

The Gap Years

**An insight paper on the
technology skills gap.**

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1. Introduction.

There are indications that a sizeable percentage of organisations in the UK will be increasing their intake of new recruits this year in anticipation of the recovering economy and improved growth forecasts. Driving this growth in many businesses will be technology, as innovative processes and delivery models are developed. In order to achieve this goal, organisations require IT and computing workers equipped with the right skills and knowledge of the latest technologies.

The problem for many organisations today is that they are experiencing real difficulty finding these people. Talk of a skills gap is as old as the IT industry itself but it has intensified as the knowledge economies of the developed world seek to forge a new role in the age of globalisation and as we emerge from global recession.

With this study we wanted to not only discover the depth and breadth of the problem, but to drill down and find out more detail about the types of skills that are in

short supply and how this is impacting organisations across the country. We felt it was important also to investigate the role of education in producing the skilled individuals required and how both employers and students view the world of IT education. If we are to produce a steady stream of qualified IT graduates with the desired skillset we need to know that they are learning the right skills as they travel along the educational conveyor belt. Indeed, we need to know whether they are travelling along the right conveyor belt in the first place!

Outlined in this paper are the main findings of the research we wanted to share with you to help you gain insight into this important topic, that has ramifications not just for the IT sector but for the wider business world as a whole. I hope that you find it to be an insightful read, and I would enjoy receiving any feedback on it, particularly if you are an IT student or employer faced with the issues we have outlined.

Pat Nice
CEO, Reconnix

2. Research Methodology.

In order to provide a complete view of the issues around the IT skills and talent agenda, it was necessary to gather data from both the employer and jobseeker sides.

Working with an independent research consultancy, Reconnix surveyed:

1. 100 IT decision-makers drawn from the public and private sector, and large and medium-sized organisations within the UK. This audience was comprised of IT directors, managers and other senior executives who have financial control over recruitment and business development.
2. 250 IT students or qualified graduates from across the UK ranging in age from 18 to 54 years with the majority (82 per cent) aged between 25 and 44 years. The gender split was 39 per cent female and 61 per cent male.

Research was conducted during April 2014.

3. The skills shortage.

As the UK moves out of recession, it has become evident that the country faces an IT skills shortage where employers are struggling to recruit people with the right combination of technical competences to take their organisations forward.

The influential *Technology and Skills in the Digital Industries* study released last autumn by the UK Commission for Employment and Skills (UKCES) suggested 300,000 new recruits are needed to fill employment gaps in the digital sector by 2023 and warned that a lack of specialist technical skills are impeding growth with almost one-fifth of all vacancies difficult to fill.

The Reconnix study underlines these findings but drills down further to give details of the proportion of employers that are being hampered by the shortfall in IT skills and the specific technical roles candidates are failing to satisfy. There is evidence too that the skills deficit is stifling innovation in UK plc and prompting a high proportion of companies to outsource their IT operations as they don't have the expertise in-house.

However, despite this somewhat overcast landscape, the report also uncovers a high degree of optimism among current and recently graduated IT students, believing that they are employable and will find work.

Worryingly for the business community, almost three-quarters of employers (74 per cent) who participated in the Reconnix study say they have “experienced difficulty” recruiting technically qualified staff (figure 1) while a mere 12 per cent report there are ample or surplus candidates to fill technology roles.

Indeed, a high majority of respondents believe the IT department struggles more than other parts of their organisation in this regard with nearly two-thirds (63 per cent) stating that recruiting technical staff is more difficult due to a lack of qualified personnel compared with other areas of the business.

When it comes to the technical roles organisations say they are struggling to fill, web developers, internet and network specialists and data analysts head the list, underlining the importance of online communications and commerce, and the growing demand for cloud computing experts in today's world.

According to employers, the skills where they have noticed a shortage include:

- Web application development: 38 per cent
- Internet and networking: 36 per cent
- Data analyst: 34 per cent

- Hardware and electronics: 28 per cent
- Systems technical support (server): 24 per cent
- Applications technical support (desktop): 23 per cent

Considering this state of affairs, it comes as no surprise that a bulk of employers (54 per cent) feel innovation is suffering in their organisation due to a dearth of technical skills. It is clear this shortage means UK businesses are struggling to keep pace with technological change at a time when over a quarter are considering increasing headcount, according to the report, *The Talent Challenge: Adapting To Growth* recently published by PWC.

Faced with a scarcity of adequately skilled candidates coming through their door, there is evidence that employers are turning to outsourcing specialists and freelancers for their IT requirements. Two-thirds (66 per cent) of organisations say they outsource some of their work due to a skills shortage with a sizeable 26 per cent stating that they

partner with outsourcing companies on a frequent basis.

As cloud-based services make outsourcing more accessible and commonplace, it is interesting to note that almost a third of recipients (30 per cent) who outsource a proportion of their IT assignments farm out between 40-79 per cent of the workload with the remaining 70 per cent outsourcing between 1-39 per cent of their organisation's IT activity.

But while a high number of employers bemoan the lack of adequately-skilled IT candidates entering the recruitment market, there is a surprisingly high level of confidence among computing students that they will secure a job. Of the 250 students who are currently studying IT or have recently completed their studies, an impressive 58 per cent say they are confident of finding work in the technology sector while another 24 per cent are hopeful (Figure 2). Only 12 per cent are worried about their employment prospects while just 5 per cent are considering changing their careers due to lack of opportunities.

Fig 1. Have you experienced difficulty in recruiting or filling vacant technical positions due to a lack of qualified candidates? (Respondents: Employers)

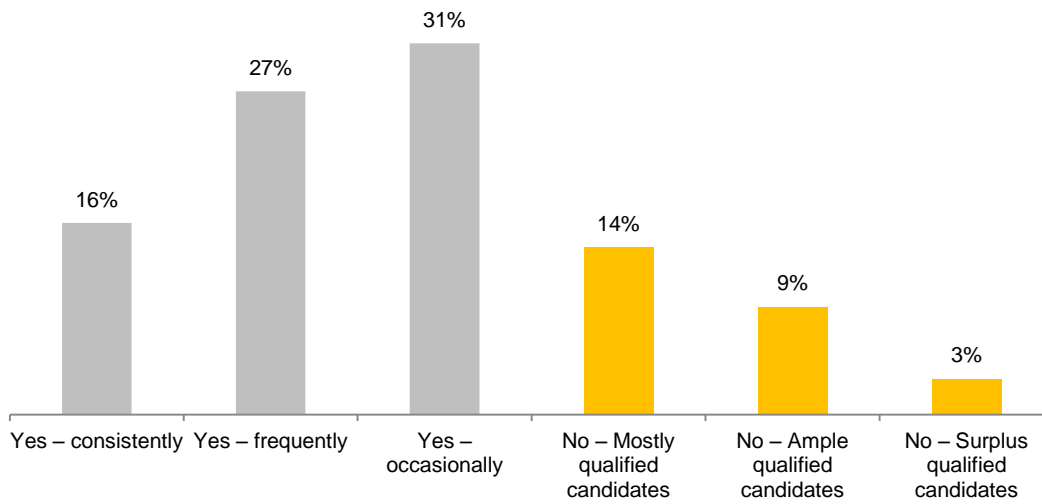
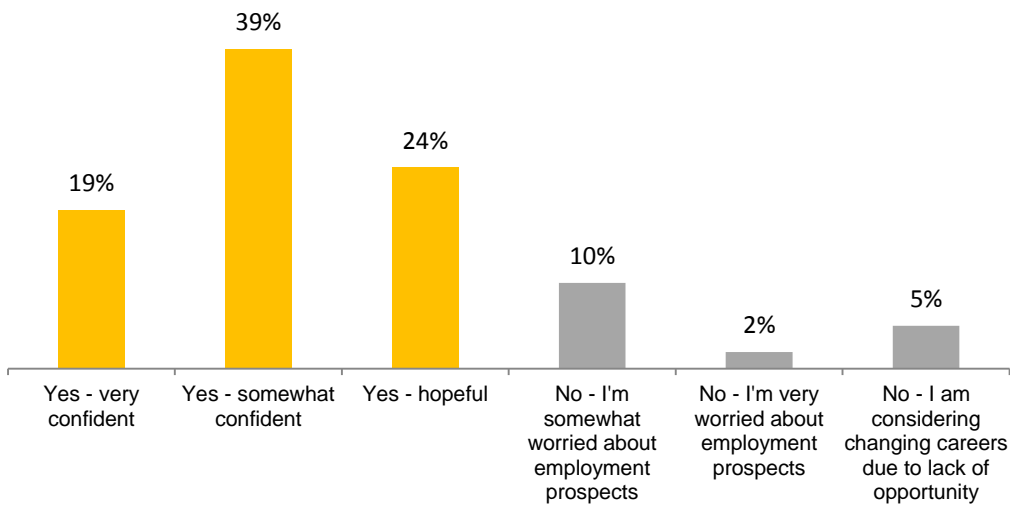


Fig 2. Do you feel confident that there are enough job opportunities in the technology sector for you to gain employment? (Respondents: IT Graduates)



4. Acquiring IT skills.

If the IT skills gap is to be bridged it is clear that education and training have a vital role to play in helping students acquire the technical skills required in the world of work.

However, the Reconnix study has unearthed a major disconnection between the type of skills businesses in the UK require and those being formally taught at universities and other higher education institutions. In addition, a disparity also exists between how well-regarded computing degrees are by students and employers – with the vast majority of recruiters believing alternative training schemes, such as apprenticeships, are a better option for people launching a career in IT.

A staggering two-thirds of employers (73 per cent) believe that apprenticeships offer a better grounding for those entering IT than government-backed college and university courses (figure 3). Conversely, 56 per cent of students (figure 4) do not subscribe to this school of thought, and feel that their educational course is more beneficial to their prospects than on-the-job learning. It would seem that students are out of touch with how organisations view formal technical qualifications and for the most part unaware of how little value employers place on them.

A large majority of IT and computing students who have studied in the UK rate their course highly. Around 60 per cent of

respondents say the quality of IT education they received or are receiving at UK educational and training institutions is either good or very good. Only 11 per cent regard their education as less than adequate or poor while 6 per cent rate their studies as exceptional.

Further indications that computing students leaving higher education may be somewhat naïve about their preparedness for life in the workplace can be found in their responses to questions about additional training. While more than two-thirds of employers (76 per cent) testify to having to put graduates through additional training before they are ready for work, only 12 per cent of students think they will require extra training prior to starting their IT career following graduation. However, a resounding 83 per cent of students expect further training from a future employer when they begin a new role.

The findings also demonstrate that employers are ready to take on the mantle of developing IT skills needed for the future. A total of 54 per cent of employers agree that business should contribute more to the cost of educating jobseekers while over a third of organisations (37 per cent) want increased collaboration with the government on this issue.

A key criticism of university and college computing courses is that they are ill-

equipped to teach specific technical skills due to the ever-changing nature of technology in today's commercial world. So fast-moving is the sector that skills learnt in the classroom are out of date by the time the student reaches the shop floor.

This belief is exhibited in the employers' responses - with more than a quarter (27 per cent) stating that the ability of educational institutions to develop new courses covering emerging technologies is less than adequate or worse. Only around a third (32 per cent) of organisations think the response of

universities and colleges in this area is good, very good or exceptional.

With confusion surrounding the adequacy of different types of learning, a majority of both employers and jobseekers agree that there is a greater need for standardisation of qualifications and training. More than half of employers (56 per cent) want to see professional training standards further developed to enable them to easily assess the suitability of candidates, while 66 per cent of IT students and graduates would like to see standardised awards introduced to make it easier to find work.

Fig 3. Do you think alternative training schemes such as apprenticeships offer a better pathway to careers in IT than college and university courses? (Respondents: Employers)

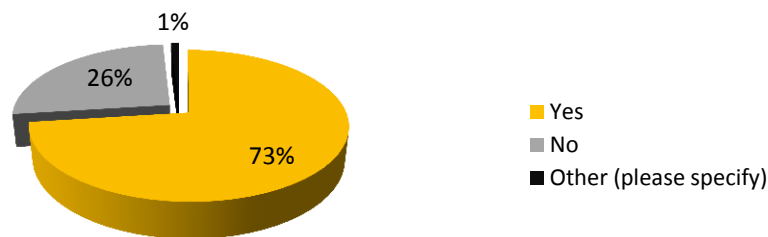
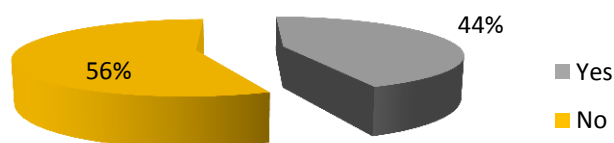


Fig 4. Having undertaken an educational course in technology, do you think an alternative training scheme such as apprenticeships would have been more beneficial to you? (Respondents: IT Graduates)



5. What motivates today's IT workers?

With the demand for well-qualified IT graduates far outstripping supply, there is intense competition among employers to attract the best candidates. It is important, then, that organisations are aware of the key factors that motivate computing students to pursue a career in technology.

The Reconnix study shows that for both parties - jobseekers and employers – remuneration is the main reason why young people seek a job in IT. A total of 43 per cent of technology students admit to salary being their biggest motivator (Figure 6), while 54 per cent of employers think it is (Figure 5).

For students, a love of technology is the second biggest motivator (41 per cent) followed by a clear path of career progression and job satisfaction (both 32 per cent).

The main factors likely to put students off a career in technology are; restricted career opportunities (32 per cent), poor remuneration (22 per cent), and limited job satisfaction (21 per cent).

In both polls – employers (18 per cent) and students (10 per cent) listed the prestige of working in IT as the least important reason why they think students enter the world of

technology. These lowly scores suggest that the computing/IT sector still has an image problem despite its importance to business and the economy.

It would also seem that the IT and business press has over-reported the problem of gender issues in the technology sector, as neither employers nor students rated this as a significant problem. Indeed, only 15 per cent of female respondents highlighted this as a factor that might potentially deter them from entering the sector.

Over half of students (59 per cent) agreed that employers are doing enough to attract students to a career in IT while almost two thirds (65 per cent) said they had considered moving abroad to expand their career opportunities in the IT sector.

The main areas of technology being considered for a career by the students who participated in the survey are server side systems technical support (38 per cent), web application development (34 per cent) and desktop application technical support (34 per cent). Technologies where employers had highlighted a particular demand – data analysts and internet and networking – are both only mentioned by 18 per cent of the student sample as technologies they were considering as a career.

This would suggest there is likely to be a pronounced shortfall of IT talent in these areas as we go forward.

Fig 5. Which of the following do you think motivates young people to seek a career in technology? (Respondents: Employers)

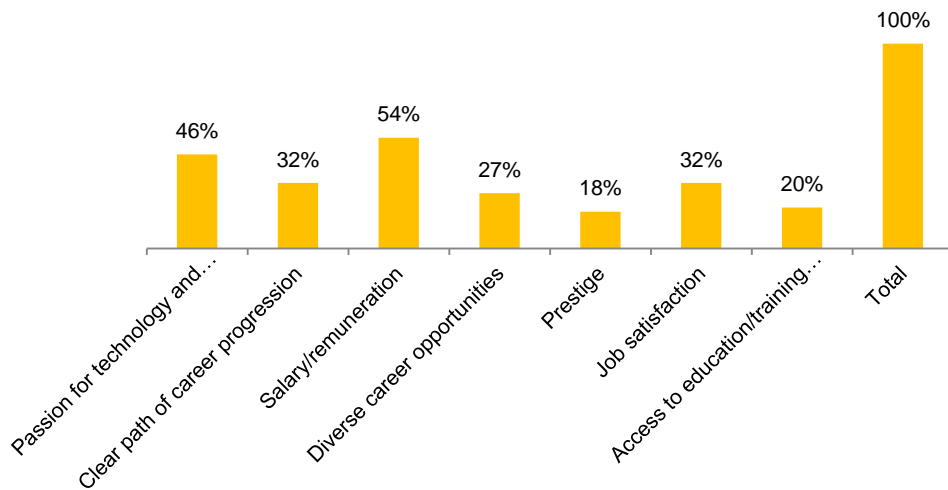
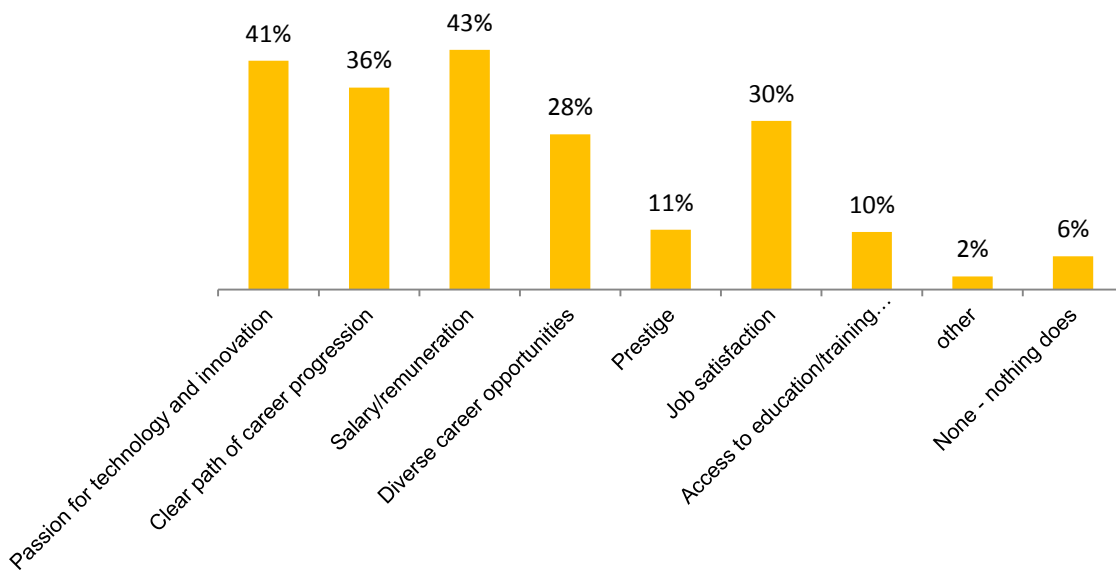


Fig 6. Which of the following motivates you to seek a career in technology? (Respondents: IT Graduates)



6. Conclusion and recommendations from Reconnix.

The findings of this insight paper highlight the depth of the skills gap in the IT sector and some of the concerns employers have about its impact on UK businesses. However, the responses also offer evidence for potential ways in which organisations and the UK Government can start to bridge the gap. Below are some key conclusions based on the research paired with recommendations from the Reconnix as possible resolutions to these issues.

University courses struggle to keep up with today's fast-moving tech sector

The Reconnix survey demonstrates that the vast majority of employers feel apprenticeships provide a much better grounding for a career in IT than university and college courses.

University still has a role to play in the education of our young people but in a sector that moves so quickly, anything learnt as a specific skill is out of date as soon they have entered employment. We consider the following to be an ideal foundation for a career in technology: from a young age pupils should be taught the pillars of computer science - maths, logic and algorithms; as an optional stage, further

development of these core areas can be gained at university; additional acquisition of technology-based skills should be delivered via mentoring, apprenticeships and on-the-job training.

Apprenticeships require an image makeover

Employers rate apprenticeships as the best way of delivering work-ready recruits with the skills required to encourage innovation within their organisations but a majority of young people believe college and university courses are more beneficial. It is clear that apprenticeships have an image problem in the eyes of those entering the IT profession. What's required is a joined-up campaign to promote the benefits of apprenticeships to young people and their parents, who are influential in helping their children decide which learning route to take. Organisations also need to be prepared to develop more apprenticeship programmes – interesting and fulfilling in nature – to entice young people down this route.

Professional training standards for the IT sector need further development

With a plethora of different educational courses and training options for computing students, there is undoubtedly a need to develop an umbrella of professional training standards across all these diverse channels into IT. This will not only enable employers to compare the merits of different qualifications but also provide transparent information to better ascertain a candidate's suitability for a job. The idea of professional industry standards is also supported by students who would like to see more clarity in this area.

Outsourcing IT to third party partners is now the norm and will continue to increase as demand for IT skills rise

The outsourcing of IT operations is a well-established practice and is now the norm across the majority of UK organisations. In particular, Reconnix has witnessed a steady rise over the last decade in outsourcing of specialist and niche skillsets and services. Highly-resilient broadband connections and the prevalence of cloud computing to deliver applications have only served to accelerate this trend. We see the level of outsourcing continuing to increase as organisations look to cut costs and become more confident about the technologies involved. With IT skills at a premium within organisations, more businesses will want to off-load their

day-to-day IT activities to a trusted partner, so their in-house technical teams can focus on innovation and emerging technologies.

To recruit the best IT talent, employers need to make themselves more attractive to jobseekers

Employers are decrying the shortfall in vital IT skills and complain that it is holding their organisations back. It is important, then, that they do all they can to attract people from the pool of skilled workers out on the market. The Reconnix research shows that organisations which offer a good salary, can demonstrate a clear career path for their IT staff and provide interesting projects will have a greater chance of appealing to candidates. Knowing what motivates people entering the IT sector and doing all they can to deliver an attractive package and place to work will give organisations the best opportunity of securing the skills and the people they require.

Attract more women into the IT sector

The issue of encouraging more women to consider IT as a career option has dogged the sector for decades now but it is one that won't go away. If employers and government are serious about finding a solution to the IT skills gap then bringing more women into the computing sector remains one area that is so far unexploited. The Reconnix research shows that gender issues in IT are no longer a major obstacle and that the majority of

women are comfortable working in the sector.
The work needs to start in schools where
girls should be encouraged to consider ICT
and Computer Science 'A' levels. Positive

role models who are enjoying a successful
career in IT should also be made more
prominent

7. About **Reconnix**.

Reconnix is a UK technology services company specialising in the provision of Applications Development, Infrastructure Management, Operations Management and Technical Professional Services, utilising Open Source tools and technologies to provide best of breed solutions for our clients.

Reconnix works with hundreds of leading UK businesses to increase operational efficiency and commercial competitive advantage as well as improving service levels for the benefit of client stakeholders. Reconnix takes a practical approach to developing and delivering client IT solutions in line with ISO20001, ISO27001 and BS9001 standards that ensure quality service delivery to stringent targets.

For more information please visit <http://www.reconnix.com> or email steve.nice@reconnix.com.