Manchester City Council
Report for Information

Report to: Economy Scrutiny Committee - 22 June 2016

Subject: Digital Skills

Report of: Head of Work & Skills

Summary

This report provides an overview of the growth and employment opportunities in the City's digital sector and the critical role of skills to drive growth and ensure that Manchester's residents are benefitting from the career opportunities in the sector. Digital skills are a requirement for an increasing number of businesses across all sectors and the report identifies the demand for skills, the challenges and what is offered by the education and skills sector, as well as the contribution of informal learning. It concludes by looking at what the priorities for a developing Greater Manchester digital plan should include. The report has been drafted to provide background information and key representatives from the digital sector including Manchester Digital, New Economy, Sharp Futures and the Manchester Hive have been invited to contribute their views and expertise on digital skills.

Recommendations

That the Committee notes this report

Wards Affected: All

Contact Officers:

Name: Angela Harrington
Position: Head of Work and Skills
Telephone: 0161 234 1501
E-mail: a.harrington@manchester.gov.uk

Background documents (available for public inspection):

The following documents disclose important facts on which the report is based and have been relied upon in preparing the report. Copies of the background documents are available up to 4 years after the date of the meeting. If you would like a copy please contact one of the contact officers above.

Greater Manchester Forecasting Model 20015
The Manchester Work & Skills Strategy – Executive Jan 2016
Manchester Digital Digital Skills Audit, February 2016

INTRODUCTION

The Digital and Creative Sector is one of the fastest growing sectors of the Greater Manchester economy, with a clustering of digital and creative businesses in Manchester and Salford. In Greater Manchester (GM) almost 55,000 jobs are directly employed in the digital and creative sector generating over £3 billion GVA per annum, with the potential to grow to £4.5 billion over the next decade. In the City of Manchester alone the value of the sector is £1.84 billion with the potential to grow by a further £812m by 2025 and an employment base of 57,500 jobs with a predicted growth to 66,000 jobs by 2025.

The demand for digital skills goes beyond the digital and creative sector and it is estimated that there are an equal number of specialist digital technical roles across other sectors in Greater Manchester. This creates ever increasing demand for programmers, developers and technical digital skills. Beyond specialist roles, it is important that Manchester residents are equipped with the digital skills necessary to function well in the modern work place and be equipped for life in general e.g. most job applications are online and increasingly public services are moving to digital by default.

THE DEMAND FOR SKILLS

Manchester Digital is the independent trade association for digital businesses in Manchester and the Northwest with a membership base of over 500 businesses and organisations across sectors where digital skills form an important part of the workforce. It includes everything from micro-enterprises with less than 5 employees though to larger organisations with well over 100 employees, from digital agencies to marketing firms, software development and e-commerce firms.

Manchester Digital carries out a “Digital Skills Audit” by surveying their members each year. The following is a summary of the 2016 information about recruitment practices in the industry in Manchester.

Recruitment and Retention

In terms of recruitment the survey found that many organisations looking to recruit people with digital skills rely heavily on internal and word of mouth recommendations via peers and related or linked organisations. While many businesses find these methods to be reliable it creates a risk of creating a “closed” system where younger people and people new to the sector, essentially those without connections, find it harder to access employment. By contrast, CV databases, recruitment agencies and advertising nationally were felt to be the least effective methods of recruitment.

The most difficult roles to recruit to by a significant margin are software and web development roles where there is a need for specific technical knowledge of programming languages and computer systems. This has also been the case in previous years. However, while many of the most in-demand skills are technical in nature, the industry is supported by a number of non-technical roles which are also in demand. Account management, business development, marketing, social media and

business support were all named by respondents as roles and skill sets that will grow in importance, and this is something that likely applies both within the digital sector and the wider economy as an increasing number of businesses look to grow their digital presence.

Historically the sector has recruited a high number of graduates. This year almost half of respondents indicated that they recruit less than 25% of entry level talent from educational institutions in Greater Manchester and the wider North West area with 17.8% indicating that they use educational institutions outside of the North West.

Over recent years, there has been a growth in the number of apprenticeships in the digital and creative sector. This year many employers have had a positive experience of recruiting an apprentice, with almost half of survey employers having taken on at least one and 81% of these reporting that their apprentice had met their expectations. Where this wasn't the case for many employers the reason stated was that the apprentice was not talented enough for the role.

Increasing demand for certain skill sets has led to the inflation of wages especially for technical roles with 44% of those surveyed responding that they had inflated salaries to remain competitive. Developers, infrastructure and user experience roles saw the greatest pay increases of over 20%. Average starting salary for a junior developer is now almost £21,000, though some roles have been advertised as high as £35,000. Senior developers can now expect to earn circa £40,000 on average. As well as increased salaries employers are looking at other staff benefits in order to attract and retain staff.

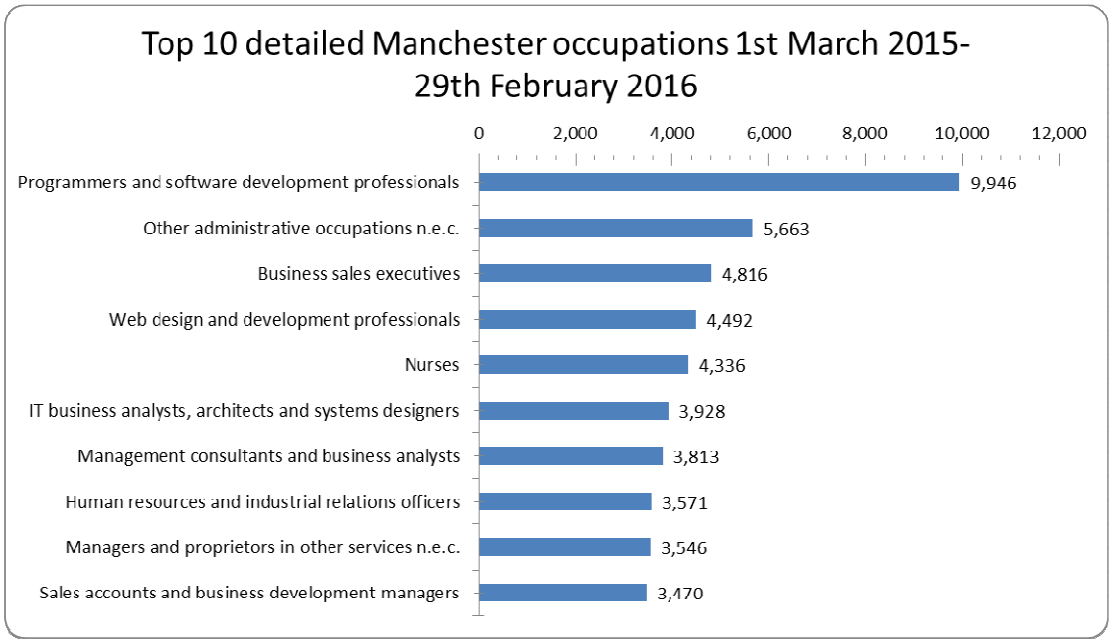
Outsourcing and Contracting

While the upward pressure on salaries in the digital sector is positive for residents able to take advantage of these opportunities, the lack of supply has also meant that an increasing number (38%) of employers outsource or contract out work locally on a regular basis, with 26% contracting work outside the EU or hiring non-EU workers. Many employers (37%) surveyed have turned down work due to being unable to find the right talent, though this is an improvement on the previous year. This suggests that there is significant capacity within the sector to grow further provided that the demand for skills can be met. However there is also a risk that if businesses continue to be unable to meet their needs in Manchester that they will begin to look elsewhere.

Wider Labour Market Demand

Analysis of the labour market in Manchester shows that current and future job vacancies, predominantly require qualifications at level 3 and above. Moreover, the key growth sectors in the economy in terms of jobs growth (financial & professional services, construction & engineering, science and R&D and digital and creative) all require STEM subjects as the underpinning knowledge base. Although generic, "common skills" are the most in demand, IT and digital skills are the most frequently needed technical skills. While the digital sector is often thought of as the main driver behind this demand, changes in the way employers do business and a shift towards business practices that more often depend on digital services mean that an increasingly varied number of employers across all sectors require digital skills.

Between March 2015 and February 2016 nearly 10,000 roles in programming and software development were advertised in Manchester, the highest number in any category and nearing double that of the next highest. Web design and other IT related roles also feature prominently in the ten most advertised roles, with many of these being with companies not traditionally considered ”digital”. Outside of “common” skills such as communication or problem solving the most in demand skills referenced in job advertisements were programming, development and software engineering.



SKILLS SUPPLY

16 to 18 year olds

In Manchester the majority of EFA funded courses for 16-18 year olds are provided by the three colleges; The Manchester College, Loreto College and Xaverian College. Between them, these 3 colleges account for over 22,000 starts at all levels (it is important to note that starts equate to courses not individual young people). The majority of starts are at level 3+ (8,955) followed by level 1 (7,214) and level 2 (4,669). Of the level 3 starts the most popular course area is Science and Maths (4,621) followed by Arts, Media and Publishing (1,719) and finally Business, Administration and Law (1,994). ICT is sixth most popular with 593 starts. This is reasonably encouraging, showing that a significant proportion of young people are choosing courses that are relevant to digital and other growth sectors in the economy and that many of these are studying at an appropriate level.

Overall, only a very small % of young people move into apprenticeships at this age but there has been a slight increase in the overall number of level 2 (intermediate) and level 3 (advanced) starts year on year. While many of these starts are in industries seen as high growth sectors, there are very few in the creative and digital sectors. Businesses and Administration remains by far the most popular option, accounting for 326 starts at level 2 and above, as compared to total starts for digital and creative at 45.

19 to 24 year olds

There are a greater number of SFA funded starts for this age group likely to reflect the fact that individual learners enrol on a number of courses, but a significant number of starts are at entry level and level 1. The number of starts in creative and digital sectors was recorded as 472 and 476 respectively but this represents a decrease on the previous year, a trend that was common across several of the high growth sectors. More encouragingly, a higher proportion of creative and digital course starts were at levels 3 and 4 when compared to other subject areas, meeting the level required by employers.

As with the 16-18 age group the overall number of apprenticeship starts in creative and digital remains low at 41, while there were over 400 starts in business and administration, the area with the greatest number of starts.

Adults 25+

In Manchester, SFA course starts for adults are predominantly at entry level and level 1 and creative and digital is no exception, with 2,428 starts at these levels compared to 200 at level 3 and 4. It is likely that the majority of the courses are delivering digital literacy and basic digital skills. Again for adults over the age of 25, business and administration is the most popular choice for apprenticeships with 702 starts compared to only 25 for creative and 0 for digital.

Attracting Digital Skills to the City

#ProjectManchester was a collaborative project between LinkedIn and the New Economy to utilise the workforce data held by LinkedIn to conduct analysis of the GM Labour market in specific sectors. LinkedIn has a strong presence in GM and counts 614,000 residents and 50,000 companies as members. In looking at the GM labour market, the LinkedIn team focused specifically on three areas; workforce and skills, hiring and migration, and education and recent graduates. The analysis uncovered a number of key trends in relation to Manchester's growing role as a hub for people with digital and creative skills, with skills related to user experience, user interface design and graphic design in particular appearing more frequently than the national average.

Analysis of the skills requirements of technology related roles advertised on LinkedIn over 12 months show that people proficient in areas such as social media marketing and data mining were far more likely to find employment than other members. Members with digital and online marketing, data engineering and database management were also highly likely to have moved into new roles over the previous 12 months. Demand for skills was particularly high for programming languages but there was also high demand for less technical but related skills including software quality assurance and testing, technical support, system management and leadership skills.

In terms of migration, 23,000 LinkedIn members left the GM region over the previous 12 months while 24,000 members arrived. The main destination for those leaving was London, followed by northern cities such as Liverpool, Leeds, Chester and Preston. Of those moving to Manchester, most are moving from London and again this is followed by other cities in Northern England.

The migration of people also affects the migration of skills, another useful tool to analyse the skills demand & supply in the GM economy. Broadly the information shows that amongst LinkedIn members technology and media skills are entering the region while medicine, science, energy and banking skills are leaving. When looking at London and Manchester exclusively, GM is gaining skills related to digital and online marketing, user interface design, TV and video production and SAP ERP systems from the capital. London is gaining skills related to statistical analysis and data mining, foreign language translation, general finance and PR and communications from GM. London is also the top destination for GM graduates who leave the region upon graduating.

PROGRESS ON DEVELOPING DIGITAL SKILLS IN MANCHESTER

With its position at the centre of the regional economy and as a growing hub of digital and creative companies Manchester residents do benefit from access to opportunities that are simply unavailable in many parts of the UK. There are many successful and well recognised links between the worlds of education and work and in several cases, supported by national changes to curriculum and the growing importance placed on digital skills, Manchester is a leader in innovative and industry led provision.

Digital skills network

The Digital Skills Network, chaired by the Director of Education and Skills brings together some of the key digital companies, umbrella organisations, schools, colleges and universities interested in meeting the digital skills challenge. The Digital Skills Network creates a space for attendees to explore how they can together achieve the system change needed to ensure that Manchester's residents and particularly its young people are equipped with the skills to participate in the digital labour market and drive growth in the sector. It also provides networking opportunities for businesses to connect with education.

Education

Within the school system and compulsory education Manchester's schools are bound primarily by the national curriculum in terms of the content and assessment objectives of courses. Historically "digital skills" have been taught through ICT courses. However, the design of the ICT curriculum was notoriously unresponsive the fast-paced changes taking place in the world of technology and was heavily criticised by industry and educational professionals alike. A series of reports and inquiries by entities such as the House of Lords Committee for Digital Skills and the UK Digital Skills Taskforce further highlighted the weaknesses in the digital skills curriculum.

In 2014, as a consequence of research and calls from industry, government introduced the "computing curriculum" to schools. The curriculum applies to 5 to 16 year olds and replaces traditional ICT with computer science and computational thinking as foundation subjects alongside maths and science. As well as providing a curriculum more relevant to the nature of digital skills today the course content is also designed to encourage and inspire, particularly amongst girls, a greater interest in computing and digital skills. Today the course covers much of the basics of computing.

At KS1 and KS2 children learn about computer science basics including algorithms, programs and logic as well as broader skills such as creating digital content, information and communication networks and using technology safely and respectfully. At KS3 and KS4 young people will move onto using programming languages, developing programs, understanding hardware and software and undertaking creative digital projects. The BBC provided a micro bit computer for every young person in high schools in England last year, which enables them to develop basic coding skills,

Although the introduction of the computing curriculum is a positive step in ensuring that our young people are equipped with the skills that are becoming increasingly fundamental in the modern workplace, there have been concerns raised over the capacity of schools to deliver the course content to the required standard. These particularly relate to the training or re-training of the ICT teachers who are expected to deliver the curriculum and that fact that several sources suggest that many teachers are struggling with the transition. Some schools in the City have developed partnerships with digital businesses to provide curriculum support and expose young people to the potential employment opportunities in the digital sector e.g. Dean Trust, Ardwick with UK Fast and Manchester Enterprise Academy in Wythenshawe with Accenture.

The Manchester College offer qualifications in Film and TV production, Computer Aided Modelling and Design, Graphic Design and Web Design, many of which are run in partnership with employers

Informal education

Not all of digital learning happens in a formal environment and many of the City's programmers and developers developed their skills in their own bedrooms. Manchester benefits from a wide range of provision dedicated to supporting young people and adults with an interest / talent for digital skills. Much of this provision is supported by or funded by employers and other organisations in the digital sector. There is a vibrant community / voluntary digital skills offer often using the spaces offered by some of the city's key digital organisations.

A good example of this is Manchester Coder Dojo, a "volunteer led community group for young people to code and make things". The group meets monthly at Manchester's Sharp Project, one of the city's main hubs for digital and creative businesses, and provides informal guided learning for young people to make use of the project's resources and equipment to embark on creative projects of their own. The project often holds themed events for example on Robocode, a robot battling programming game, or SonicPi, a "live coding" music creation environment.

In addition to the Coder Dojo Manchester's children are able to access a number of "Code Clubs" across the city. Code Clubs are free after-school provision for children aged 9-11. While many Code Clubs are based in primary schools they are several that are hosted in venues such as Central Library, UK Fast and MadLab. At Code Club children can undertake structured learning supported by volunteers, to create websites, games, animations and more.

Hive Manchester is a new organisation that runs events such as code clubs and "hackdays" that are specifically oriented at young people, combining learning with play and getting attendees involved in projects such as web and app design, robotics, electronics and more. The group works collaboratively with digital and youth organisations to create exciting events and make sure that those with digital skills are supported to gain the skills required to work directly with young people.

Beyond what is physically located in the City, there is a wide range of resources available digitally aimed at developing the skills of different audiences and different abilities.

Adult Education

The Manchester Adult Education Service continues to support residents in learning basic IT and digital skills through beginner courses offered a range of venues throughout the city. These courses are aimed firmly at entry level learners and are not necessarily aimed at learners looking to get into the industry, but rather serve as an introduction for people with very limited experience of using computers and IT. As referenced previously this is an essential skill for those looking to enter /re-enter employment and increasingly a skill required for every day use.

Apprenticeships

There has been a move over recent years towards employers viewing apprenticeships more favourably and using them to complement graduates for entry level roles. Employers report variable experience of both young apprentices and apprenticeship providers and most micro and small businesses find apprenticeships confusing and bureaucratic. However there are many examples of innovative digital apprenticeship schemes in the City.

These include *Sharp Futures*, the social enterprise arm of the Sharp Project, which supports young people into employment in the sector. The organisation provides a range of opportunities such as work experience, volunteering and the chance for young people to visit the site and meet the businesses working there. Sharp Futures also runs a successful apprenticeship programme that gives apprentices the opportunity to run services for onsite teams and productions.

Playground Squad, supported by The Sharp Project, MCC and Damar Training has established a base in Manchester to support people into game development and the games industry. Using a combination of coaching, team learning and apprenticeships the organisation offers students the chance to work on developing games alongside some of the industry's leading studios, with courses structured around design, programming and art.

Creative Pioneers is an apprentice programme run by the White Room, aimed at young people aged 16 – 24 who are interested in a career in advertising through creative and digital media. The scheme is driven by the Institute of Practitioners in Advertising and run in partnership with the Metro newspaper. It combines learning with practical work experience and on the job training at leading agencies in the city.

Larger digital businesses such as UK Fast and ANS recruit and train their own apprentices as part of their talent pipeline for a range of roles within their businesses.

Manchester Metropolitan University has recently developed degree level apprenticeships that combine on-the-job training with study at the university's business school. Courses are offered in subjects such as Business Technology, Software Engineering, Data Analytics and Cyber Security and the apprenticeship roles are offered by a diverse range of nationally known employers. As with any apprenticeship course, students earn a wage while studying and course fees are paid for by central government and the employer.

While there is much good practice in the development of digital apprenticeships and more opportunities in the pipeline, the challenge of scaling what works to meet the needs of the digital sector now and of making apprenticeships more attractive and accessible to SMEs remains.

GREATER MANCHESTER DIGITAL SKILLS PLAN

The Digital Skills challenge is not unique to Manchester and as part of its work to address the skills needs of the economy's growth sectors, the New Economy is in the process of developing a digital skills plan. The plan draws on the best evidence

available from national and local sources as well as interviews with leading GM employers for whom the recruitment of digitally skilled people is critical to their business.

The draft plan has identified the following key issues:

- *An increasing demand for digital skills across all sectors not just the creative and digital sectors* placing a premium on programming, software development, web design technologies and the ability to analyse "big data". However many employers also demand softer managerial, creative skills and business acumen as well as technical skills;
- *Pace of technological change* requires more CPD and challenges traditional education. Existing workforces require constant updating which often require short interventions to learn a new programme or deal with a new product. In education the constant change also challenges teachers and lecturers to keep up with the latest developments, and how digital skills are being applied in the workplace;
- *Digital skills supply in GM don't always match demand but some excellent provision exists*. An analysis of schools, colleges, universities and private providers has demonstrated that there is a considerable amount and variety of provision available. In fact, in terms of numbers being trained, right up to degree level in ICT and computer science, there should be more than enough qualified people to meet the on- going demand. However, there is still a mismatch in terms of the supply and demand of digital skills, and employers continue to say that they cannot find the people they require for their business. For example, in higher education, the employment rate of those undertaking computer science degrees is one of the lowest of all disciplines despite the growth of demand;
- *Improved employer led CEIAG is critical to develop the pipeline of digital skills talent*. Many employers have highlighted this area as being critical in developing the employees of the future. There is enthusiasm for digital up to age 13/14 but this tends to dissipate over the next five years, particularly from young women. Part of this lies in awareness of the careers on offer and in the lack of clarity about which learning routes lead to these careers in either the digital and creative sector, or other sectors requiring digital skills.
- *Importance of informal learning in digital skills* has spawned a number of small, innovative providers of digital skills as well as a range of 'informal' learning opportunities which tap into the interest from all parts of society in developing their digital skills. These include also employer sponsored initiatives such as Google Digital Garage and Picademy aimed at introducing awareness and digital skills to adults and education professionals;

Four digital skills priorities for Greater Manchester

The draft plan is suggesting that in Greater Manchester there should be a focus on 4 priorities

Priority 1 Ensure a pipeline of enthusiastic well skilled young people into industries that require digital skills
Big ticket: Improved and coordinated industry led CEIAG

Priority 2 Increase 'on the job' experience for learners at all levels with focus on higher skills
Big Ticket: Significant expansion of degree/higher level Apprenticeships

Priority 3 Up-skill the existing 'digital' workforce, including teachers and lecturers, to meet new demand and broaden their skill-set
Big Ticket: Public/private Centre of Digital Skills (virtual or real)

Priority 4 A new adapted digital curriculum to become the UK's first 'City of Digital Learning'
Big Ticket: Embed digital skills across all publicly funded skills curricula

In order to implement these priorities successfully, and ensure they contribute to the wider GM strategy for Growth and Reform, there are support, or enabling functions which also need to be in place;

- Up to date **labour market and economic evidence** on which to base appropriate and flexible training provision
- A full range of **business support** services to enable companies to become more digitally aware and use technology to foster growth
- Access to **public and private sector funding** to support the development of digital skills
- **Marketing of Greater Manchester** to promote investment opportunities arising from its increased digital skills profile
- An improvement in availability and take up of **superfast broadband** across GM

CONCLUSION

The report sets out the critical role of digital skills, if Manchester and Greater Manchester are to deliver on the potential growth and employment opportunities that the digital sector can offer. Conversely, if we are unable to rise to this challenge we will lose digital business to elsewhere, either because it has been outsourced or because businesses move to where the skills are more readily available. There are many examples of good quality digital skills provision, changes in the national curriculum to provide a more technical and relevant provision in primary and secondary schools and a fast growing and diverse informal digital skills offer. However, there is a need to move at pace and scale and the draft Greater Manchester Digital Skills Plan sets out four key priorities for action in order to deliver the step-change needed.