labour market, in which decisions about careers and skills are based on sound and accessible evidence. Relatedly, impartial research evidence is used to underpin compelling messages that promote a call to action to increase employers' investment in the skills of their people.

Intelligence is also integral to the two other strategic objectives. In seeking to lever greater investment in skills, the intelligence function serves to identify opportunities where our investments can bring the greatest leverage and economic return. The UK Commission's third strategic objective, to maximise the impact of policy and employer behaviour to achieve an internationally competitive skills base, is supported by the development of an evidence base on best practice: "what works?" in a policy context.

Our research programme provides a robust evidence base for our insights and actions, drawing on good practice and the most innovative thinking. The research programme is underpinned by a number of core principles including the importance of: ensuring 'relevance' to our most pressing strategic priorities; 'salience' and effectively translating and sharing the key insights we find; international benchmarking and drawing insights from good practice abroad; high quality analysis which is leading edge, robust and action orientated; being responsive to immediate needs as well as taking a longer term perspective. We also work closely with key partners to ensure a co-ordinated approach to research.

This report provides strategic labour market intelligence on skills needs in one industrial sector, namely – logistics. The report examines recent changes in the sector, with a particular focus on technological change and the implications for future skills and training needs. The research draws on an extensive literature review and analysis of the latest UK Employer Skills Survey as well as drawing on the insights of employers and stakeholders through interviews and focus groups. It provides new intelligence on the current situation and the future of skills and training issues in the logistics sector.

Sharing the findings of our research and engaging with our audience is important to further develop the evidence on which we base our work. Evidence Reports are our chief means of reporting our detailed analytical work. All of our outputs can be accessed on the UK Commission's website at [www.gov.uk/ukces](http://www.gov.uk/ukces).

But these outputs are only the beginning of the process and we are engaged in other mechanisms to share our findings, debate the issues they raise and extend their reach and impact.

We hope you find this report useful and informative. If you would like to provide any feedback or comments, or have any queries please e-mail [info@ukces.org.uk](mailto:info@ukces.org.uk), quoting the report title or series number.

**Lesley Giles**

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# Executive Summary

## Introduction

This report examines recent changes in the logistics sector with special focus on technological change and the implications for future skills and training needs.

Technological systems are considered to be a 'competitive weapon' for the logistics sector (Piplani *et al*, 2004). These systems can be any hardware or software that automates basic operational processes. However, to gain competitive edge from these technologies, expert knowledge or specialised skills are needed particularly IT skills and analytical skills.

The research draws on an extensive literature review and analysis of the latest UK Employer Skills Survey (UKCES, 2014a), as well as drawing on the insights of employers and stakeholders through fifteen in-depth interviews and three focus groups to provide an assessment of the nature of the knowledge and skills needs required.

## The Sector

The logistics sector is vital to the UK economy. It is seen to be a critical enabler in improving the competitiveness of the nation and local economies (DfT , 2011). The ability to connect to local and global markets is a key aspect of a country's capacity and capability to compete, grow, attract investment and create jobs.

The UK logistics sector employs 2.2 million people, one in twelve UK workers, but the sector's performance in the UK lags behind that found in many of our European competitor economies (The World Bank, 2014). The sector particularly underperforms with regard to education and training – ranking 22<sup>nd</sup> in the extent of staff training provided (World Economic Forum, 2014). This is a concern as the quality of education and training is crucial for domestic economies wanting to move up the value chain (World Economic Forum, 2014). Today's globalised economy requires pools of well educated workers who are able to adapt rapidly to their changing environments.

Logistics, due to technological change, consumer demand and environmental factors is a sector that is undergoing continual change. The workforce needs to be able to adapt, and having the right skills and training in place is vital.

Job roles and the knowledge and skills required in the sector have evolved to incorporate the demands of new technology. They are anticipated to evolve further rather than undergoing a radical switch as a consequence of technology. There is a greater emphasis on individuals being multi-skilled. Mobile, location-based technologies and hand held computer systems are replacing previous paper-based systems, requiring a greater need for IT skills amongst drivers, warehouse operatives and transport office staff. While greater interaction with customers require the addition of enhanced communication and customer service skills.

The most prevalent roles in the sector are machine operatives and elementary occupations, with these accounting for 49 per cent of the workforce (ONS, 2013b). These include roles such as drivers (LGV, van and forklift truck), and warehouse operatives. Looking forward, it is anticipated that the proportion of workers employed in these two groups will decline (UKCES, 2014b). Conversely, it is anticipated that there will be a greater need for higher level occupations: managers, professionals and associate professionals and technical positions.

### **Technology and the sector**

The early adopters of technology in the logistics sector, particularly of mobile technology, tended to be those with sufficient funds and the patience required to work through the early challenges associated with implementing burgeoning technology (Mulqueen, 2014). However, the benefits of these can now be gained throughout the sector as these technologies have matured, become more reliable and capable, and the costs for hardware and communications have fallen. Therefore, where historically the sector, particularly smaller firms, has been slow in the uptake of technologies, this is changing.

Retail logistics in particular has altered significantly in recent years as a consequence of technological advancements (Jones Lang LaSalle, 2013). It has moved from the time where stores were replenished by direct deliveries from suppliers, to centralising store deliveries via new distribution centres in the 1980s and 1990s. Next came import centres processing containerised imports, and then the rise in e-commerce and home purchasing and return deliveries, which are impacting on their distribution network infrastructure. The technology enables retailers and their logistics providers to deliver improved service to consumers, including services such as tracking and tracing of purchases.

E-commerce, however, is still relatively new, and as it continues to grow most retailers and logistics providers are still working out what this will entail for their distribution network infrastructures. The management of the supply chain, including transport modes and storage and warehousing facilities are key aspects that need to be considered.

Retailers and their logistics suppliers are therefore increasingly adopting the Supply Chain Management (SCM) concept in the management of their businesses. Information and Communications Technologies (ICT), such as warehouse management systems, data collection and identification systems and vehicle track and trace systems have become an integral element of competitive capability as it enables higher levels of supply chain integration (Evangelista, 2006).

Each mode of transport has seen technological advancements and concurrent skills requirements change over recent times. Investment in ports has seen them expand and transform from being just freight terminals to Port Centric Logistics Hubs (Mckinnon and Woolford, 2011). This has resulted in port activities diversifying to include rail terminals, warehousing and storage facilities, as well as upgrading quayside cranes, all demanding specialised skills and knowledge to operate the various machinery and IT systems.

Inland rail freight networks and terminals have similarly experienced investments as demand for rail freight increases, while road vehicles continue to undergo technological changes to improve safety and efficiency. Each new technological development requires the knowledge and skills of the operator to be updated.

Intelligent transport systems, such as vehicle tracking and tracing systems, allows fleet operators clear visibility of the mobile workforce, through real-time data. The ability to use the real-time data to identify and deal with issues quickly and efficiently are skills increasing sought within the transport office.

Automated Data Collection (ADC), such as voice technology, bar codes and Radio Frequency Identification (RFID) and Warehouse Management Systems (WMS) have transformed warehouses (Arabe, 2002). Numerous real-time performance reports about the status of goods in the warehouse can be detailed, requiring individuals utilising the systems to have strong analytical skills.

The evidence suggests that the adoption of technology within companies is driven by internal and external driving forces. For example, internal forces include factors related to cost efficiency, company strategy and revenue and cash flow. External factors relate to customer expectations, government legislation and competitors and suppliers. The interviews revealed the companies here were particularly driven by consumer/customer expectations, regulation and compliance and the increasing need to be competitive and operate effectively and efficiently.

Alongside the implementation of technology comes the need for skills. Firstly, individuals need to be able to identify the technologies and then realise the potential benefits of these. The adoption of technology must fit with the business strategy and requires a clear cost-benefit analysis. The technology then needs to be implemented, which could involve several partners working together in a co-ordinated manner, thereby requiring excellent communication skills. The process of implementation needs to be well managed and structured, securing employee buy-in to ensure a smooth adoption across the business. However, the most important aspect of adopting technologies is the need to provide staff training.

### **Skills gaps and skills shortages**

Although the vast majority of employers consider their workforce to be proficient, some 67,339 logistics employees are regarded as not being proficient in their job roles, or as having 'skills gaps' (UKCES, 2014a). The proportion of logistics employers reporting skills gaps has increased since 2011, going against the national trend which saw a decrease. This which may indicate a growing problem with the skills levels of the existing workforce

The main skills gaps in the Logistics Sector were reported to be technical or practical skills or job specific skills, planning and organisation skills, customer handling skills, problem solving skills and communication skills (Winters *et al*, 2014 and UKCES, 2014a). These are skills that employers report lacking from applicants.

In most instances representatives of logistics companies interviewed reported that they were able to recruit staff locally. However, employers interviewed noted that the individuals available in the labour market did not always have the full range of knowledge and skills required to be successful in the modern logistics industry.

The sector struggles to recruit specific occupations. But it also struggles with specific talent pools.

The UKESS revealed that a third of sector vacancies were reported to be 'hard-to-fill vacancies' – a proportion which has increased since 2011, where 29 per cent of vacancies were reported to be hard-to-fill, suggesting there is increased employer competition and demand for skills (UKCES, 2014a).

The impact of hard-to-fill vacancies includes difficulties introducing technological change. A further consequence reported by nearly half (48 per cent of employers with hard-to-fill vacancies) is that establishments lose business or orders to competitors, which is felt more greatly than when compared to all sector figure of 40 per cent.

A shortage of LGV drivers is not a new phenomenon (Winters and Moloney, 2012) but it appears to be a continual issue. In 2014 drivers were ranked as a top three job role which employers had difficulties filling (ManpowerGroup, 2014) compared to 2012 when it fell outside the top 10. Employers report growing concerns that the problem will be exacerbated by the requirements of the Driver CPC legislation. By September 2014, all professional LGV drivers will need to hold a Driver Qualification Card (DQC). To gain this card, drivers with licences prior to September 2009 need to undertake 35 hours worth of periodic training before September 2014, while new drivers entering the profession must pass all four modules of the Driver CPC initial qualification. The individual must then do 35 hours of periodic training every five years to maintain their CPC.

With more than 60 per cent of all goods moved by road, it is critical that the shortage of drivers is addressed.

Attracting young people is a further problem for the sector. Only nine per cent of the workforce in the logistics sector is under 25, while nearly half (45 per cent) are over 45 years of age. Compounding this is the fact that only 18 per cent of logistics employers had recruited at least one education leaver to their first job, with nearly a third of employers reporting the young person to be poorly or very poorly prepared for work (UKCES 2014b). This is much lower than the all sector figure of 27 per cent and places the sector in the bottom two of all sectors, behind agriculture, for recruiting young people.

Research by Skills for Logistics found that the most commonly identified reason for the struggle to attract drivers and young people is the image of the sector. Young people, in particular, lack understanding of the sector – 66 per cent of 14-19 year olds misunderstood the term ‘logistics’ (Skills for Logistics, 2009). There is also evidence that individuals ‘fall’ into the sector, considering it to be a job of last resort (Moloney *et al*, 2011). This in turn makes it harder to attract quality entrants. The driving professional faces further entry barriers, such as cost, the need to generally have two years’ experience and to be over 25 for insurances purposes (Transport Select Committee, 2010).

This evidence indicates that recruitment difficulties could be affecting the ability of logistics firms to grow and develop as quickly as they may be able to if they were able to source the required skills more easily. Furthermore, it is imperative the sector overcomes these recruitment challenges to ensure it can fulfil the demand for nearly 1.2 million additional workers by 2022.

Encouragingly, since 2011, there has been a marked rise in the proportion of employers with skills gaps that have taken action to tackle them, such as increasing training activity or spend, though there is still scope for more widespread, targeted responses in the sector to address these issues.

### **Training and qualifications**

In line with more employers taking action to tackle skills gaps, the proportion of employers providing or arranging training has also increased: six in ten (62 per cent) had done so over the previous 12 months compared to 52 per cent in 2011 (UKCES 2014a). This is slightly lower than the all sector figure of 66 per cent, with the sector placed in the bottom five of all sectors for providing training.

There has been a marked increase in the proportion of machine operative staff trained over the last 12 months, but this is likely to have been driven by the legislative requirements of the Driver CPC. Managers were the least likely, with only 34 per cent receiving training. The sector however, trains a much smaller proportion of staff in each occupation than across all sectors.

The implementation of technology has resulted in the need for different skills and employers providing the necessary training. Employers generally undertake this training in-house, with the operation of technologies incorporated within induction training for new staff.

In-house training is developed to ensure it satisfies business requirements, such as compliance and fulfilment of contract obligations, and is therefore seen as valuable to the company by those interviewed. Conversely, there appears to be reluctance in the sector to provide individuals with accredited qualifications. Only a fifth of logistics employers had funded or arranged any training intended to lead to a nationally recognised qualification which is less than all sector findings of three in ten employers (UKCES, 2014a).

Employers fear that accredited training adds value to the individual, making them more attractive to other employers, therefore there is a deep set philosophy amongst many firms interviewed that if staff are trained, they will leave. More needs to be done to show that this is not the case.

Employers in the research strongly favour vocational experience over academic qualifications. HE courses, particularly those without a 'gap year' or vocational aspect are not valued. The individual is still seen to have similar developmental requirements as a young person leaving college and entering the sector.



Employers have raised concerns about the quality of training provision, particularly the Driver CPC periodic training courses. Employers would therefore welcome the implementation of a standard that would identify good training delivery in this area. Suggested areas the standard should be set against include:

- Trainer quality – all trainers are qualified to teach the class;
- Course preparation and delivery - the content should attain a core standard and be engaging;
- Learning resources and environment – the learning environment is of professional quality, that lends itself to knowledge transfer;
- Pre and post-training delivery – the provider seeks to support the employer/individual along the learning journey; and
- Commitment to excellence

Looking forward, two thirds of logistics employers (66 per cent) expect that at least some of their staff will need to acquire new skills or knowledge over the next 12 months (UKCES, 2014a). This is slightly lower than across all sectors, where seven in ten employers expect need to acquire new skills or knowledge. In some cases this is likely to reflect the dynamic environment of fast-changing skills needs, where the current skills levels may be sufficient, but over the coming 12 months these skills will become outdated. In other instances, it may be that the employer believes that staff still have the ability to add to their skill set. It is therefore imperative to ensure that the appropriate training solutions are available to employers.

### **Skill Requirements**

The implementation of technology has impacted the skills requirements across the logistics sector. The roles, skills and knowledge needed in the sector have evolved. Roles are not becoming redundant; rather, there is a greater need for individuals to be multi-skilled in many areas, including management roles, drivers, port operatives, warehouse operatives, transport office, IT professionals and trainers.

Skills and knowledge needed include:

- IT skills - for application of the technology, but also website design and development
- Customer service and communication skills – key with the increased demand in home deliveries and direct contact with the end-user

- Contract relationship management - customers are demanding more from the contracts and this needs to be managed effectively
- Compliance awareness – need to adhere to and be aware of incoming rules and regulations, but also be able to comply with contract needs, which may require involved auditing
- Analytical / Reporting skills – many of the technologies and systems hold a vast array of data relating to performance. Workers need to have the skills available to analyse this and identify areas of potential improvement
- Planning - the ability to use historic data as a means to influence future planning
- Problem solving skills – ability to use real-time data to identify and deal with issues quickly and efficiently
- Promotional skills and marketing - not only to promote the companies services, but also to overcome the negative perception of the sector to increase awareness of opportunities to attract new talent.

### **Conclusions, implications and opportunities**

Technology is helping to improve the services that logistics providers offer. The entire supply chain is becoming ever more connected. Consequently data is being collected in ever increasing quantities and the ability to intelligently interpret this and to solve real-time issues is key to many organisations' competitive advantage.

However, changes in technology are accompanied by changes in skills requirements. This research shows that employers have to address labour market issues and plan ahead to ensure there is sufficient supply of skills.

Career information, advice and guidance for employers, careers advisers and other stakeholders to take to schools, events or Job Centres could help to increase awareness and promote the sector to a greater diversity of people.

With the anticipated increase in demand for high level skills and the sector's apparent lack of value in HE courses, there needs to be greater collaboration between industry and academia. This has already begun with NOVUS Trust - an organisation sponsored by a number of Industry Partners that has formed a partnership with the University of Huddersfield and the Chartered Institute of Logistics & Transport (CILT). But these are large employers and only one course. Small and medium sized firms must also be involved, so they can understand the potential value of such courses, and ensure that the all-important vocational element is included.

The mind-set of employers in terms of accredited qualifications also needs to be addressed. There is a deep seated fear that providing accredited training will see the individual leave the firm; the development of positive, sector specific case studies could help to counteract such perceptions.

Employers all raised concerns about the future supply of workers. Young people, in particular, lack understanding of the sector and individuals consider the sector to be a last resort. This in turn makes it harder to attract quality entrants, and employers are faced with skills shortages and skills gaps, within the existing workforce. Sourcing the required numbers of suitably skilled staff is therefore recognised as a key challenge for employers in the sector, which if not addressed will seriously compromise future business growth potential. Employers would therefore benefit from concerted efforts to attract talent to the sector.

# 1 Introduction

## 1.1 Purpose of the report

The aim of this report is to provide new strategic labour market intelligence on how technological advances and changes in the logistics sector have impacted on the skills needs of the workforce, and how responding to these challenges can ensure that the sector maximises the opportunities for growth and productivity in the future.

The logistics sector a hugely important part of the UK economy and was one of eight sectors addressed in the Government's first growth review in 2011. Logistics is recognised as an important enabler of the success of other businesses (DfT, 2011), particularly construction, retail and manufacturing – sectors the UK Commission for Employment and Skills (UKCES) has identified as of importance to the UK economy<sup>1</sup>.

The role of technology in driving skills was identified in the Sector Skills Assessment for Freight Logistics & Wholesale (UKCES, 2012a). New technological systems are key to the success of the sector and relate to any hardware or software that automates basic operational processes. However, for firms to gain the competitive edge from these technologies, both expert knowledge and specialised skills are needed. Piplani *et al.* (2004) research revealed that almost half of companies planning to adopt new technology encountered difficulties in recruiting appropriately qualified people who are both knowledgeable in logistics operations and in new technology. An understanding of the skills required to harness these technologies and achieve their full potential is therefore required.

The objectives that underpin this report are to:

- Understand the existing and emerging technologies influencing the skills needs within the logistics sector
- Identify, review and document existing literature on the current and future impact of technologies in the sector
- Establish the skills required to utilise these current and future technologies
- Identify any interdependencies between technology and other drivers of skills (i.e. regulation)
- Understand the influence of technologies on the supply chain

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<sup>1</sup> <https://www.gov.uk/government/collections/sector-skills-insights-reports>

This new research will add to the existing evidence by bringing logistics sector employer views together with existing evidence to help understand employer behaviour and the current and future drivers affecting their competitiveness and growth. The findings from this enhanced intelligence on the sector can be used to inform future skills policies, advise employers on the skills they need to be investing in and helping government, education and training providers respond to those needs. It links directly to the UKCES mission to 'work with and through our partners to secure a greater commitment to invest in the skills of people to drive enterprise, jobs and growth'.

## **1.2 Summary of methodology**

This report combines data analysis, evidence drawn from a literature review and qualitative interviews with 15 logistics employers during February and March 2014. A review of research findings from interviews was undertaken at three employer focus groups in England, Wales and Scotland to provide a detailed analysis of how the role of technology is driving skills needs in the logistics sector.

The approach has ensured that this report has been developed through detailed input by relevant employers and experts in technologies used within logistics.

Full methodological details are available in Annex A.

## **1.3 Defining the sector**

The Freight Logistics and Wholesaling Sector, for the purpose of this report is defined using the Standard Industrial Classification (SIC) as follows:

- SIC 46 Wholesale trade, except of motor vehicles and motorcycles
- SIC 49.20 Freight rail transport
- SIC 49.41 Freight transport by road
- SIC 49.42 Removal services
- SIC 50.20 Sea and coastal freight water transport
- SIC 50.40 Inland freight water transport
- SIC 51.21 Freight air transport
- SIC 52.10 Warehousing and storage
- SIC 52.22 Service incidental to water transport
- SIC 52.24 Cargo handling
- SIC 52.29 Other transportation support services

- SIC 53.10 Postal activities under universal services obligations
- SIC 53.20 Other postal and courier activities

## 2 Logistics Sector Overview

### Chapter Summary

- Logistics can be seen as underpinning the entire UK economy, with all industrial sectors relying on efficient logistics. The sector employs eight per cent of total UK employment and contributed over £90 billion GVA (10 per cent) to the UK economy in 2012.
- The dominant occupational groups in the sector are machine operatives and elementary occupations, which account for 49 per cent of employment (compared with 17 per cent in the wider economy).
- The sector is generally a poorly qualified one, with 41 per cent of workers unqualified or qualified below level 2.
- A greater proportion of vacancies were reported to be hard-to-fill in 2013 compared to 2011. Skills found difficult to obtain included technical, practical or job specific, literacy and numeracy skills and IT skills.
- Over 67,000 workers have skills gaps, with the introduction of new technology identified as a cause by quarter of employers. The main skills gaps are technical, practical and job specific, planning and organisational skills, customer handling and problem solving skills. Most employers have taken action to improve the proficiency of staff with skills gaps.
- Training provision in the sector has increased substantially between 2011 and 2013, with machine operatives being the main benefactor. The introduction of the Driver Certificate of Professional Competence legislation is seen as responsible for this recent increase.
- Two thirds of employers expect that at least some staff will need to acquire new skills or knowledge over the following 12 months .
- Employment in the sector is projected to increase by 155,000 by 2022
- Replacement is expected to be over 1 million, meaning the sector requires 1.2 million additional workers. The greatest occupational requirement is anticipated across transport and machine operative positions

## 2.1 Introduction

The logistics market is a service market, where consumption cannot be decoupled from production and delivery activities. The sector operates 24 hours a day, 7 days a week and 365 days a year. All elements of the UK economy rely on logistics. It is a critically important enabler of the success of other businesses of all sizes and sectors – from corner shops to supermarkets, manufacturers to ebay entrepreneurs and energy companies to waste businesses – it can enable and stimulate growth indirectly. For example, the government's Industrial Strategy identifies that:

Transport investments can induce positive productivity benefits through agglomeration economies, increasing the scale and efficiency of spatial economic interactions (BIS, 2012).

The logistics sector contributes over £90 billion Gross Value Added (GVA) to the UK economy, equating to 9.6 per cent (ONS, 2013a). Analysis of the Inter Departmental Business Register reveals that there are over 187,000 enterprises (ONS, 2013c). The sector as a whole is dominated by small and medium-sized enterprises (SMEs), with 80 per cent employing fewer than 10 employees and only one per cent employing more than 100.

Changes in the logistics sector are driven by both supply-side forces, such as technological progress, and demand-side forces, such as changing consumer requirements, as highlighted in previous Sector Skills Assessments (UKCES, 2012a). Logistics companies are increasingly adopting more sophisticated technologies to help streamline costs and meet customers' expectations.

## 2.2 Employment

Nearly 1.5 million individuals were directly employed within the logistics sector in 2012 (Winters *et al.* 2014). However, although a number of related occupations are essentially logistics roles, such as driving and warehouse operatives, these occupations are evident across other sectors including retail and construction. Taking a wider view, the number of individuals working in logistics can be expressed as around 2.2 million individuals, which equates to approximately 8 per cent of the UK workforce (Table 1).



**Table 1 Broad definition of employment in logistics**

Logistics Occupations	Employment		Total	
	Logistics Sector	All Other Sectors	Number	%
Purchasing Managers and Directors	4,000	40,000	44,000	2%
Managers and Directors in Transport and Logistics	35,000	35,000	70,000	3%
Managers and Directors in Storage and Warehousing	27,000	60,000	87,000	4%
Importers and Exporters	4,000	2,000	6,000	*
Transport and Distribution Clerks and Assistants	21,000	38,000	60,000	3%
Large Goods Vehicle Drivers	171,000	102,000	273,000	12%
Van Drivers	84,000	110,000	194,000	9%
Fork-Lift Truck Drivers	35,000	59,000	94,000	4%
Postal Workers, Mail Sorters, Messengers and Couriers	142,000	38,000	180,000	8%
Elementary Storage Occupations	172,000	224,000	395,000	18%
Other Occupations	802,000		802,000	36%
<b>Total</b>	<b>1,495,000</b>	<b>709,000</b>	<b>2,200,000</b>	<b>100%</b>

Source: Skills for Logistics analysis of data from the ONS Annual Population Survey (Jan – Dec) 2012

Data rounded to nearest 000s

\* Data less than 0.5%

While logistics activities are undertaken across the UK, there are distinct geographical ‘hotspots’ of logistics developments (i.e. warehousing), meaning that logistics employment is found in specific areas. Logistics hotspots tend to be in areas supported by high levels of manufacturing, with a large population base and in areas close to a main port or distribution hub receiving goods from outside of the UK, which are then redistributed.

The globalisation of production lines has seen gateway locations, such as Felixstowe, Southampton and London Gateway expand and transform from being just freight terminals to Port Centric Logistic hubs. Port Centric Logistics is a concept that sees container loading and unloading and subsequent storage and handling of the imported goods at Distribution Centres on or near the port site. Many large retailers have adopted this concept as goods can be distributed directly to shops or other customers from the port. This has meant that port activities are diversifying; meaning a greater requirement for resources and also different skills are required in those locations.

Employment in logistics, particularly the warehousing and storage industry requires a great deal of land and as such is generally situated in out-of-town sites. For example, many of the main distribution centres are located alongside strategic motorway networks, such as the M1, M4, M6 and M8 which ensures good road links but this also means that a number of firms are competing for the same resources.

### 2.2.1 Occupational profile

Analysis of the sector workforce shows that nearly half (49 per cent) of all logistics sector workers are employed in the lower skilled occupations of 'Process, plant and machine operatives' and 'Elementary occupations' (Table 2). This is a much greater proportion than the whole UK economy figure for lower skilled occupations (which is at 17 per cent) (ONS, 2013b).

**Table 2 Major occupational distribution**

	<b>Logistics Sector</b>	<b>All Sectors</b>
Managers, Directors and Senior Officials	14%	10%
Professional Occupations	3%	20%
Associate Professionals / Technical Occupations	11%	14%
Administrative and Secretarial Occupations	13%	11%
Skilled Trades	3%	11%
Caring, Leisure and Other Service Occupations	*	9%
Sales and Customer Service Occupations	6%	8%
Process, Plant and Machine Operatives	24%	6%
Elementary Occupations	25%	11%
<b>Total</b>	<b>100%</b>	<b>100%</b>

*Source: Skills for Logistics analysis of data from the ONS Annual Population Survey (Jan – Dec) 2012*

\* Data less than 0.5%

As logistics companies have increasingly adopted more sophisticated technologies to streamline costs and meet the rising expectations of customers far more complex work roles have developed. Working Futures predictions indicate that the occupational and skills profile of the sector, will change in the period leading up to 2022; the workforce will need to be up-skilled accordingly. This is in line with general trends across the economy (UKCES, 2014b). The future workforce skills needs are explored further in Chapter 4.

### **2.2.2 Qualification profile**

The qualification levels held by the logistics workforce tend to align with the low skilled occupational structure seen in the previous section.

The UK logistics sector workforce is generally poorly qualified – 41 per cent of those employed in logistics do not hold qualifications at Level 2 or above. This compares to 23 per cent for the UK workforce as a whole (ONS, 2013b). Looking closer at the occupational skills needs tells a further story: 59 per cent of all machine operatives (i.e. drivers) are not qualified to minimal skills level<sup>2</sup>, nor are 51 per cent of those classed as working in elementary occupations (e.g. warehouse operatives, postal workers or couriers). This low skill level picture persists into career histories in logistics, as 48 per cent of managers in the industry are not in possession of qualifications measured at minimal skills levels (ONS, 2013b). As technological change is rapid and customer service skills are increasingly in demand, this situation could have adverse effects on the future productivity of the sector. There are important skills and training implications arising from this situation.

### **2.3 Skills mismatch**

Firms in the logistics sector, as across all sectors, are tending to adopt new technological systems in order to enhance their competitive nature and the efficiency of their businesses. However, in order to maintain the competitive edge offered by these technologies, staff with expert knowledge and increasingly specialised skills are needed. Firms experiencing skills challenges of this type may encounter difficulties when seeking to maximise the return on investment in new technologies if their key resource, their staff, are not trained and qualified suitably to deal with changes in the sector.

This section provides an overview of the current skills challenges faced by the logistics sector using additional literature, qualitative findings from the research and the latest data available on skills gaps and shortages sector – the UKCES Employer Skills Survey (UKESS) (UKCES, 2014a). The UKESS is a periodic, representative employer survey, undertaken at establishment level with over 90,000 employers. Further details of the survey are available in Appendix A.

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<sup>2</sup> Minimum skills levels are determined by the National Occupational Standards developed for these roles

### 2.3.1 Recruitment and skills shortages

There were 26,582 vacancies in the logistics sector at the time of the UKESS in 2013. This equated to four per cent of all vacancies reported.

In most instances representatives of logistics companies interviewed reported that they were able to recruit staff locally. However, employers interviewed noted that the individuals available in the labour market did not always have the full range of knowledge and skills required to be successful in the modern logistics industry.

The common skills reported to be difficult to obtain from applicants included technical, practical or job specific skills, basic skills (numeracy and literacy) and basic and advanced IT or software skills (UKCES, 2014a and Winters *et al*, 2014). Across the economy more than a fifth of skills-shortage vacancies (23 per cent) were lacking advanced IT or software skills, highlighting the importance of IT across all sectors (UKCES, 2014a).

A third (33 per cent) of the sector vacancies were reported to be hard-to-fill vacancies<sup>3</sup>, which is slightly greater than all sector figure of 29 per cent. This sector proportion has increased since 2011, where 29 per cent of vacancies were reported to be hard-to-fill vacancies (Moloney *et al*, 2010). This suggests increased employer competition and demand for skills and a potential skills shortage in the labour market.

The majority (69 per cent) of the hard-to-fill vacancies were considered by respondents to the employer survey to be skills-shortage vacancies<sup>4</sup>, equating to 23 per cent of all vacancies in the sector at the time of the research. This is slightly less than all sector UKESS findings where 77 per cent were skills-shortage vacancies.

Analysis of qualitative interviews with logistics employers and SfL's own skills survey (Winters *et al*, 2014) supported the UKESS findings regarding some difficulties in recruiting suitable personnel into the logistics sector. The degree to which these skills shortages are felt tends to depend on location and job-role.

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<sup>3</sup> Vacancies which are proving difficult to fill, as defined by the establishment

<sup>4</sup> Vacancies which are proving difficult to fill due to the establishment not being able to find applicants with the appropriate skills, qualifications or experience.

### **2.3.1.1 Location**

Clusters of logistics companies can mean that smaller employers located near these hubs experience recruitment difficulties – this was noted by some employers in qualitative research interviews. Fewer applicants for vacancies means smaller firms experience recruitment difficulties, finding individuals prefer to apply for positions at larger firms in the locality. Where this skills shortage was evident, employers interviewed reported using short term solutions such as a reliance on agency staff to ensure contracts were met.

The location of logistics activity on the outskirts of towns can also limit the recruitment pool. Access to the logistics sites by public transport is in some cases non-existent or is restrictive in terms of not coinciding with shift changes. This could further limit the resource pool when individuals do not have suitable transport to get to their work location. Therefore, when considering the development and location of new logistics parks, the wider transport infrastructure needs to be considered. For example, one new development in the Midlands included an extension of the bus service to the development.

### **2.3.1.2 Specific roles**

The recruitment of drivers is currently a particular difficulty and there are concerns regarding the future supply of drivers. The downturn in the economy from 2008 is thought to have masked underlying skills shortages in drivers (Winters and Moloney, 2012). However, as the recovery continues, driver skills shortages are likely to be evident. In 2014 drivers were ranked as a top three job role which employers had difficulties filling (ManpowerGroup, 2014) compared to 2012 when it fell outside the top 10. Rapid technological development and a mismatch between talent supply and demand were trends reported to affect the shortages being reported.

Logistics employers interviewed expect the situation to be further compounded in September 2014 as some drivers may retire or leave the industry rather than ensure that they hold the Driver CPC, which is due at that time.

There are very few Large Goods Vehicle (LGV) drivers under the age of 25. Evidence shows that 16 per cent of LGV driver are 60 years of age or older and only one per cent are under 25. Furthermore, the number of individuals taking and passing their LGV test declined year-on-year (Winters and Moloney, 2012). Analysis of research interview evidence revealed that logistics firms would like to recruit younger drivers, but there are a number of obstacles. Firstly, few young drivers are coming into the industry. This is a consequence of a number of factors, including cost to obtain the necessary qualifications (i.e. licence) and a poor perception of the job role. Secondly, gaining insurance for younger people (under 25) is difficult and consequently impacts a firm's ability to take on young drivers: Because many of the standard insurance premiums are based on over 25 years of age and two years' experience, many firms require drivers to fit these criteria (Transport Select Committee, 2010).

Ideally we would like to have more younger drivers but if we were to attract younger people into the sector than we would need to change our recruitment policies.

#### **Medium-sized employer**

Companies that employed younger drivers found that they had a greater technological awareness than older drivers and are more able to adapt to changes more rapidly.

In warehouse recruitment, the issue is not one of volume of applications, but the quality of potential recruits in terms of the skills, experience and qualifications that they hold (Moloney *et al*, 2011). Employers confirmed that they are finding applicants had lower than expected entry level skills, particularly with regards to literacy and numeracy skills.

#### **2.3.1.3 Young people**

Only 18 per cent of logistics employers had recruited an individual to their first job on leaving education in the last 2-3 years. (UKCES, 2014a). This is much lower than the all sector figure of 27 per cent and places the sector in the bottom two of all sectors, behind agriculture, for recruiting young people.

Evidence into careers choices of young people shows that logistics, as a career, is not an obvious choice for young people. The term 'logistics' is misunderstood by 64 per cent of 14-19 year olds (Skills for Logistics, 2009). Furthermore, the sector has a poor image and is perceived to lack a career progression route (Moloney et al. 2010). Young people associate the sector with dirty warehouse environments and trucks only. However, the evolution of the sector means that the sector has a global dimension, with sophisticated processes and a much wider range of occupations. This could make the sector more appealing but the challenge as reported by employers is to raise awareness of the sector to these talent pools.

It is essential that logistics employers continue to work with schools, colleges and universities to let young people know about the exciting career opportunities that exist in the logistics sector.

### **A large international 3PL**

Youth unemployment levels have been at record levels the last few years, and employers are recognising the need to actively engage with schools, to attract future talent. One employer, who was in charge of recruitment and development within the organisation had set up links with three key schools in an area of high youth unemployment but crucially near to their depot. They were keen to bring young people into the organisation and provide training through apprenticeship schemes, like the Driving Goods Vehicle framework. The employer recognised the need to have clear marketing and promotional skills to firstly secure links with the schools, and then gain interest amongst the individuals.

#### **2.3.1.4 Role of agencies**

The nature of the industry means that there are pinch points for resources, such as Christmas, where mail, home deliveries and also food retailers experience significant increases in demands, with a drop off seen in January. This seasonal fluctuation and rapidly changing volumes in the demand for products causes the sector's need for flexibility. Consequently there are a number of specialist logistics recruitment firms operating in the UK. By using temporary workers, employers are able to grow and shrink their workforce in direct response to these fluctuations, especially for driving roles and warehouse operatives. However, firms are less likely to invest in the skills of workers who will be with a firm temporarily. Consequently the skills gaps of these workers are not being addressed.

Recruitment agencies can also be beneficial when a new facility is opened and significant new personnel are required, as reported by one firm. The agency can handle the initial recruitment process, arrange the shift patterns, manage the personnel and also pay the wages. One of the benefits for the firm is the removal of the administrative burden of recruiting and managing large numbers of staff. After a period of time (generally three months) the person can then apply for a full time position. This temporary labour market experience can therefore provide a valuable stepping stone into a permanent role.

### **2.3.1.5 Impact of skills shortages**

The impact of hard-to-fill vacancies on establishments includes firms experiencing difficulties in introducing required technological changes. This issue was reported by 22 per cent of employers in the sector with hard-to-fill vacancies, a slightly greater proportion than for an all sector measure of 20 per cent. A further consequence, reported by nearly half (48 per cent of employers with hard-to-fill vacancies) is that establishments report the loss of business or orders to competitors, which is felt more greatly by these firms lacking staff with appropriate skills compared to an all sector figure of 40 per cent (UKCES, 2014a).

Analysis of the evidence indicates that recruitment difficulties could be affecting the ability of logistics firms to grow and develop as quickly as they could if they were able to source staff or train staff with the required skills.

### **2.3.2 Skills gaps**

One in seven logistics employers (14 per cent) reported skills gaps<sup>5</sup> within their workforce during 2013 (Table 3). This proportion has increased since 2011, when 12 per cent of employers reported skills gaps. This finding goes against the national trend, which saw a small fall in the proportion of employers reporting skills gaps (from 17 per to 15 per cent in 2013). Wales is the only country to buck the UK logistics sector trend in that a lower proportion of employers reported skills gaps in 2013, compared to 2011.

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<sup>5</sup> A “skills gap” is where an employee is not fully proficient, i.e. is not able to do their job to the required level



**Table 3 Proportion of establishments with skills gaps**

	Logistics Sector		All Sectors	
	2011	2013	2011	2013
UK	12%	14%	17%	15%
England	11%	14%	17%	15%
Wales	17%	12%	16%	16%
Scotland	12%	16%	21%	19%
Northern Ireland	12%	17%	13%	14%

Source: *Skills for Logistics analysis of data from UKCES Employer Skills Survey 2013*

The number of employees identified as not being fully proficient (i.e. reported skills gaps by survey respondents) equated to 67,339 or just over four per cent of the logistics workforce according to UKES: this is slightly lower than all sector figure of five per cent. Looking at skills gaps by occupation, it is noticeable that gaps are concentrated in specific logistics occupations. People employed in roles traditionally described as semi-skilled or as unskilled occupations, in Sales and Customer Service, Skilled Trades and Machine Operative positions, are those most likely to be reported by survey respondents as having skills gaps.

Nearly a quarter (23 per cent) of employers facing skills gaps reported that the introduction of new technology was a cause of lack of proficiency amongst their staff. Two other factors relating to training, namely training carried out proving ineffective and staff not receiving the appropriate training, are also relatively common causes of skills gaps, in the industry being attributed to 28 per cent and 27 per cent of employers with skills gaps respectively (UKCES, 2014a).

The main skills gaps in the logistics sector were reported to be technical or practical skills or job specific skills, planning and organisation skills, customer handling skills, problem solving skills and communications skills (Winters *et al*, 2014 and UKCES, 2014a).

Two thirds of employers (68 per cent) with skills gaps reported an associated impact on how the establishment performs. This is the greatest proportion reported in UKES across all sectors, together with the Electricity, Gas and Water sector. Employers reported losing business or orders to competitors and having higher operating costs. One in six employers (17 per cent) had not taken any steps to improve the proficiency or skills of those staff with skills gaps; however, this situation is an improvement on the findings reported in 2011, where 23 per cent of logistics employers reporting staff with skills gaps had not taken any steps to address the situation, but is still greater than all sector findings of 14 per cent (UKCES, 2014a).

The interviews further confirmed that employers were prepared to ensure the provision of suitable training to fill the skills gaps. This was usually done in-house either as part of an induction or a longer training programme such as a graduate scheme. Large firms such as DHL, Morrisons, TNT and Royal Mail are amongst a number of firms that have graduate programmes in Logistics.

Increased training activity was reported by 65 per cent of employers in the sector in order to overcome skills gaps reported in their staff, which compares to the all sector figure of 68 per cent. The logistics sector, however, was much less likely to implement mentoring or buddying schemes than all industrial sectors (37 per cent and 47 per cent respectively). The interviews revealed that those employers with such schemes tended to be across the driving professional, to encourage efficient driving practices.

### 2.3.3 Upskilling

Two thirds of logistics employers who responded to the survey (66 per cent) expected that at least some of their staff will need to acquire new skills or knowledge over the next twelve months (Table 4). This figure is greater in Scotland, Northern Ireland and Wales.

In some cases this finding is likely to reflect the dynamic environment of fast-changing skills needs, where current skills and proficiency levels may be currently sufficient, but over the coming 12 months employers realise that currently held skills may become outdated, suggesting that there is an expectation from employers that skills and training will be required for staff in the sector.

**Table 4 Proportion of employers who expect employees to need to acquire new skills / knowledge**

	UK	England	Wales	Scotland	Northern Ireland
Logistics Sector	66%	65%	72%	77%	73%
All Sectors	71%	70%	72%	74%	72%

*Source: Skills for Logistics analysis of data from UKCES Employer Skills Survey 2013*

The larger the establishment the more likely they are to anticipate an upskilling need over the next 12 months, rising from 59 per cent of those with fewer than five staff to 78 per cent of those with 100 or more employees.

Around two in five employers reported a need to upskill because of the development of new products and services (44 per cent), the introduction of new technologies or equipment (41 per cent), new legislative or regulatory requirements (40 per cent) and/or the introduction of new working practices (37 per cent). A third also felt that the need to upskill would arise as a result of competitive pressure. This indicates the importance of technology as an ongoing skills issue.

Employers who anticipated the need for staff to acquire new skills or knowledge were asked which single occupation in their workforce would be most affected. Around a third of establishments that employ staff in skilled trades occupations (29 per cent) anticipated that these staff would be a priority in terms of new skills provision in the next 12 months. A similar proportion anticipated the need for their professional and technical occupations (28 per cent) and/or managers, directors and senior officials (27 per cent) to gain new skills. These findings are similar to those reported at an all sector level (UKCES, 2014a).

Technical, practical and job-specific skills stand out as those most likely to need improvement or updating in the UKESS. This picture was identified by 54 per cent of logistics employers who reported that they needed to upskill over the coming year, which is comparable to all sector finding of 57 per cent. Communications skills were considered most in need of improving in Skills for Logistics research (Winters *et al*, 2014).

Planning and organising skills were reported by 44 per cent of employers needing to upskills staff. A number of other skills areas were mentioned by around a third of employers: customer handling skills (36 per cent), problem solving (36 per cent), advanced IT or software skills (32 per cent) and team working skills (32 per cent). Broadly speaking the skills that are seen as requiring improvement in the coming 12 months are similar to those where employers report existing skills gaps.

Improving advanced IT skills is a priority for the coming 12 months with it being one of the most commonly mentioned skills priorities for employers in logistics; however, IT is relatively infrequently mentioned as an existing skills gap. Employers are anticipating ever more sophisticated processes to ensure they are sufficiently agile and flexible to accommodate future business needs and challenges.

### 2.3.4 Training provision

Most logistics employers surveyed in UKESS either funded or arranged training for their staff: 62 per cent had done so over the previous 12 months. This is slightly lower than the all sector figure of 66 per cent, but marks a large increase on the 2011 findings where only 52 per cent of logistics firms funded or arranged training. This increase in the proportion of logistics employers providing training was reflected across all the nations (Table 5).

**Table 5 Proportion of establishments providing any training**

	Logistics Sector		All Sectors	
	2011	2013	2011	2013
UK	52%	62%	65%	66%
England	51%	61%	65%	66%
Wales	53%	59%	63%	62%
Scotland	63%	68%	73%	70%
Northern Ireland	59%	69%	65%	63%

*Source: Skills for Logistics analysis of data from UKCES Employer Skills Survey 2013*

In terms of training days per annum per employee the sector provides one of the lowest amounts - 2.9 days, compared to 4.2 across the economy. Only mining and quarrying, agriculture and manufacturing sectors provide less (UKCES, 2014a).

Job specific training was the most common type of training provided by logistics employers (Winters *et al*, 2014), being arranged by 83 per cent of those that provided training (UKCES, 2014a). Nearly half of employers (46 per cent) reported providing training in new technology. This is comparable to all sector findings of 85 and 48 per cent respectively (UKCES, 2014a).

Over 811,000 individuals in the sector were reported as having received training, which is the equivalent to 51 per cent of the workforce. This is a large increase from 2011, when only 39 per cent of the workforce received training. However, it is still much lower than all sector figure where 62 per cent of the workforce received some form of training in the previous 12 months.

By occupation, staff in machine operative roles were the most likely to receive training (59 per cent of all staff in these roles were trained in the last 12 months). Managers were the least likely, with only 34 per cent receiving training (Table 6). The sector trains a much smaller proportion of staff in each occupation than across all sectors, except for machine operatives.

**Table 6 Proportion of each occupation receiving training**

Occupation	Logistics Sector		All sectors	
	2011	2013	2011	2013
Managers	31%	34%	45%	50%
Professionals	46%	48%	61%	70%
Associate professionals	43%	44%	56%	65%
Administrative/clerical staff	33%	33%	45%	52%
Skilled trades	47%	53%	55%	60%
Caring, leisure and other service staff	*	*	70%	81%
Sales/customer service staff	47%	54%	55%	63%
Machine operatives	41%	59%	47%	57%
Elementary staff	39%	42%	48%	55%

Source: *Skills for Logistics analysis of data from UKCES Employer Skills Survey 2013*

Base: All establishments (figures are shown as percentages of all employment in each occupation)

That more employers and workers in the sector are providing and receiving training in the sector is likely to be partly a consequence of new legislative requirements. Table 6 demonstrates that the greatest increase in training provided in logistics was at machine operative level, with nearly 219,000 individuals receiving training in 2013 compared to 135,000 in 2011. This group comprises largely of Large Goods Vehicle (LGV) drivers who were subject to new legislation in 2009, which stated that professional LGV drivers must undertake 35 hours of periodic training every five years in order to maintain their Driver Certificate of Professional Competence (CPC). Uptake of periodic training remained low in the initial years but as the first five year cycle draws to a close, uptake increased (DVSA, 2014) which is reflected in the increased proportion receiving training.

#### **2.3.4.1 Accredited qualifications**

Analysis reveals that only a fifth of logistics employers had funded or arranged training intended to lead to a nationally recognised qualification, which is less than all sector findings of three in ten employers (Table 7). A comparatively small proportion of employers in the sector trained staff at any of the four recognised qualification levels.

Size is a key determinant of whether or not employers use nationally recognised qualifications. Just 25 per cent of the smallest firms, with 2 – 4 staff do so, but this rises to 38 per cent with 5 – 24 staff and up to 69 per cent of those with 100 or more staff.

**Table 7 Training to nationally recognised qualifications over previous 12 months**

<b>Training</b>	<b>Logistics Sector All Sectors</b>	
Establishments training any staff to a qualification	22%	31%
Trained any to Level 1	5%	6%
Trained any to Level 2	6%	11%
Trained any to Level 3	5%	12%
Trained any to Level 4 or above	5%	10%
Total	100%	100%

*Source: Skills for Logistics analysis of data from UKCES Employer Skills Survey 2013*

*Base: All establishments*

Despite the government of all four UK nations championing apprenticeships as key to skills development and the key vocational route for individuals only 13 per cent of logistics firms employ or offer apprenticeships. This is close to the all sector average of 15 per cent of all employers in the UK who offer apprenticeships (UKCES, 2012b). The majority of these logistics firms (91 per cent) have or offer formal apprenticeships and while the remainder are informal apprenticeships. The details as to why employers do not make more use of apprenticeships are explored further in section 5.1.2.

#### **2.3.4.2 Companies not training and wanting to provide more**

Over a third (38 per cent) of employers did not provide any form of workforce development (UKCES, 2014a). This puts the sector in the bottom five of all sectors in providing training, behind agriculture, Construction, Manufacturing and Retail.

The main reason cited for not training was perceived low demand. Employers reporting no staff development activity consider their staff to be fully proficient (68 per cent), which is inline with that reported across all sectors. Low demand for training is also reflected in responses from employers who do not train reporting that training is not or has not previously been a priority for the organisation (six per cent). Reasons such as managers being too busy to organise training (two per cent), and employees being too busy to attend training (two per cent) or to deliver training (one per cent) were also indicative of low demand in the sector to the extent that training is clearly treated as a lower priority other day-to-day issues.

One in twelve of the employers who do not train reported that the reason for not engaging in staff training was a lack of available funds (eight per cent), while six per cent reported that there was no training provision available in the relevant subject area.

Over two-fifths (43 per cent) of logistics employers that train would have liked to have provided more training over the last 12 months than they were able to. This is one of the smallest proportions across all sectors, behind agriculture and Electricity, Gas and Water sectors (UKCES, 2014a).

The larger the size of the training employer, the more likely they were to have been limited in the amount of training that they were able to provide (53 per cent of trainers with 100 or more staff, compared with 44 per cent of those with fewer than five staff). The reasons these employers give for being unable to deliver the amount of training they would have liked generally relate to internal issues, in particular not being able to spare the time for staff to have more time for training (52 per cent) or not having the funds to provide more training (mentioned by 49 per cent of these employers).

## **2.4 Future workforce**

The section below looks at the prospects for the logistics sector and seek to explore areas of employment in which technology could be having an impact, using evidence from the qualitative research and from Working Futures 2012-2022 (UKCES, 2014b). Working Futures provides a quantitative assessment of employment prospects in the UK labour market over a ten year horizon at a detailed industry level - including the warehousing and storage industry, land transport, postal and couriers and wholesaling.

### **2.4.1 Succession planning**

As more people in the sector approach retirement age, there is a need for effective knowledge transfer between older and younger workers. In support of this, employers need to improve their succession planning skills to ensure appropriately skilled workers are developed to replace staff moving into retirement. This issue has a potentially wider impact in terms of training to support owner / managers approaching retirement age e.g. planning a business handover / developing future plans for the business.

56 per cent of employers do not have processes in place to allow them to identify 'high potential' or talented individuals (UKCES, 2014a), and succession planning is not widely considered in the sector. A number of employers in the research that have implemented appraisal and development systems in the last few years, have done so by bringing 'best practice' they have acquired from working in other sectors. They report that it has not been a quick process to implement but it is already highlighting areas of development.

Some employers reported reluctance within the organisation for succession planning. For example, one employer reported that a driver was keen to progress into the Transport Office. However, that individual was considered to be one of their top drivers and there was a reluctance to lose them from that position.

## **2.4.2 Future logistics workforce**

Table 8 shows the projected employment change for the UK logistics sector. It is estimated that there will be a net growth of around 155,000 jobs – a six per cent growth, in line with the anticipated all industry growth, which also stands at six per cent (UKCES, 2014b). Employment expansion in the sector is expected in six of the occupational groups, while three are expected to contract. The largest contraction, in numerical terms, is seen with transport and machine operative roles.

The future trends and forecasts predict a greater demand for high level skills in the sector. For example, management roles are expected to increase by 18 per cent and Professional and Associate Professional and Technical occupations by 26 and 21 per cent respectively.

Replacement demand is expected to be over 1 million for the sector between 2012 and 2022. This means that over a third of the sector's current workforce is likely to be replaced. In total the sector is anticipated to require nearly 1.2 million additional workers in the decade.

Over a fifth of replacement is expected across the machine operative roles, which is an area of great need and has current recruitment difficulties. Therefore it is likely that there will be further increases in skills shortages, wages and migration if the supply of labour is not able to meet this future demand.



**Table 8 Changing composition of employment within the logistics sector**

Employment Level (000')	2012	2017	2022	2012- 2020		
				Net Change	Replacement Demands	Total Requirement
Managers and Senior Officials	327	355	385	59	126	184
Professional Occupations	171	195	216	44	66	111
Associate Professional and Technical Occupations	275	303	332	57	103	160
Administrative, Clerical and Secretarial Occupations	330	334	336	6	145	151
Skilled Trades Occupations	163	153	146	-17	52	35
Personal Service Occupations	95	113	131	36	49	85
Sales and Customer Service Occupations	165	172	182	17	56	73
Transport and Machine Operatives	759	724	715	-44	306	262
Elementary Occupations	385	373	383	-2	131	128
<b>Total</b>	<b>2,670</b>	<b>2,723</b>	<b>2,825</b>	<b>155</b>	<b>1,034</b>	<b>1,189</b>

Source: *Working Futures V: Industries 32, 34, 37 and 38 combined*

## 2.5 Conclusion

The logistics sector is vital to the whole UK economy, employing some 2.2 million people, or eight per cent of the UK workforce. The majority of the workforce are employed in the two lower skill occupational groups. Reflecting this is the fact that 41 per cent of the sector workforce do not hold qualifications at Level 2 or above.

Recruitment activity in the sector reported in 2013 was a similar picture to that reported in 2011, with the number of vacancies at the time of the Employer Skills Survey standing at around 26,500. However, the proportion of vacancies considered to be hard-to-fill has increased over this timeframe, with the majority considered to be skills shortage vacancies. This suggests a potential skills shortage in the logistics labour market, with particular difficulties with recruitment recorded in areas of logistics clusters, LGV drivers and young people.

Although the vast majority of logistics workplaces consider their workforce to be proficient, some 67,339 logistics employees are regarded as not being proficient in their roles. Of key concern is the finding that the proportion of logistics employers reporting skills gaps has increased since 2011, which is in contrast to the UK all sector survey findings where the proportion reporting skills gaps has decreased.

Encouragingly, since 2011, there has been a marked rise in the proportion of employers with skills gaps that have taken action to tackle them, though there is still scope for more widespread, targeted responses to address these issues.

In line with more employers taking action to tackle skills gaps, the proportion of employers providing training has also increased. There has been a marked increase in the proportion of machine operative staff trained over the last 12 months, however this increase is likely to be explained by the legislative requirements of the Driver CPC.

Looking to the future, logistics establishments that employ skilled trade occupations, professional and technical occupations and also managerial positions anticipate that these staff will be their priority in terms of the need to acquire new skills. Anticipated new skill areas include technical, practical and job-specific skills, customer handling skills, problem solving, advanced IT or software skills and team working skills.

Replacement demand will generate an additional 1 million job openings in the sector, meaning that with growth there is a total requirement of nearly 1.2 million individuals in the period of 2012 to 2022. Over a fifth of replacement is expected across the machine operative roles, which is an area considered to be of greatest need and is currently experiencing recruitment difficulties. Therefore it is likely that there will be further increases in skills shortages, wages and migration if the supply of labour is not able to meet this future demand.

### 3 Role of technology in the sector

#### Chapter Summary

- Historically, the uptake of technology across the sector, particularly in smaller firms has been slow. However, times are changing as the benefits and return on investment are more clearly identifiable
- Retail logistics has altered significantly in recent years, with technology being a large influencer of change. E-commerce represents the latest driver of change in retail logistics, with online retail sales forecasted to grow by 17 per cent in 2014
- Retailers and logistics firms are re-engineering their distribution networks and infrastructure to provide a complete management of the supply chain
- Technologies commonly adopted include Intelligent Transport Systems, warehouse automation and technologies such as automated data collection and warehouse management systems
- Key drivers for adopting new technology include: consumer expectations, customer expectations, business strategy and regulation and compliance
- Consumer demand, utilising technologies like social media and online shopping, will continue to drive change across logistics: For example, Click & Collect and overseas deliveries are expected to develop and increase
- Key to both of these developments is the integration of processes, information systems and infrastructure, like warehouses and vehicles, to enable the supplier to meet consumer demand from whatever location
- The main barrier to adopting technology is employee buy-in, well managed, structured planning processes with good communications and sound training and development plans can be used to overcome this

The aim of this chapter is to explore the existing academic and industry literature, in the context of technological advancements in the logistics sector, with a focus on retail distribution. It looks into further detail regarding the adoption of technology, including drivers of demand and barriers, using the intelligence derived from the in-depth interviews.

### 3.1 Recent trends

#### 3.1.1 Technologies adopted

The early adopters of technology in logistics tended to be those with sufficient funds and the patience required to work through the early challenges associated with implementing burgeoning technology (Mulqueen, 2014). As a consequence, the use of ICT in the third party logistics (3PL) sector is characterised as being unevenly distributed between large and small-medium sized logistics providers<sup>6</sup>.

Large firms who have invested in Information and Communications Technologies (ICT) have been using in-house information systems to support their operations for a long time, while small logistics service providers have experienced more difficulties in setting up ICT applications due to a range of factors including reluctance to change and insufficient human and financial resource (Evangelista, 2006). Research evidence from interviews carried out with employers and stakeholders for this study confirms that the logistics sector has been generally slow in the uptake of technology. One report found that 60 per cent of organisations still used paper-based systems to complete tasks associated with pick-up and delivery (Intermec, 2014). Industries within this sector are capital-intensive, making further investment challenging. This is particularly the case for smaller firms.

However, companies specialising in the implementing of new systems and technologies in the sector suggested that that benefits can now be gained throughout the sector, as these technologies have matured, become more reliable and capable and the costs for hardware and communications have fallen over time.

Interviews carried out with logistics employers suggested that a range of new technologies have been introduced in the sector over recent years. These included:

- Mobile technological solutions, such as SAP Mobile, Skytechnologies, Postal digital assistants;
- Radio Frequency Identification (RFID);
- In-vehicle/cab satellite systems, such as Navman and fuel monitoring systems, like Isotrak;
- Trailer technology;
- Warehouse Management systems (WMS); and
- Automated parcel-sorting machines.

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<sup>6</sup> This relates to EU definition of SMEs: firms with less than 10 employees and a turnover  $\leq$  € 2 million are considered 'micro'; firms with employees from 10 to 50 and a turnover  $\leq$  € 10 million are considered small; while firms employing less than 250 and a turnover  $\leq$  € 50 million are considered medium.

With the implementation of these technologies has come a requirement to upskill employees in their use. Employees at all levels of the industry have been required to adapt and undertake training.

### **3.1.2 Retail logistics**

Retail logistics has been revolutionised during the last 40 years, with technology being a large influencer of change (Jones Lang LaSalle, 2013). It continues to be influenced by many global trends which are driving the requirements of technological needs (DHL Customer Solutions & Innovations, 2013).

During the 1970's, most retail stores were replenished by direct deliveries from suppliers or wholesalers. In the 1980's, retailers began to centralise their store deliveries through new distribution centres which they controlled. From the 1990's global sourcing (for non-food products) took off, with many retailers developing import centres to receive and process containerised imports.

From the year 2000, e-commerce began to rapidly expand with the onset of internet-only retailers, such as Amazon, leading the way in establishing and resourcing of e-fulfilment distribution networks. With online retail sales recording an 18 per cent year-on-year growth in December 2013 and the forecast for 2014 being a 17 per cent market growth (IMRG the voice of e-retail, 2014), expansion of distribution will continue in order to service growth, requiring individuals with relevant knowledge and skills.

E-commerce is still a relatively new element of retail and as it continues to grow, most retailers are beginning to consider what this will entail for their distribution network infrastructures. The management of the supply chain, including transport modes and storage and warehousing facilities, will be key to the future of skills and training and these are discussed in the following sections.

## **3.2 Supply Chain Management**

Supply chain management is the active management of supply chain activities to maximise customer value and achieve a sustainable competitive advantage. It represents a conscious effort by the supply chain firms to develop and run supply chains in the most effective and efficient ways possible. Supply chain activities cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities.

Retailers have increasingly adopted the Supply Chain Management (SCM) concept, recognising that the delivery system is an integral part of the product (Sheffi, 1990). The application of SCM, has led to manufacturers and retailers outsourcing significant parts of logistics aspects of business (McKinnon, 1999). These third party logistics (3PLs) companies are playing an ever increasing important role as they coordinate and accelerate physical and informational flow along multiple levels of the supply chain.

To enable this both retailers and 3PLs demand accurate real-time information on the status of the distribution process to increase planning capacity and to maintain improved customer service. Therefore ICT has become central to 3PLs' competitive capability (Evangelista, 2006), resulting in a greater requirement for relevant skills.

### **3.3 Transport**

Transport activities crucially make an essential contribution to economic success but also impose a burden on the environment. Transport comprises around 21 per cent of the UK greenhouse gas emissions (DECC, 2013) with passenger cars accounting for 54 per cent and LGVs 21 per cent. Cutting emissions and improving efficiency in the light of increasing fuel costs has inspired a number of technological advancements.

#### **3.3.1 Transport modes**

Each mode of transport - road, rail, inland waterways or short sea shipping - has seen technological advancement and concurrent skills requirements change over recent decades.

Ships and their cargoes have developed in size, character and technology. This has led to strategic investment in new deep water ports, such as Southampton, Liverpool, Felixstowe and London Gateway, to accommodate new much larger vessels. Associated development includes new generations of quayside cranes, rail terminals and vast warehousing and storage facilities, all demanding specialist skills and knowledge.

Inland rail freight networks and terminals have also experienced investments including new handling equipment and cranes to accommodate the increase in rail freight (Office of Rail Regulation, 2014). Road vehicles have undergone numerous technological changes, such as the development of manual transmissions to automatic transmission, analogue tachographs to digital tachographs and the incorporation of GPS systems and mobile technologies that enable vehicle tracking and tracing. Each new technological development requires the knowledge and skills of the operator and maintenance personnel to be updated.

With various modal options available to transport goods along the supply chain, firms must have the ability to select which provides them with the best market solution and environment in which they operate. Specialist knowledge is needed including a grasp of modal shift suitability, understanding market dynamics, as well as road, rail and water policies, environmental considerations and estimating financial/costing implications. Freight operators must therefore have a good understanding all the various modal options available to ensure a sound business case.

### **3.3.2 Intelligent Transport Systems**

Intelligent Transport Systems and Services (ITS) is a combination of information technology and telecommunications that allows for the provision of online information to improve efficiency and safety (ITS United Kingdom, 2014).

Sensors located throughout a vehicle or cargo container now capture and communicate a wide array of data to back-office systems (Mulqueen, 2014). These web-based systems provide fleet operators with visibility into vehicle location, fuel usage, speed and mileage, as well as other insights into their mobile workforce. This information can be used to ensure an effective delivery system. For example:

- GPS information tells despatch where the vehicle is located and is the basis for providing accurate ETA information. It can be used to notify if a driver is off route or has otherwise deviated from plan.
- Engine diagnostics provide insight into both power unit and driver performance. Information such as idle time, fuel usage and driver shift patterns can be analysed to determine how well the driver is adhering to standard operating procedures and “best practices”. This data can also serve as the foundation for a vehicle maintenance programme based on operational need versus a fixed maintenance schedule.
- Trailer sensors enable un-tethered trailer tracking, multi-compartment temperature monitoring and alerting when a trailer door has been opened at an unauthorised location.

The ability to use the systems and real time data to identify and deal with issues quickly and efficiently are skills increasingly sought within the transport office.

### 3.4 Warehouse

Warehousing and storage are vital to the supply chain. They represent approximately 20 per cent of total logistics costs (Baker and Halim, 2007, whilst in terms of service they are critical to the achievement of customer service levels (Frazelle, 2001), particularly as distribution centres are often the final point in the supply chain for order assembly, value added services and despatch to the customer (Baker and Halim, 2007). Therefore firms constantly seek ways to improve storage and warehousing facilities.

In the quest to meet growing pressure to modernise distribution centres and increase profits, managers turn to new processes and technologies. However, the main challenge faced by managers is having the knowledge and skills to identify which technology should be applied. Technologies can be for increased automation or specialist management systems, which when implemented impact on the knowledge and skills of the workforce.

Warehouse automation has been defined as “the direct control of handling equipment producing movement and storage of loads without the need for operators or drivers” (Rowley, 2000, in (Baker and Halim, 2007). Robotics and sophisticated software can tie together, allowing the machinery to place goods for storage or bring the goods to the packing station rather than having the worker go and retrieve each product from the shelf. However, even automated warehouses will require personnel: an individual is required at the start and end of the process to scan the goods and either load or unload them for delivery as confirmed during the interviews. This sophisticated type of automation has led to the requirement of individuals with mechanical or engineering skills that may need to be called upon if a problem were to arise with the technology. Firms reported that such expertise was usually supplied as part of the contract with the suppliers of the technology.

While some warehouses are able to be automated, most will always require some form of human intervention to continue their operations, therefore the need for skilled warehouse workers (i.e. managers, forklift truck drivers and operatives) will remain. For example, returns, particularly from the retail home shopping function, will for the foreseeable future require human labour. Employers report that this is due to the items requiring inspection, separation between those that can be repackaged or repaired and those that are sent back to the supplier or scrapped.

In warehouses where full automation is not possible, the ability to use technology is nevertheless increasingly important. Automated Data Collection (ADC), such as voice technology, bar codes and Radio Frequency Identification (RFID) and Warehouse Management Systems (WMS) have transformed warehouses (Arabe, 2002).



Data collated via ADC technologies are typically linked to an order management or warehouse management system (WMS) that help to control the movement and storage of goods within a warehouse. The role of these systems continues to expand and can now include transportation management and complete accounting systems. Numerous performance reports about the status of goods in the warehouse can be detailed, requiring individuals utilising the systems to have strong computer and analytical skills.

Adopting technology such as ADC and WMS will depend on a number of operational factors. The most important factor is to ensure that the technology a firm deploys supports their business objectives rather than defining them. The design system will ultimately be unique to the company or warehouse. Firms need to be aware of what operational issues a WMS will address and then assess the return on investment. A WMS will also need to scale with the business so therefore firms should have a clear strategy about how the warehousing operation will look in in the next five to ten years. Planning is therefore critical.

### **3.5 Drivers of demand and benefits**

Research evidence suggests that the adoption of technology within companies is driven by internal and external forces. Internal forces include factors related to cost efficiency, company strategy and revenue and cash flow. External factors for making changes relate to customer expectations, government legislation and competitors and suppliers. Qualitative research interviews with logistics employers illustrated that innovation in companies is particularly driven by: consumer expectations, regulation and compliance and the need to maintain competitive efficiency.

#### **3.5.1 Consumer expectations**

Consumers expect better more efficient customer service with the constant availability of goods being a huge driver for the adoption of technological innovation across the whole sector.

It has become more important for companies to have rapid solutions in place that enable the highest levels of customer service. Research interviews confirmed this issue as paramount, with many logistics employers reporting that the main reason for implementing new technologies was to meet the increased demands of customers in terms of cost and time and to aid customer retention.

The onset of internet shopping has meant home delivery companies need to demonstrate reliability, transparent delivery methods and superior face-to-face customer service. The supply chain and tracking goods is now more visible with digital processes enabling senders and recipients to achieve better visibility and tracking of the progress and expected delivery time of shipped items.

Mobile technologies demand that existing tracking data is migrated onto new systems and vehicles, which requires the co-ordination of numerous technology vendor organisations, so that the recruitment and retention of staff with the key skills of planning, team work and communications are vital to business success.

### **3.5.2 Customer expectations**

'Push' factors from 3PL clients see logistics firms seeking to meet and improve their services. Clients include Key Performance Indicators in contracts as well as clauses seeking evidence of compliance, accreditation and ethical auditing.

These developments mean that companies require staff with the skills to capture and record this information and ensure that they are compliant. IT systems such as WMS and vehicle tracking and tracing systems play an important role in this area.

### **3.5.3 Business strategy**

Analysis of research interviews with logistics employers reveals that technology is integral to business strategy. Less than superior warehouse, transportation or supply chain management systems can cost companies dearly through misplaced stock, incorrect picking, lost orders, delayed deliveries and other wasteful practices. Social media and feedback routes are quick to highlight poor service experiences. Central to keeping on top of customer service expectations is a well trained, skilled and motivated workforce.

### **3.5.4 Regulation and compliance**

Legislation, regulation and compliance are also drivers of technology adoption for employers, which in turn drive the need to update knowledge and skills of those operating the technologies.

#### **3.5.4.1 Driver Hours**

The Working Time Directive (WTD) and EU Rules on drivers' hours is just one area where the implementation of technology has resulted in the skills set of those recording and reporting driver hours progress from a manual to a digital process, resulting in a need for good IT skills.

Transport operators must periodically download digital tachograph driving data and analyse the information to ensure that the rules have been complied with. As the rules and regulation in this area are liable to change operators need to undertake Continuous Professional Development (CPD) to maintain current knowledge.

#### **3.5.4.2 Environmental**

A fifth (21 per cent) of UK greenhouse gas emissions are from transport (DECC, 2013), and of all transport emissions, large goods vehicles (LGVs) account for 21 per cent. Whilst the sector has no specific target to help the UK reach its target reduction of greenhouse gas emissions by 34 per cent by 2020, logistics will be under continued pressure to reduce carbon emissions and demonstrate it is doing its bit to reduce its carbon footprint.

Logistics companies and vehicle manufacturers are leading the way with investment in cleaner technologies, which reduce levels of key pollutants. One large employer interviewed, operates several diesel-electric hybrid vehicles, both in the UK and in mainland Europe, which impacts on LGV mechanics and fitter skills; they need to upskill their mechanical knowledge in order to service and repair such vehicles. The firm continually invests in technical and operational opportunities aimed at optimising vehicle capacity and utilisation – such as double-deck trailers, longer semi-trailers, composite tankers and aluminium semi-trailers. Each trailer has its own loading capacities and the ability to plan loads, load, secure and unload goods are essential skills for operators that need to be updated and maintained.

Another employer is taking part in The Department for Transport longer trailer trial (DfT, 2013). It is anticipated that longer 15.65m semi-trailers should provide significant economic and environmental benefits to the UK. However, having longer trailers has skills implications with regards to driving with such trailers. Longer vehicles will off-track more (off tracking is where the rear wheels follow a different path than the front wheel). Thereby a driver must have the knowledge and skills to steer the front end wide enough round a corner to ensure that rear end does not run over the curb or into other vehicles. If these longer vehicles continue to be rolled out there will be increase demand for driver training in such vehicles.

#### **3.5.5 Wider supply chain benefits**

Technology can also be implemented to benefit the wider supply chain, as one employer reported.

As a leading supplier to the foodservice sector in the UK, their supply chain also requires a number of suppliers themselves. To aid the supply chain process, a specific online tool was created that allows suppliers to plan more effectively and be more responsive and efficient. The tool uses SAP based technology and provides the most up-to-date information possible to more than 700 key vendors and supply planners. It allows vendors to view and acknowledge purchase orders and access performance reports, sales orders, inventory and goods receipts data. They are also able to self-bill directly. This has led to a reduction in costs with the removal of fax and manual based processes. However, for vendors to participate in this model, it is essential that employees operate with good levels of up to date IT competence and have relevant web skills.

### **3.6 Barriers to adopting technology**

#### **3.6.1 Employee buy-in**

The main barrier to adoption of technology reported by three companies was employee behaviour and attitude to the technologies. Drivers in particular seem to be reluctant to adopt technology such as hand-held devices.

The driving profession, particularly for LGVs, is ageing – 60 per cent of LGV drivers are aged 45 or over (Winters and Moloney, 2012). Older workers can be reluctant to adopt newer technologies.

One employer interviewed reported that as part of the business planning process to include developments in technology and skills and training, they made sure that all employees were made aware of the intended outcomes and benefits of the new technology before it was implemented, to ensure that employees did not feel threatened and to encourage buy-in. As a consequence of this practice the firm did not report any issues with the introduction of IT.

#### **3.6.2 Cost**

Cost was mentioned as a barrier to adopting new technology, by only a minority of companies interviewed.

Smaller firms, report the use off-the-shelf and readily available IT, for example smart phone 'apps'. Smaller companies are now able to compete.

### **3.7 Future trends**

#### **3.7.1 Omnichannel retail**

The expansion of social media and online shopping is driving and will continue to drive change across the logistics sector, employers report.

Consumers, with access to a range of technologies and variety of online resources, are using multiple sources of product information when shopping, such as in-store displays, retailer websites, online review sites, online marketplaces and social media (Deloitte, 2014). This is leading to a change in the retail sector from multi-channel retailers to omnichannel retailers<sup>7</sup>.

However, this widespread exposure of products through the internet, for example via social media, can lead to surges in demand for the product. For logistics this means increased unpredictability as supply changes adjust to become more flexible. Therefore the supply chain and its management must be agile.

Retailers are furthermore using omnichannels to unlock cross-border opportunities. In 2013, 15 per cent of EU residents made a cross-border purchase (Deloitte, 2014) and this is expected to continue to grow, which has wider implications on the delivery of the goods. Cross-border strategies need to consider their delivery and fulfilment options, such as home-based logistics centres or partnering with third-party international delivery networks to ensure goods are provided in a timely manner.

#### **3.7.2 Autonomous and near autonomous vehicles**

The development of artificial intelligence, sensors and actuators that make autonomous machines and vehicles possible are rapidly improving. Over the coming decade, if the cost becomes low enough, commercially available drones could be used for a numbers of applications in the sector.

Although there was limited appetite amongst those interviewed for drone technology, one large company, Amazon, has begun to look at the technology (BBC, 2013), going as far as employing a team of developers who are already testing 5<sup>th</sup> and 6<sup>th</sup> generation aerial vehicles. It is anticipated that the machine would be capable of delivering within 10 miles of the fulfilment centres. The limited range does mean that the delivery trucks and drivers will not be made obsolete.

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<sup>7</sup> The key distinction between the two is that where multi-channel have different channels (such as store, web or mobile) that are independently managed, in omnichannel the channels are managed in an integrated way that offers customers a seamless experience of however they choose to shop. Within omnichannel, a retailer may fulfil orders from stores or warehouses.

### **3.7.3 Recycling services**

Retailers are continuing to seek new ways to reduce packaging and increase the proportion of recyclable material used and ensure compliance with waste regulations. In turn, logistics firms are increasingly providing solutions to aid with the recycling element.

In most instances this involves the reverse hauling of cardboard and polythene from stores to a central distribution centre for compacting and baling before delivery to a recycling centre. But the more innovative logistics firms are diversifying and can offer waste management services and even operate their own recycling centres. This in itself means a wider range of knowledge and skills are required, including how to use the compacting and baling equipment and other recycling machinery, but importantly knowledge of and compliance with the waste regulations will be key.

### **3.8 Integration of technologies**

Even with relatively small investments, the integration of existing technologies could create new services bringing more reliable, real-time traffic information, better routing and warehousing and storage infrastructure.

By merging and synchronising the technologies mentioned above into a single freight and warehouse management system, a business will have unprecedented visibility into their supply chain distribution activities. However, businesses need to be able to effectively manage vast amounts of disparate data that are now flowing into the organisation.

Key capabilities and skills required will include:

- Exception management – The ability to identify exceptions as they occur and initiate the appropriate issue resolution steps;
- Planning – The ability to use historic data as a means to influence future planning; and
- Reporting/analytics – The ability to find insights that can be used to drive operational or strategic change.

### **3.9 Conclusion**

The capital intensive nature of the sector and the small margins that it operates within has meant that take-up of technology has historically been slow. However, as reliability has improved and as costs have fallen more logistics firms are able to adopt new technology and higher level advanced operating systems. Complex systems integrated across an entire supply chain or those that focus on a particular element, such as vehicle or trailer design and mechanics are seen across the sector.

Analysis of research interviews revealed internal forces as drivers of technology change related to cost efficiency, company strategy and revenue and cash flow. While external factors for change relate to consumer expectations, government legislation, competition and suppliers. With change in the processes, comes the requirement for skills training.

Retail logistics particularly, is influenced by many global trends which are driving the requirements for technological needs (DHL Customer Solutions & Innovations, 2013). Consumers demand better, more efficient service and increasingly expect goods delivered the same day or next day when ordered via the web. Retail logistics, therefore, require advanced warehousing with regional hubs to facilitate internet shopping and home deliveries, including track and trace capabilities. Good customer service skills, planning skills as well as relevant IT skills are paramount.

The implementation of new technology, either in response to greater regulation or as part of business strategies to maintain competitive, has implications for workforce skills. Firstly, employers require trained staff who are capable of identifying the benefits of new technologies and operational staff who are capable of realising the potential benefits of new technologies can bring. For employers to invest in capital and technology, any cost-benefit analysis has to factor in the human capital element of the workforce charged with realising the benefits of investment. The process of implementation needs to be communicated, well managed and structured, securing employee training and buy-in to ensure a smooth adoption across the business. New systems requiring high levels of IT skills, strategic planning skills and analytical skills, demand appropriate associated training programmes and skills provision. This factor was repeatedly reiterated by logistics employers interviewed.

## 4 Technology and skills requirements

### Chapter Summary

- Skill requirements across all logistics roles have evolved to incorporate the demands of new technology
- Job roles across many logistics occupations increasingly demand multi-skilled and well trained staff
- Mobile, location-based technologies and hand held computer systems are replacing previous paper-based systems, requiring a greater need for IT skills amongst drivers, warehouse operatives and transport office staff
- The need for operational efficiency sees dedicated Process Improvement Managers reviewing current workflows and technologies. While online presence that enable consumers to track deliveries has seen a rise in web design and development professionals and IT managers in the sector
- The technological software systems implemented offer extensive performance reports, which means skills are in demand from employees who can collate, manipulate, interpret and report the analytics
- Interpretation of performance reports is highlighting further training needs, particularly amongst drivers

Technological change inevitably brings new skills requirements for industry. Analysis of research interviews with logistics employers and stakeholders as well as additional insight from a bespoke literature review confirms that the adoption of technology across the sector is having a profound impact on skills needs and recruitment practices of employers in logistics. The below sets out how skills of specific roles have altered.

### 4.1 Evolution of job roles

When asked about the roles or skills becoming redundant within the sector due to technological changes the evidence from research interviews was varied. Largely it depended on the type of technology implemented and the industry area. No company identified any roles that were becoming redundant; however, some roles were becoming more prevalent than previously. For all roles, new skills will revolve around having a basic understanding of the new technology.



#### **4.1.1 Driving roles**

With more than 60 per cent of goods delivered by road and the limited capacity upon rail to transfer this movement, the requirement for drivers will remain, a sentiment agreed by all that participated in the research. However, the skill set demanded of drivers and couriers has evolved.

As one employer interviewed stated, “trucks from 35 years ago compared to today are very different”. Therefore firms, particularly for LGV drivers, undertake driving assessments to determine and address the skills levels of commercial drivers.

Traditionally important skills for long distance lorry drivers such as reading maps and atlases are being replaced by satellite navigation systems; however, drivers will need to be familiar with GPS routing technologies. Digital administration systems and electronic signature devices also require individuals to have to have a basic understanding of IT systems. One firm that implemented such technology provided all staff with training in their use and subsequently included the training as part of their induction programme.

The role of commercial drivers is becoming ever more customer-facing as the sector moves from a solely business-to-business environment LGV to a business-to-customer environment, especially with the increase of e-commerce shopping and home deliveries. The ensuing change has been that drivers are now interacting with the customer on a greater basis, resulting in a larger emphasis in customer service and communication skills in job descriptions.

Vehicle tracking and tracing systems are monitoring driving capabilities. From performance reports, poor driving techniques can be identified and subsequent training is being implemented. This is enabling firms to strive to achieve safe and efficient driving practices.

#### **4.1.2 Warehouse roles**

In the warehouses, operatives are increasingly being supplied with hand held computers or voice enabled technologies that relay where the product required can be located and picked in the most efficient manner, meaning that a basic level of IT skills is required. These devices are also used to measure productivity, so the operative will need to be able to work efficiently, sometimes under pressure. Larger fulfilment centres may also expect individuals to have a good level of fitness, as a lot of walking could be expected. The shift patterns of warehouses will also require flexibility.

As warehouses have embraced technology, some even to the point of becoming fully automated, there comes a greater need for employers and suppliers to recruit and retain a labour force able to install and maintain high spec systems. Warehouse staff with higher qualifications than have traditionally been expected are likely to be in demand, especially those with backgrounds in engineering and with high spec mechanical knowledge. The UK has a shortage of engineers (Kumar *et al*, 2014) and with sectors such as aerospace and automotive able to offer higher salaries, the best engineers are likely to be found in sectors other than logistics unless the image of the industry as a fulfilling, advanced career is addressed.

#### **4.1.3 Port operatives**

Since the late 1990s, local stevedoring (loading and unloading) services in major ports have rapidly been taken over by large national or even international terminal operators. These larger operators have been able to invest in cranes and straddle carriers but also have the knowledge to manage larger volumes of cargo and the latest technologies.

Ports therefore have needed to adapt the working environment to meet the demands of more cargoes and greater logistical and storage activities to operate in an efficient and effective manner.

Historically, a port operative was only trained in the operation of one type of plant and equipment. Being a specialist in one role only was subsequently recognised as being inefficient: operatives could for periods of time be idle between loading/unloading of cargo consignments. Port operatives nowadays are skilled in an extensive range of plant and equipment, so that once one function has been completed, the individual can then be moved into another area.

Furthermore, as many terminal operators oversee a number of ports, there is now an expectation that the individual will operate across the sites, in shift patterns. This has seen the requirement of a greater degree of flexibility among staff.

#### **4.1.4 Management roles**

A decade ago the remit of a UK based supply chain director or manager was broadly UK centric. Today someone in this role will increasingly need to know about and manage global supply chain networks that could be hugely complex. Areas of expertise include managing suppliers, production facilities and freight movements across a multitude of countries and time-zones. This requires skills in understanding and managing different types of individual contracts, getting to grips with working practices across borders and ensuring compliance.

The continual need to improve operational efficiency sees logistics firms recruiting 'Continuous or Process Improvement Managers', to review current workflows and technologies. They need to be able to measure, analyse and improve key processes; therefore skills in techniques like Six Sigma are increasingly sought after.

Evidence from research interviews with logistics employers indicates that filling vacancies for skilled roles such as Transport Managers is difficult and can take several months before a suitable candidate is found. Previously such a role may have required a traditional operational background and the ability to ensure all legal requirements were met, however the role has evolved requiring a much higher level and wider range of skills: they need to be multi-skilled in a variety of functions. For example, business acumen, budget controls, knowledge of transport regulations, operating systems, commercial negotiation, excellent communication skills and the ability to deal with people at all levels, IT skills and organisational skills are examples of what firms are seeking for such positions.

#### **4.1.5 Business analyst**

The technological software systems that have been implemented in the logistics sector means that skills are in demand from employees who can collate, manipulate, interpret and report analytics, such as Demand Planning Analysts, who match product demand with appropriate inventory levels to ensure that a company is not carrying too much or too little inventory. This role is heavy on quantitative analysis, so an academic background or experience of applied mathematics and statistics is a useful prerequisite. For those seeking analytics careers in logistics experience of using enterprise resource planning (ERP) software such as SAP or Oracle will also be increasingly beneficial.

#### **4.1.6 Transport office**

Research with employers in the logistics sector saw a variety of opinions regarding the skill set and job role of the transport officer or clerk, in terms of whether this occupation had become easier with the introduction of IT systems and technologies that enable real-time data with regards to vehicles. Historically much of the work undertaken within transport offices was strictly manual and paper based. The delivery activities were planned and scheduled, with drivers informed of their duties and clocked onto the job. Once the driver left the depot, communications between the office and drivers was very limited until they returned from the job.

However, new technology has enabled greater visibility and transparency of distribution channels, allowing for booking of numerous deliveries to different locations and has allowed real-time problem solving. For example, jobs that come in late in the day can be addressed rapidly and fulfilled as required. Or scheduling may have calculated for a 45 minute in/out for deliveries but unexpected issues can see this delayed by several hours. This could then impact on the drivers' hours and ability to complete the rest of their schedule. By having the real-time data and communications, those in the office are able to implement solutions immediately. But to do this strong IT skills are needed. As one employer interviewed remarked, "An IT system is only as good as the human operating it".

Some employers interviewed had implemented vehicle tracking and tracing solutions, but reported that the transport office staff did not necessarily have the capabilities to utilise it fully – they could operate the basics of the systems, but the systems offered extensive reporting and data integration applications that were not initially utilised. Through self-learning and development further aspects of the system could be utilised which in turned highlighted areas of further business improvements. Key to this was the ability to collate and analyse the performance data that was being captured, such as driver behaviour. From this data, areas of improvement could be identified and training and development could be implemented, such as safe and fuel efficient driving courses. One firm in such a situation was able to put a business case forward for the recruitment of an in-house trainer.

#### **4.1.7 Information Technology professionals**

Many retailers have customised websites for purchases that detail the range of delivery options and provide regular updates on status of your purchase. Similarly, transport companies, mainly the larger ones, have now developed online systems that enable consumers to track deliveries once they have been despatched from the retailer. In a number of instances firms enable individuals to arrange collections and deliveries of their own parcels via the internet.

The development of these technologies requires website design and development professionals, programmers and software development professionals and IT managers. As a consequence the proportion of individuals employed across the sector in these positions has doubled in the last five years, and now equates to one per cent of the workforce (ONS, 2013b).

Having these online systems also adds the need for knowledge of cyber security. Businesses and individuals operating in IT roles will need to have understanding and awareness of security issues.

#### **4.1.8 Trainers**

The implementation of technology also impacts on the skills of trainers. In order to be a competent trainer the individual will need to understand the technology being implemented. Technology that provides information on driver efficiency is further highlighting areas of training and development. In-house trainers are considered to be competent, but the quality of some external providers was questioned by those interviewed (see section 6.2.3 for further details).

## **4.2 Conclusion**

The implementation of technology has impacted the recruitment and skills requirements across the logistics sector.

The implementation of technology has meant that the roles, skills and knowledge needed in the sector have evolved. Roles are not becoming redundant; rather, there is a greater need for individuals to be multi-skilled in many of the roles, including; management roles, drivers, port operatives, warehouse operatives, transport office, IT professionals and trainers.

Skills and knowledge needed include:

- IT skills - for application of the technology, but also website design and development
- Customer service and communication skills – key with the increased demand in home deliveries and direct contact with the end-user
- Contract relationship management - customers are demanding more from the contracts and this needs to be managed effectively
- Compliance awareness – need to adhere to and be aware of incoming rules and regulations, but also be able to comply with contract needs, which may require involved auditing
- Analytical / Reporting skills – many of the technologies and systems hold a vast array of data relating to performance. Need to have the skills available to analyse this and identify areas of potential improvement.
- Planning - the ability to use historic data as a means to influence future planning

- Problem solving skills – ability to use real-time data to identify and deal with issues quickly and efficiently
- Promotional skills and marketing - not only to promote the companies services, but also to overcome the negative perception of the sector to increase awareness of opportunities to attract new talent.

## 5 Training and Qualifications

### Chapter Summary

- Implementing new technology requires associated training programmes
- Training in the sector is normally undertaken in-house and is non-accredited
- Vocational qualifications are utilised when funding is available, but generally there appears to be a reluctance to provide accredited training. Employers fear staff will leave: an accredited qualification provides added value to the individual providing clear evidence of skills and experience
- There are concerns about the quality of Driver CPC periodic training courses.
- Logistics HE courses do not appear to be valued highly. Vocational experience was of greater value to an employer than academic knowledge

### 5.1 Existing training

When implementing new technology, firms generally provide associated staff training. This can be induction training or part of CPD programmes.

A large logistics employer interviewed noted that training was critical to the roll out of Personal Digital Assistant (PDA) in their company. Implementation of the technology saw 35,000 staff members trained in the use of the devices; to achieve this, in-house training facilities were a crucial asset.

A representative from a medium-sized firm interviewed reported that the adoption of technology had 'immense training requirements'. New training and induction programmes were being devised where new technology accounted for half of the induction process.

#### 5.1.1 Internal vs external training

Training in logistics may be delivered by employers themselves as internal training or by organisations external to the employer such as training providers, colleges, and/or universities (external training).

Most logistics employers interviewed as part of the UK Employer Perspectives Survey engaged in some form of workforce development (Table 9) (UKCES, 2012b). Micro companies (four or fewer employees) were the least likely to undertake training, with over two fifths reporting they did not. This proportion fell rapidly as the workplace size increased.

**Table 9 Proportion of logistics establishments providing any internal or external training by company size**

	Establishment size					All
	2 to 4	5 to 9	10 to 24	25 to 99	100+	
Internal Training	47%	72%	79%	83%	95%	62%
External Training	25%	48%	55%	81%	86%	42%
No Training	43%	18%	12%	6%	2%	27%

*Source: Skills for Logistics analysis of data from UKCES Employer Perspectives Survey 2012*

*Base: All logistics establishments*

Internal training was favoured by employers over external training across all establishment sizes. This was reflected in the interviews and focus group meetings. Approaching two-thirds of employers (62 per cent) had provided internal training, while two fifths had provided external training (42 per cent). The majority of firms in the research have their own internal trainers and/or training departments and sought external help when unable to meet the needs themselves.

The cost and flexibility of such provisions are key determinants to undertake training internally. Training in fork-lift trucks in particular is usually done internally. Companies must undertake this for compliance; however, they have developed programmes that can be completed in three days as opposed to training providers' five-day course, thus providing a saving on time and cost.

Warehouse operatives, whom employers generally found to lack suitable skills and experience when recruiting, are trained internally, on-the-job in most instances. The training tends to be company specific to their own processes and systems and can include training on hand-held computers or voice-enabled technologies.

Analysis of interview research with logistics employers illustrated that internal training satisfied company requirements to ensure compliance and fulfilment of contract obligations and was of value to the company for audit purposes. If they undertook external, accredited training, than this would add value to the individual making the employee more attractive to other employers.



Firms that were unable to undertake internal training to meet their needs approached external providers, generally private training providers. Working closely with the trainer, employers reported that they tried to create programmes that were suitable and flexible to the companies' needs. For example, one small firm required driver training, but could not afford for the drivers to be away from their day-to-day role. Therefore the trainer accompanied the driver while on the job, reviewing his performance and providing feedback/training. However, as it was on-the-job training, there was recognition by the employer of some limitations to this. For example, they were unable to pull the truck over to provide immediate feedback and discuss options; they had to wait until the driver had an official break.

### **5.1.2 Vocational Qualifications**

The last few years has seen extensive reforms across vocational qualifications (VQ). The reforms have sought to create a VQ system that is more responsive to employer needs and learners in its content, accessibility and the flexibility in the way qualifications can be achieved (UKCES, 2012b).

Overall 29 per cent of logistics employers had provided training that was designed to lead to a VQ, with Scotland and Wales most likely (31 and 41 per cent respectively) (UKCES, 2012b). Employers interviewed in Scotland and Wales report putting their drivers on VQs, aided by government funding. By receiving the funding, employers are then able to provide training in other areas with their remaining budget. For example, one firm had seven employees partake in government funded VQs and with the money saved, the trainer was able to put a development case forward for a young individual to undertake their Transport Managers CPC.

#### **5.1.2.1 Apprenticeships**

Apprenticeships are at the forefront of skills development and are seen as the key vocational route for individuals and employers. The logistics sector has ten apprenticeships frameworks, with 14,660 apprenticeship starts in England during 2012/13 – an increase in 6,870 since 2009/10. However, the 2012/13 figures were ten per cent lower than the previous year where starts stood at 16,210, which reflects the national trend (Table 10). The sector is seeing fewer individuals starting apprenticeships across all ages. In 2012, new quality processes for apprenticeship were introduced (NAS, 2012) which may have led to this decrease in starts.

**Table 10 Apprenticeship starts (England)**

Age	Logistics frameworks		All frameworks	
	2011/12	2012/13	2011/12	2012/13
16 – 18	13%	14%	25%	22%
19 – 24	24%	24%	31%	32%
25+	63%	62%	44%	45%
Total	16,390	14,660	520,600	510,200

Source: Skills Funding Agency and Department for Business, Innovation and Skills

FE data Library

One in six starts (62 per cent) on logistics frameworks were by those over the age of 25, meaning that employers do not receive any funding from government. This is a much greater proportion than seen across all frameworks. Awareness amongst logistics employers of subsidies for 16-18 year old apprentices on government-recognised schemes is low: 45 per cent were not aware, which is slightly greater than all sector figure of 42% (UKCES, 2012b).

Looking in further detail at who is undertaking the apprenticeships, it is noticeable that approximately half of all logistics frameworks completed go to one employer – the Ministry of Defence, with members of the UK armed services undertaking the qualifications<sup>8</sup>.

Awareness of further logistics frameworks was low amongst those participating in the research. An employer reported providing vocational training for Traffic Officers in Customer Service and Business Administration, unaware that a framework is in place for this role. In Scotland the low take up of this framework has seen it withdrawn.

The suitability of the current apprenticeship offer in logistics has been questioned by some employers who have taken positive action to improve the training available. Where the current QCF apprenticeship offer was not suitable for some employers needs they have designed additional elements and modules to enhance existing frameworks and ensure that training provision experienced by staff is tailored directly to employer need and sets up young people for a career in logistics.

<sup>8</sup> Skills for Logistics internal analysis of SASE database

### **5.1.2.2 Trailblazers Apprenticeship**

'Trailblazer' apprenticeships were introduced in 2014 as employer-led apprenticeship schemes, which enable employers to tailor qualifications and frameworks to their specific business needs and incorporate the use of specific technologies. These new apprenticeships will replace all existing frameworks come September 2017.

Evidence from employer interviews with representatives from the logistics sector indicates that Trailblazer Apprenticeship scheme will be of benefit to smaller firms. Currently smaller logistics firms see logistics sector training infrastructure as favouring the set up and administrative operations of larger companies. Phase 2 Trailblazers saw the expansion to develop standards to a range of sectors including maritime, while a consortia of logistics employers are proceeding to submit an expression of interest for phase 3, for a qualification meeting sector needs.

### **5.1.3 FE and HE courses**

Across the logistics sector only six per cent of employers use Further Education (FE) colleges to deliver external training and this proportion falls further for Higher Educational (HE) institutions where only three per cent report using them (UKCES, 2012b). In comparison double the proportion use these facilities across all sectors.

The main reason employers report for not using FE colleges and HE institutions to deliver training is that the courses on offer are not relevant.

The number of universities or colleges providers delivering a logistics related course has increased in recent years. Twenty one providers offer undergraduate courses and more than fifty offer postgraduate courses relating to logistics and supply chain management. Analysis of interviews carried out with logistics employers suggests that there is a generally low opinion in the industry of logistics related degrees, particularly those that did not offer a vocational or gap year element. Practical experience as opposed to academic knowledge was valued much more by those who had spent their careers in the sector. The practical experience ensures that the individuals are familiar with the systems and processes used in logistics operations.

Employers reported that both graduates and school leavers require similar levels of training and development and the preference would be for employers to recruit younger individuals who are willing to learn on the job and ensure their continued development through an employer led bespoke vocational qualification route. This could contribute to the low qualification profile of the sector that the sector experiences.

There are some examples of collaboration with the HE sector. The Novus Trust is a 'not for profit' organisation sponsored by a number of Industry Partners and has formed a partnership with the University of Huddersfield and the Chartered Institute of Logistics & Transport (CILT). The Trust is backed by a number of leading retailers, manufactures, and logistics organisations. Following a company-led selection process, successful students will study for a four-year sandwich course that leads to a BA (Hons) in Business with Supply Chain Management. During the course, students will have a company mentor, participate in industry-led seminars and site visits, and study for additional professional qualifications, as well as a sandwich year placements with leading employers. Most importantly, the NOVUS Trust guarantees an offer of graduate employment with one of the supporting companies upon successful completion of the course. In recognition of the evolving nature of logistics, the course will undergo continuous development to ensure it reflects the latest industry thinking, challenges And technological developments.

Further collaboration between employers and colleges is occurring to ensure the relevance of the offer, but this tends to be with larger firms. For example, Langdon's and Dearne Valley College are collaborating to offer a programme that delivers a variety of qualifications to ensure students are fully equipped, to work in the sector, including a Level 2 Certificate in Logistics and a Level 2 Award in Customer Services, as well as further qualifications in Fork Lift Truck Training, Manual Handling, and Food & Hygiene training. Candidates will also complete Functional Skills qualifications in English and Mathematics. The programme is split between practical, hands-on training at one of their depots, and study at the College to gain the underpinning theory.

Another initiative that is seeing collaboration between colleges and employers is traineeships. To help young people who would like to get an apprenticeship or job but do not have the appropriate skills or experience, the Government introduced traineeships in August 2013 for 16- to 23-year-olds.

Colleges and private training providers offer traineeships relating to logistics. In partnership with employers, these colleges and providers offer individuals the opportunity to undertake an education and training programme with work experience. Such programmes will aide the sector in attracting young individuals, an area which it struggles with. However, as a programme that is relatively new, awareness of the scheme still needs to be increased. Nationally there were only 40 adverts<sup>9</sup> for a logistics related traineeship out of a potential 592.

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<sup>9</sup> Traineeships advertised on the National Apprenticeship Service website 27/06/2014

#### **5.1.4 Transport Manager CPC**

The opportunity to study for a nationally recognised qualification received decisive support amongst Transport Managers (FTA, 2014). In a survey of Transport Managers conducted by the FTA, nearly nine in ten had taken the Transport Manager Certificate of Professional Competence (CPC). Of those who were not keen, were those managers who had been in position for the longest period and over the age of 55 years. This course covers a wide range of modules including technical areas of customs transit systems, mechanical conditions of road vehicles, and weights and dimensions of vehicles as well as generic business, management and financial skills. This qualification highlights the multi-skilled nature of the role in today's market.

Many providers offer flexible delivery of the Transport Managers CPC course. The course lasts 10 days but individuals in such positions struggle to do this as a block session. Thereby training can be split as two days for four to five weeks or home study is available with the potential to just attend revision days and the examination. Home study receive full tutor support via email.

#### **5.1.5 Driver CPC periodic training**

LGV drivers are required to undertake 35 hours' worth of periodic training in every five year cycle as part of the Driver CPC legislation. Each course must last seven hours, be set at level 2 standard and be approved by the Joint Approvals Unit for Periodic Training (JAUPT). Courses must be linked to the Directive syllabus. A potential impact of this training can be seen in the increased amount of training provided by employers in the sector between 2011 and 2013 for this occupational group (see section 2.3.4).

The subject range of courses permitted is vast and it is up to the individual (or employer if they are arranging) which they select. They are able to undertake training in areas such as driver hours, tachographs, and drivers' responsibility, fuel efficiency, maintenance, handling goods and materials, customer service, route planning and first aid.

Employers were very positive about the Driver CPC when it was first implemented. They viewed it as a way to ensure that drivers undertake continuous professional development – something considered important given the ever-changing rules and regulations and technological developments within the sector. It will help upskill drivers in technological areas as well softer skills like customer service and potentially overcome some of the skills gaps the sector suffers from.

Larger employers and training providers saw benefits of Driver CPC periodic training courses to other positions within the company. There was a belief that those working in the transport office and even the transport manager should be aware of the requirements and subject areas that drivers need to know, such as tachograph and driver hours, to ensure there is consistency of knowledge across the organisation. Furthermore in some depots, the loading of the vehicle is undertaken by warehouse operative, not the driver. These roles should therefore also undertake modules in the safe loading and unloading of vehicles.

## **5.2 Barriers to training**

### **5.2.1 Time and economic pressures**

The sector has narrow margins and with lean operating procedures employers may be reluctant to release individuals to attend off-the-job training courses. UKESS reveals that the sector is in the bottom three of all sectors for providing any off-the-job training, behind the hotel and restaurant and agriculture sectors. As mandatory training requirements are met logistics employers need to understand benefits of investing in further skills development and training.

### **5.2.2 Fear of poaching**

Some logistics employers demonstrate good practice and provide and encourage workforce development, equally there are some who seek only to fulfil their mandatory training requirements.

Fears of poaching of trained staff who take investment and then leave for other firms are common. Employers will not invest in skills unless they see the benefit to their firm. This could be impacting skills gaps in the sector, which has seen the proportion of companies reporting skills gaps increase between 2011 and 2013 (see section 2.3.2). One area in particular employers are reluctant to invest in is driver development, which is expensive and requires commitment. If a company were to make such an investment there is nothing preventing the individual leaving to work for a different company for a slightly higher pay rate, which is a fear expressed by employers.

### **5.2.3 Quality of training provision**

The quality of external training courses was an area of concern for employers interviewed. Employers questioned the skills and knowledge of some trainers and also the learning environment of training. Therefore, employers would welcome the implementation of a Standard that would identify good training delivery. Suggested areas the standard should be set against include:

- Trainer Quality – all trainers are qualified to teach the class;
- Course preparation and delivery - the content should attain a core standard and be engaging;
- Learning resources and environment – the learning environment is of professional quality, that lends itself to knowledge transfer;
- Pre and post-training delivery – the provider seeks to support the employer/individual along the learning journey; and
- Commitment to excellence

### **5.3 Conclusion**

Employers interviewed, and those that took part in the focus group discussions all recognised the need for staff training and development and undertook this as appropriate.

The implementation of technology has resulted in the need for different skills and employers providing the necessary training. They recognise that if individuals are not trained in their use, they are less likely to be used effectively. Employers generally undertake this training in-house, with the operating of technologies incorporated within induction training for new staff.

In-house training is seen to be flexible and removes the cost of sending individuals off-site. If the training can be undertaken on-the-job this is seen to be an advantage to employers as individuals are not being taken away from their day-to-day role.

In-house training is developed to ensure it satisfies the companies own requirements, such as compliance and fulfilment of contract obligations and was therefore seen as value to the company. Conversely there appears to be a reluctance to provide individuals with accredited qualifications, as employers fear this would provide added value to the individual, making them more attractive to other employers – there is a deep set philosophy amongst firms that staff will leave if they are trained. More needs to be done to show that this is not the case.

Employers strongly favour vocational experience over academic qualifications. HE courses, particularly those without a 'gap year' or vocational aspect are not valued; graduates are still seen to have similar developmental requirements as a young person leaving college and entering the sector.



## 6 Summary and implications

### 6.1 Summary

The logistics sector is essential to the UK economy, with all elements of the UK economy relying on logistics (DfT , 2011). It employs 2.2 million people and contributes over £90 bn in GVA. The sector is key to the future growth of the economy. In line with the whole economy, the sector is expected to grow by six per cent or 155,000 jobs between 2012 2022.

Retail logistics has and continues to evolve, underpinned by developments in new technologies and drivers such as consumer and customer expectations, business strategy, regulation and compliance – including environmental and H&S. This is opening up opportunities for new working practices and skillsets within the logistics sector.

For example, the globalisation of production lines has seen the increased prominence of gateway locations, such as the container ports of Felixstowe, Thames Gateway, Southampton and Liverpool. Alongside this retailers have adopted the port centric logistics concept, meaning that port activities have diversified, requiring different skills. Across the mainland, there are particular hubs of logistics activities, meaning that employment and skillsets are likewise found in greater concentrations in specific areas.

The future trends and forecasts predict a greater demand for high level skills in the sector. For example, management roles are expected to increase by 18 per cent and Professional and Associate Professional and Technical occupations by 26 and 21 per cent respectively.

Replacement demand will generate an additional 1 million job openings in the sector, meaning that with growth there is a total requirement of nearly 1.2 million. Over a fifth of replacement is expected across the machine operative roles, which is an area of great need and has current recruitment difficulties. Therefore it is likely that there will be further increases in skills shortages, wages and migration if the supply of labour is not able to meet this future demand.

There are already indications that there is increasing competition for skills across the sector. There are some recruitment difficulties, particularly in the key occupation of LGV drivers. Furthermore there are early indications of difficulties recruiting at managerial level.

This research has shown that the sector is concerned about its future pipeline of skills. It is widely recognised that not enough young people are entering the sector. In a sector with an ageing workforce there are further concerns that valuable skills will be lost if action is not taken.

The solutions employers are pursuing include:

- Greater engagement with schools and colleges: By working with schools, employers are looking to increase awareness of the sector and the opportunities available, thereby attracting new talent
- Succession planning: This appears to still be a relatively new concept from the research. In some instances middle management can see the benefits but senior management may not yet buy-in to the process. There needs to be a change in mind-set

In the short term, firms will continue to use agency workers as a method of fixing shortfalls. Agencies also play an important role during seasonal fluctuations and rapidly changing volumes in demand for products.

The technologies implemented across the sector pose a challenge for the employer to ensure that their employees have the right skills in the right quantities. There is an ever growing need to be multi-skilled in many of the roles, including management roles, drivers, port operatives, warehouse operatives, transport office, IT professionals and trainers.

Skills and knowledge needed include:

- IT skills - for application of the technology, but also website design and development
- Customer service and communication skills – key with the increased demand in home deliveries and direct contact with the end-user
- Contract relationship management – customers are demanding more from the contracts and this needs to be managed effectively
- Compliance awareness – the need to adhere to and be aware of incoming rules and regulations, but also be able to comply with contract needs, which may involve auditing
- Analytical / Reporting skills – many of the technologies and systems hold a vast array of data relating to performance. Workers need to have the skills available to analyse this and identify areas of potential improvement.
- Planning – the ability to use historic data as a means to influence future planning

- Problem solving skills – ability to use real-time data to identify and deal with issues quickly and efficiently
- Promotional skills and marketing – not only to promote the companies' services, but also to overcome the negative perception of the sector to increase awareness of opportunities to attract new talent.

Employers do not consider HE logistics courses to be of great value. They want individuals to have vocational experience rather than academic knowledge. Vocational qualifications are seen to set a standard for a role and these will be used by employers when there is funding attached. However, there is reluctance from employers to provide accredited training. This largely stems from the fear that individuals will leave the firm if trained, but cost and time pressures are also factors. To provide the skills relating to new technologies, employers tend to undertake in-house training.

## **6.2 Implications and opportunities**

There will continue to be new developments in technology that will have an impact for skills and training in the logistics sector. Some of these technologies may be implemented in the wider supply chain and then have an indirect impact on the logistics and distribution channels, whilst others will affect logistics firms directly.

Throughout the research, there was a strong sense that technology is helping to improve the services logistics providers offer. The entire supply chain is becoming ever more connected. Consequently, data is being collected in ever increasing quantities and the ability to intelligently interpret this and the ability to solve real-time issues is key to firms seeking to maintain a competitive advantage.

This research shows where there is a need for employers to address structural labour market issues and plan ahead to ensure there is sufficient supply of labour with the appropriate skills.

The sector now offers a wider range of roles and the opportunity to use a greater range of skills including IT, planning and communications skills. This could be usefully communicated to potential entrants to the industry through good quality careers information, advice and guidance for and from employers, via careers advisers in schools, colleges, Jobcentre Plus and universities.

As the labour market continues to change with an anticipated increase in demand for higher level skills, greater collaboration between industry, FE and universities would be of benefit in an increasingly technological sector. This process has already begun in some pockets of best practice, for example with the NOVUS Trust and the University of Huddersfield and with Langdon's and Dearne Valley College. Scaling up and replicating such initiatives would benefit employers and education providers and encourage the development of higher skill levels in the industry. As well as larger firms, small and medium sized enterprises would also benefit to maximise the potential value of bespoke, practical vocational courses to ensure relevance and employer buy-in.

Employer fears of investment in training leading to the poaching of staff could also be addressed. In reality, research shows that employees who are trained and who feel that their career and professional development are considered important tend to have greater loyalty to their employer. The promotion of positive messages regarding the benefits of training and up-skilling would be beneficial to the future of the industry.

Employers all raised concerns about the future supply of workers. Young people, in particular, lack understanding of the sector – 66 per cent of 14-19 year olds misunderstood the term 'logistics' (Skills for Logistics, 2009). Individuals 'fall' into the sector, considering it to be a job of last resort. This in turn makes it harder to attract quality entrants, and employers are faced with skills gaps. Sourcing the required numbers of suitably skilled staff is therefore recognised as a key challenge for employers in the sector, which, if not addressed, will seriously compromise future business growth potential. Employers would therefore benefit from concerted efforts to attract talent to the sector.

## Glossary

3PL	Third Party Logistics
ADC	Automated Data Systems
AGVs	Automated Guided Vehicles
APS	Annual Population Survey
AS/RS	Automated Storage and Retrieval Systems
BBC	British Broadcasting Co-operation
BIS	Department for Business, Innovation and Skills
CE	Cambridge Econometrics
CILT	Chartered Institute of Logistics and Transport
CO <sub>2</sub>	Carbon Dioxide
CPC	Certificate of Professional Competence
CV	Curriculum Vitae
DC	Distribution Centre
DECC	Department for Energy and Climate Change
DFT	Department for Transport
DVSA	Driver and Vehicle Standards Agency
ERP	Enterprise and Resource Planning
ETA	Estimated Time of Arrival
EU	European Union
FTA	Freight Transport Association
GPS	Global Positioning System
GVA	Gross Value Added
HE/FE	Higher Education / Further Education

HSE	Health and Safety Executive
ICT	Information Communication Technologies
IER	Institute for Employment Research
IMRG	Interactive Media in Retail Group
IT	Information Technologies
ITS	Intelligent Transport Systems
JAUPT	Joint Approvals Unit for Periodic Training
LGV	Large Goods Vehicle
LPG	Liquid Petroleum Gas
ONS	Office for National Statistics
PDA	Personal Digital Assistant
PDP	Personal Development Plans
RFID	Radio Frequency Identification
SCM	Supply Chain Management
SME's	Small and Medium-sized Enterprises
UK	United Kingdom
UKCES	UK Commission for Employment and Skills
UKESS	UK Commission's Employer Skills Survey 2013
VQ	Vocational Qualifications
WMS	Warehouse Management Systems
WTD	Working Time Directive

**3PL** – Third Party Logistics provider is a firm that provides a service to its customers of outsourced logistics services for part or all of their supply chain management functions

**Hard-to-fill vacancies** - vacancies which are proving difficult to fill, as defined by the establishment

**Skills-shortage vacancies** - vacancies which are proving difficult to fill due to the establishment not being able to find applicants with the appropriate skills, qualifications or experience.

**Skills gap** - a “skills gap” is where an employee is not fully proficient, i.e. is not able to do their job to the required level

**Multi-channel retail** - have different channels (such as store, web or mobile) that are independently managed

**Omnichannel retail** - the channels are managed in an integrated way that offers customers a seamless experience of however they choose to shop. Within omnichannel, a retailer may fulfil orders from stores or warehouses.

## Appendix A: Methodology

This report was produced by the Skills for Logistics research team, commissioned by the UK Commission for Employment and Skills. This technical appendix provides information on the approach to producing this report.

A mixed method approach was used which drew on the following activities:

- Initial desk based scoping of sources and potential research participants (suppliers and users)
- Secondary research, including a literature review. This stage also drew on existing data sets such as those from the UK Employers Skills Survey, Employer Perspectives Survey and Working Futures.
- 15 in-depth interviews with suppliers and employers
- Three roundtable events (England, Scotland, Wales).

### Data analysis

The sector profile in this report uses data from the Office for National Statistics (ONS) Annual Population Survey (APS) to describe the profile of the logistics sector. The APS includes all the data of the Annual Area Local Area Labour Force Survey and also a further sample boost in more urban areas of England. The APS dataset contains around 340,000 individuals. Fuller guidance can be accessed at: <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/labour-market/labour-market-statistics/index.html>

The UK Commission's Employer Skills Survey 2013 was the second large-scale economy-wide employer skills survey conducted across the whole UK. It was carried out in two parts: a core survey of UK employers, and a follow-up survey of workplaces which had funded or arranged training for employees in the 12 months preceding the survey, to look at the investment they had made in this training (the "Investment in Training Survey"); both surveys were conducted by telephone. Further detail can be found in the separate technical report: <https://www.gov.uk/government/publications/ukces-employer-skills-survey-2013>

Working Futures projections were prepared by the Institute for Employment Research (IER) and Cambridge Econometric (EC) on behalf of the UKCES. A number of different data sources are used to provide a picture of employment prospects up to 2022, giving an indicative picture of likely trends. Further methodological details can be found at: <https://www.gov.uk/government/publications/working-futures-2012-to-2022>



## **Literature review**

The literature review undertaken for this project used existing material to provide information of the technologies and to identify insights into how the technologies might develop in the future. A thorough internet based review was undertaken that looked at technology journals, publications from experts in the field of logistics and the views of employers and suppliers of technology.

Various literature is available on the technologies within logistics, but there is little information available on skills requirements that will contribute to the competitive nature of the sector. The literature review therefore informed the subsequent qualitative interviews.

## **In-depth interviews**

Qualitative fieldwork with employers and suppliers of technology through semi-structure interviews provided a rich and more detailed understanding for this project.

The literature review and data analysis conducted in the initial stages of the research were used to develop the topic guides for the interviews, which can be found below. In the course of the project 15 individuals for different organisations were interviewed. The sample included both employers and providers of technology to gather a range of views. They covered at least one employer in each nation (England 9, Scotland 3, Wales 2 and Northern Ireland 1). Many of the companies interviewed are part of large national or international organisations and are relatively large in size.

The report is not designed to provide a comprehensive assessment of sectoral skills levels at national or all size / industry level but to provide some insight from employers and suppliers of technology into the potential impacts of technology within the logistics sector.

## **Roundtable events**

A first draft of the report, based upon the input gathered in the course of the project then provided the basis for the roundtable discussion in order to synthesise and validate key points and further refine findings. Three were held during May and June 2014 – 1 in Wales, 1 in Scotland and 1 in England. The discussion guide can be found below.

## Interview Guide

Organisational Name:	
Interviewee Name:	
Position:	
Telephone Number:	
email address:	
Address:	
Skills for Logistics Interviewer:	
Date and time of Interview:	

## Introduction

- Explain the project
- Sponsored by UKCES
- Address terms of confidentiality
- Interview should take about 20 mins

The following interview will ask about your experiences of existing technologies in the sector and how these have influence the job roles and skills requirements of the workforce. It will also explore emerging technologies within logistics.

## Company information

Size	
Mirco: less than 10 employees and a turnover $\leq$ € 2 million	
Small: 10 to 50 employees and a turnover $\leq$ € 10 million	
Medium: less than 250 employees and a turnover $\leq$ € 50 million	
Large:	

1. Can you tell me about the company – which area / supply chains do you operate?  
(i.e. warehousing, transportation, retail, food & drink supply chain)

### **Adoption of technology**

2. Could you describe the specific types of technology the company has adopted/implemented in the previous 1 to 2 years  
(Probe with reference to warehouses and vehicles)

3. What was the reason for implementing new technology?

4. What benefits have been seen as a consequence of this technological adoption?

5. What impact has this adoption of technology had on the skill needs in the workforce?

Have new roles emerged or have the skills of existing roles had to be extended / changed – if so in what way

### **Barriers to adopting technology**

6. What is/are the biggest barriers to the adoption of new technology in your business  
(Probe with reference to warehouses and vehicles)

### **Recruitment, Training and Development**

7. Are you able to recruit individuals with the skills required to use these technologies?  
Or do you have to undertake additional training - what specific training is required?

8. How has staff training and development within the organisation altered to facilitate the new technology?

## **Future technologies**

9. Technology is opening up countless new logistics possibilities. What are your views on the future on the following technologies and their applications in the logistics sector in the next 5 years?

- a. Autonomous Logistics (warehouse and vehicles – road and air)
- b. Robotics & Automation
- c. Telemetrics (next generation)

10. And what impact do you think these will have on the workforce/job roles. – will new roles emerge?

## **Closing Comments**

11. Do you have any final comments regarding technology in the sector and the impact it has on the skills of the workforce.

Following the desk research and these interviews we're currently undertaking, a draft report will be compiled. The findings from these will then be discussed further in a focus group meeting during April/May. Would you be interested in attending this?

## **Roundtable Discussion Guide**

### **1. Workforce - Supply and Demand**

There are increasing difficulties with recruitment in the sector.

- I. What roles / positions have you experienced difficulties with?
- II. Why is this? What skills are lacking?

The introduction of technology impacts the workforce.

- I. Have roles / skills been made redundant across the sector?
- II. Have new roles / skills emerged?

Logistics is not considered a sector of 'first choice' for a number of talent pools (e.g. young people, military, women)

- I. What impact will this have on future workforce supply?
- II. Do companies consider succession planning?

### **2. Training and qualifications**

Employers in the sector are much less likely to train staff to nationally recognised qualifications.

- I. Does your organisation utilise accredited training?
  - a. If so which and at what level?
  - b. If not, why not?
- II. Why do you think providing training to nationally recognised qualifications is so low?
- III. What can be done to improve the proportion?
- IV. Why is much of the training undertaken carried out in-house?

### **3. Future technologies**

Technology continues to open up new possibilities in the sector.

- I. What technologies do you believe will / can be applied in the sector in the next five years?
- II. How do you believe these impact the workforce / skills requirements

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Evidence Reports present detailed findings of the research produced by the UK Commission for Employment and Skills. The reports contribute to the accumulation of knowledge and intelligence on skills and employment issues through the review of existing evidence or through primary research.

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