



Linux
Professional
Institute

MIND THE GAP

An industry report on open source technology skills in the UK

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I. Overview

In 2014 the tech sector contributed £91.1 billion¹ to the UK economy. Jobs in this sector totaled 1.6 million, and were created at a speed 2.8 x faster than the rest of the economy put together (2011-2014)².

Technology is, unarguably, an integral part of our lives, and a significant contributor to our global economy.

Currently, the biggest growth in the technology marketplace is in open source technologies. The explosion in cloud computing infrastructures means even proprietary IT vendors are supporting Linux environments; the future looks set to head in an open source direction.

The importance of open source IT skills in the UK workforce – and the benefits they bring to businesses, employees and the UK economy – are therefore clear.

Not always as well articulated, however, is the IT skills shortage that the UK is experiencing; or what businesses and employees can do to fill this widening skills gap. In fact, the European Commission forecasts that the UK workforce will have the largest digital skills deficit in the EU by 2020³.

How can IT and HR directors ensure their organisations have the right people with the right skills to harness technology most effectively?

The answer is clear: place a strong focus on skills certification. This conclusion is supported by the market survey that provides the data for this whitepaper.

“The evidence is clear that the UK faces a digital skills crisis... only urgent action... can prevent this skills crisis from damaging our productivity and economic competitiveness.”⁴

– House of Commons, Science and Technology Committee | Digital Skills Crisis | Second Report of Session 2016-17

2. Technology and the Global Economy

Need drives growth drives need

As mid-twentieth-century writer Joseph Krutch once said “Technology made large populations possible; large populations now make technology indispensable.”

Fast forward over half a century (and about 5 billion people), and technology is an inescapable part of our everyday world; part of the beating heart of our global economy.

Today, technology industries turnover an estimated £161 billion, and account for approximately 1.56 million jobs across the UK alone⁵.

Jobs in the tech sector grew by 11.2% between 2011 and 2014⁶; 2.8x faster than the rest of the workforce put together. In those years, the technology sector outpaced the growth of rest of the economy by 32%. There are over 58,000 technology businesses in the UK alone – and this number is still rising fast.

The explosion of technology businesses is transforming the employment landscape, both in terms of productivity and an ever-increasing demand for technology expertise. According to The Tech Partnership report, ‘Employer Insights: Skills Survey’, 99% of employers surveyed in 2015 were aiming to increase (or at least maintain) the number of tech specialists they employed in the coming year⁷.

In the UK, there is a rapid upsurge in demand for these tech specialist positions as more developers, systems administrators and DevOps personnel are needed across every sector. The number of tech specialists grew by 6% in 2014 alone⁸.

Advancements in software development have been largely responsible for the expansion of this sector; there are now 29,000 UK companies primarily focused on software development, up more than 150% in the past five years⁹.

More specifically, the ever-increasing adoption of software based on open source technologies, like Linux, has played a vital role in the rapid growth of the tech industry and its global impact.

Top 5 benefits for Linux certification – IT professionals say that certification improves:



1 **Knowledge** in a particular area (53%)

2 **Confidence** level (50%)

3 **Professional** reputation (50%)

4 **Performance** in their role (33%)

5 **Prospects** for moving into a wider range of job opportunities (27%)

UK IT Skills survey, LPI UK & CompTIA, 2016

IT skills insight:

“Linux is the operating system that underpins a vast range of industry sectors across the UK, Europe and wider world – yet there is a major global shortage of Linux-skilled IT professionals which threatens growth and innovation.”

– Andrew Smith, Open University Senior Lecturer in Networking

Opening up

Open source technology is transforming all kinds of industries, and the organisations within them.

Linux, for example, is clearly no longer just a technology for webservers and open source evangelists; it is present throughout corporate giants like Google, Facebook and the US Government. Long-established proprietary behemoths like Oracle and SAP have also embraced Linux and other open source technologies.

Gartner's 2015 survey documents a shift by the enterprise from Unix to Linux operating systems,¹⁰ highlighting a large scale, global movement to commercialization and the increasing popularity of open source technology.

This is a shift that has gathered momentum as the benefits of open source software are recognized. Open source software surpasses its proprietary counterparts in its cost efficiency, flexibility, security – and, of course, its community development ethos.

This global trend towards open source – by businesses big and small – means an increased demand for skills in open source technologies. Demand for Linux skills in particular, by UK employers, has shown a significant increase in recent years¹¹.

Meeting demands?

A recent research study illuminates the specific demand for open source skills in the UK, and the challenges employers face in recruiting people with these skills.

The Linux Professional Institute (LPI UK) commissioned a survey of 200 UK employers, interviewing both heads of IT and their employees, across a wide range of industry sectors, in companies ranging from SMEs to large enterprises.

With so much global technology operating on Linux (60% of employers surveyed said their businesses rely on Linux-based systems), the survey sought to investigate the extent of Linux skill shortages facing the UK tech sector today.

3. Getting to Grips with the Gap

Demand and supply

Our research confirms that the UK IT skills shortage is a very real and significant problem. Nearly nine in ten (89%) UK employers reported difficulties in recruiting the right candidates for IT positions. Specifically, they said candidates often lack the experience (47%), knowledge (43%) and skills (38%) required.

The UK Prime Minister Theresa May's decision to transfer the remit for IT skills away from the now-dissolved Department for Business, Innovation and Skills (BIS) and into the Department for Education (DfE) is a related area for concern regarding IT training and skills shortages.

This is largely due to it being unclear how quickly and effectively the DfE will be able to build the contacts and develop the understanding of the commercial world to guide the future of IT skills. What is certain is that the UK's next steps will be crucial.

High stakes

With the tech sector alone contributing £91.1 billion to the UK economy each year, as explained in The Tech Partnership's 2015 report, this potential lack of capable resource is a serious challenge to industry.

More than four in five (82%) UK employers surveyed said the shortage of suitable IT professionals is having a negative impact on their organisation; one in five stated the impact was major.

This shortage is a key bottleneck for the industry and is linked to 20% of all vacancies for IT roles. Currently, 72% of large companies and 49% of SMEs are suffering a gap in IT skills. When asked to compare the level of skills held by their tech specialists with those required by the business, 50% of organisations across the UK identified a significant disparity.

Yet there is a strong appetite among UK IT professionals to improve their demonstrable skills. More than two in five (43%) of IT professionals surveyed say they'd like to do more IT training and nearly a third (31%) feel their employer could be doing more to improve their knowledge and skills.

Despite the corporate pull for IT skills to drive competitive advantage, the demand for IT skills is not always reflected in training budgets. While 94% of UK employers surveyed recognised the importance of IT staff being fully trained in the latest systems and technology, less than a quarter (24%) said they have a large budget for IT training – and 22% have actually reduced their budget allowance for IT training.

IT skills insight:

“Employers want IT staff with high-level knowledge and skills. A CV that shows a candidate has undertaken LPI certification is recognisable proof of those skills, and evidence of them making a major investment in their employability.”

– Andrew Smith, Open University Senior Lecturer in Networking

The gap is open (source)

The nature of open source technology (where the technology is not “owned” by a company) seems to have resulted in less market focus on the formalisation of skills – i.e. training and certification – in these technologies.

Our recent survey of UK employers revealed that almost seven in ten (69%) think it important that IT staff in their organisation have Linux knowledge and skills. But recruitment of these candidates is challenging: 43% of employers reported difficulties recruiting candidates with adequate Linux knowledge and skills.

A large majority (85%) of IT professionals surveyed had worked with Linux systems over the previous twelve months, and yet over 40% of employers said they find it difficult to recruit candidates with Linux skills certification.

Over 60% of IT professionals believe that open source technology is now essential to the tech industry – to allow freedom of choice, remove vendor lock-in and allow them to deliver the best solutions for businesses and organisations.

But still, many employers who are struggling to recruit these skills are simply not committing to financing training, or driving the change towards centralised qualifications. Our second “gap” emerges here – between an acknowledged problem and its likely solution.

Who’s accountable?

Overall, it appears clear that UK employers face multiple challenges recruiting suitably trained, qualified and certified IT staff with the required high-level knowledge and skills in Linux and other open source technologies.

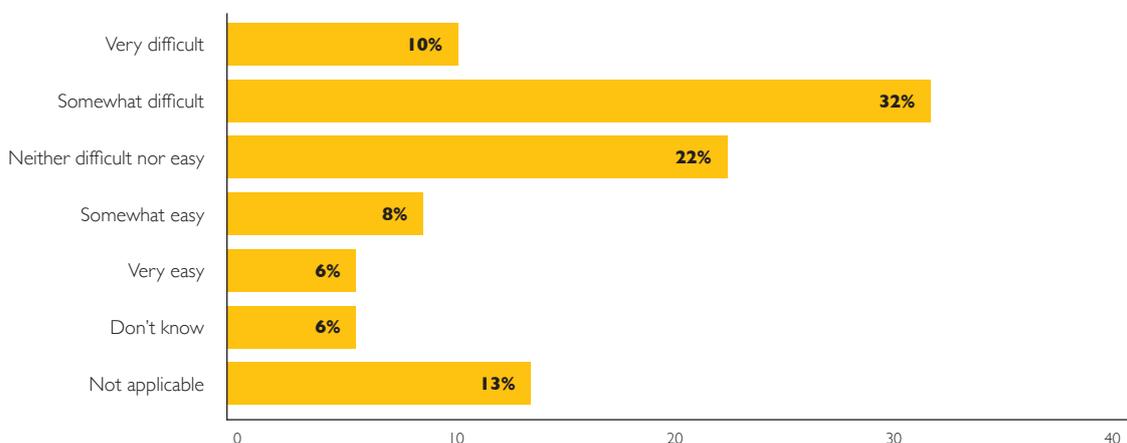
Failure to address the IT skills shortage has very real implications for the UK economy. If employers are unable to recruit IT professionals with the abilities they need, there is a distinct risk that more requirements and jobs will be off-shored, or even that businesses will move their entire operations overseas.

The rise of the internet and cloud services means the geographical location of an IT professional or provider is less important than ever.

Almost all UK employers say they want their employees to upskill. However, many employers seem reluctant to support that need with the provision of training and certification.

Most organisations are in a period of digital transformation in some form or another. No matter where they are on that journey, employers must recognise the crucial role that people and processes play, and invest in the technology skills required to ensure the business can compete on a global stage.

How difficult do you find it to recruit candidates with adequate Linux knowledge and skills?



UK IT Skills survey, LPI UK & CompTIA, 2016

4. Certifiably Skilled

Education. Education. Education

The long-term approach to addressing the UK's IT skills gap should be rooted in schools and colleges. The UK at last has a computing curriculum in schools that teaches children not only to use computers for word-processing, spreadsheets and presentations, but also to code and create.

Through initiatives like Raspberry Pi, children now have exposure to open source technologies, which will help them develop the skills that are in high demand by employers.

But while technology education has found its way into the curriculum, it must ultimately go beyond creative inspiration (empowering students to solve problems through IT) and move into its practical application.

With responsibility for the IT Skills now in the hands of the Department of Education; every school, college and university in the country will need to foster close links with local and national employers. Educational institutions will need to ensure that the technical skills and knowledge that are being taught, are not only valuable and relevant to today's employment market, but also reflect the technologies powering today's and tomorrow's economies.

The role of the industry

Employers have an important part to play in this process too. This year the UK Government made a clear recommendation¹² that employers should accept more ownership of the digital skills issue and take responsibility for training. They should support their current workforce's development, while at the same time recruiting interns or apprentices who should then be upskilled in the workplace.

While some organisations are already heeding this call (our survey revealed that around 24% of UK tech specialists have received at least some form of employer related education or training), given the skills shortages organisations worldwide are experiencing, there is a lot of room for improvement.

Forward-looking employers who do have a robust educational program are quite aware that as new technology is adopted, upskilling employees enhances the value of their entire company. Likewise, having an IT workforce with out-of-date skills can only have a negative impact on growth.

Top 5 reasons why IT professionals seek certification in open source:



1

Personal development (70%)

2

To build new skills/knowledge (69%)

3

To improve job prospects (51%)

4

To advance their career (42%)

5

To **prove** their skills to others (37%)

UK IT Skills survey, LPI UK & CompTIA, 2016

Certification. Certification. Certification

Today's employers seek candidates with advanced, professional-level IT skills in Linux and other open source technologies.

Certifications are demonstrable evidence of these skills – providing a common standard to match up employers (who require tangible proof of expertise and demonstrable application of skill) with certification holders (who seek jobs that utilise and progress their skills).

For some, becoming certified will involve learning new skills. For others, certification will encourage and enhance existing abilities. Many Linux professionals, for example, have been working with the operating system for years, without the credentials to validate their expertise or the route to improve what are often self-taught skills.

Over 60% of the IT professionals surveyed attach high importance to achieving certification in open source technology skill and knowledge (69%) and for improved job prospects (51%).

Because certification brings with it both personal and professional benefits, it clearly delivers advantages for both IT professionals and their employers.

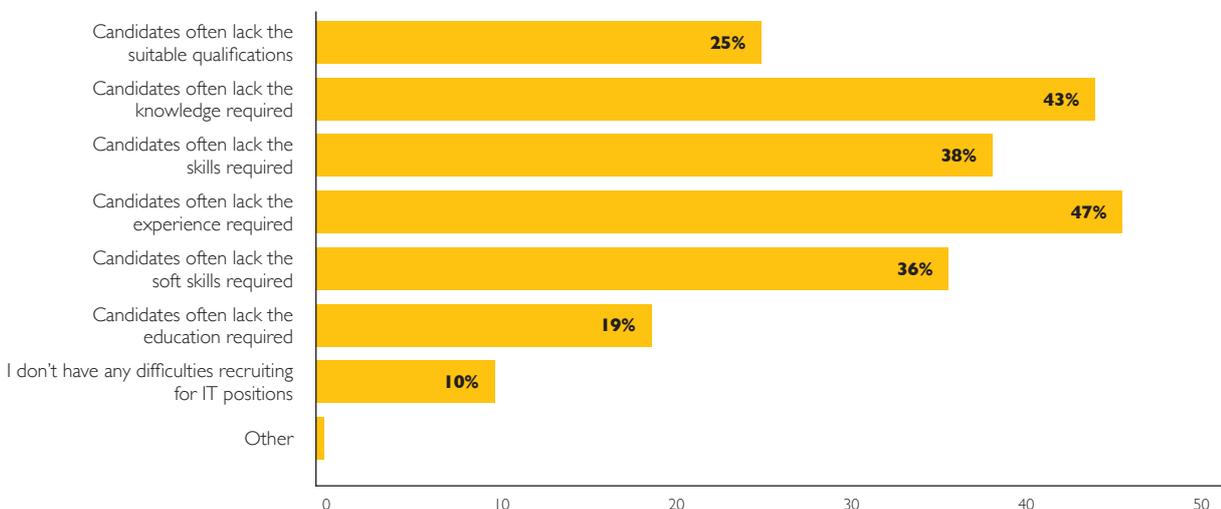
Over half (53%) the IT professionals we spoke to told us that the process of certification itself improved their knowledge. 50% said it developed their confidence and enhanced their professional reputation.

Certification not only helps in attracting new talent; it supports long-term employee retention. The IT landscape is always evolving and IT professionals understand that they too must evolve their own skill sets if they are to keep pace and add value.

By explicitly searching for certified IT staff, and offering ongoing training and certification, an employer becomes more attractive to candidates who value continuous education and personal growth through work. In turn, employers can hold up the IT skills certifications held by their staff as proof of quality to customers.

Increased levels of IT skills and certification must be seen as an asset to an organisation – not as a threat. Without this attitudinal shift and additional investment in upskilling, it is difficult to see how employers can avoid perpetuating the IT skills shortage that is potentially restricting their own success.

Which of the following difficulties, if any, do you have recruiting candidates for IT positions in your business?



UK IT Skills survey, LPI UK & CompTIA, 2016

5. Conclusions

The UK IT skills gap is very real – and the specific shortage of skills in open source technologies, like Linux, is of particular concern for individual employers and the nation’s economy as a whole.

The key to addressing the IT skills gap and accelerating growth, is to ensure employers have access to a rich talent pool of highly skilled and qualified IT professionals – including those certified with the IT skills in Linux and other open source technologies, that are so urgently needed.

Concerted action between employers, IT professionals, government authorities, skills organisations, training providers and certification bodies can help develop these skills and close the gap. In turn, delivering real benefits for all these stakeholders as well as the global economy.

If we heed our own call and tackle this challenge head-on, the opportunities are enormous. It is not news that the world is being transformed by technology. But the digital revolution is just as much about people and process as it is about technology.

Closing the open source skills gap will not happen overnight. But the journey begins with knowing where we are and where we have to go. It involves working together to create environments that inspire real growth and support our digital and global economy – now and in the future.

Sources:

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3. UK Houses of Parliament, POSTnote 510, October 2015.
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For more information on the issues in this report, visit:
www.lpi.org/value-of-certification/employers

About LPI

LPI is a non-profit organisation with a mission to enable economic and creative opportunities for everybody by making open source knowledge and skills certification universally accessible. We are the global certification standard for Linux and a career support organisation for open source professionals all over the world.

With more than 500,000 exams delivered, LPI is the world's first and largest vendor-neutral Linux and open source skills certification body. We have certified IT professionals in 181 countries, deliver exams in 9 languages, and have over 400 training partners.

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