Graduates for a Greater Manchester: The Context

Report 2: 'Tech And Creative Digital': Patterns Of Graduate Employment in Greater Manchester.
April 2020

Report 1: 'Tech and Creative Digital': Labour Market Trends and Graduate Skills in Greater Manchester.

THE SECOND OF TWO INITIAL BACKGROUND REPORTS PREPARED FOR THE PROJECT STEERING COMMITTEE BY THE DECENT WORK AND PRODUCTIVITY RESEARCH AND EVALUATION TEAM.
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Executive Summary

This report provides an analysis of the movement of graduates into the Tech and Creative Digital (T and CD) sector in Greater Manchester (GM). It draws on a review of existing work exploring patterns of graduate mobility in respect of GM, within the wider UK context, and an original analysis of DLHE ('destinations') data in relation to the GM T and CD sector specifically. Key points are as follows:

- GM has a large and buoyant graduate labour market, and performs better than other English cities outside London in retaining its graduate human capital.

- The city region has a strong T and CD sector, drawing in well over 1000 graduates a year, 90% of them in graduate roles.

- Two thirds of entrants to T and CD in GM are from the local labour market – either raised or educated in GM. This aligns with wider patterns regarding the significance of home domicile for graduate destinations.

- Relative to other cities, the GM T and CD labour market has particular strengths in advertising, IT and television, and draws graduates in higher numbers into programming, software development, arts production and direction, and marketing and sales.

- Within Manchester, Manchester Metropolitan University (Manchester Met) is the dominant supplier of T and CD graduates, and relevant vocational/cognate disciplines are the major source. Developing T and CD skills and confidence in non-cognate graduates is likely to be an important strand of the GfGM project.

- A significant number of graduate T and CD vacancies are taken by graduates who are not from either Manchester or Man Met Universities, underscoring the need for the two universities involved in the project to develop skills, confidence and industry connections.

- Although significant, the T and CD sector is a relatively small part of the wider GM labour market, highlighting the need for GfGM to focus on developing T and CD skills for non-T and CD roles and sectors.

- T and CD graduates are much more likely to enter SMEs than larger businesses. This is likely to create vulnerability in times of economic difficulty, and challenges in connecting and nurturing the graduate 'pipeline', as SMEs may be (in general) less well placed to access graduate talent, and less well resourced to provide skills and career development. Developing relationships between (particularly) small employers in the sector, and Universities is likely to be important.

- Entrants to the sector are more likely to be male, and are from less affluent social backgrounds than T and CD entrants are nationally, though these patterns vary by sub-sector (no marked differences were found in relation to ethnicity or disability). The reasons are likely to be complex, but elements of the project design that aim to improve prospects of under-represented groups are likely to be important ones.

List of abbreviations

DCMS............Department for Digital, Culture, Media and Sport

DLHE .... Destinations of Leavers of Higher Education

GfGM.............Graduates for a Greater Manchester

GM ....Greater Manchester

GMCA ....Greater Manchester Combined Authority

HESA.............Higher Education Statistics Agency

OFS ....Office for Students

T and CD ....Tech and Creative Digital

1. Introduction

This is the second of two scene-setting reports for the 'Graduates for a Greater Manchester' (GfGM) project. In the first report, we looked at patterns and trends in the labour market for T and CD skills in the city region. In this report, we examine the patterns of movement of graduates into T and CD roles in GM. We look at which T and CD roles graduates enter, and in what numbers, and how that is changing. We discover who those graduates 'are', including where they come from, where they studied as well as their degree subject, their gender, ethnicity and socio-economic background. We also compare these patterns and trends in GM with those in the UK more widely.

We anticipate that the report will be useful for project stakeholders in two ways. The first is that it will support an understanding of how project initiatives fit in with the wider context of graduate movement in T and CD in the city region, and help to target and focus interventions as they develop. The second is that that it will shed light on two specific issues that the project is concerned with, the retention of graduates in the regional economy, and support for local graduates, many of whom come from less advantaged backgrounds.

The movement of graduates into T and CD jobs and roles in GM takes place within the wider context of graduate mobilities in UK generally. Where do graduates go 'geographically' on leaving University? How does Greater Manchester compare to other city regions in attracting and retaining graduates? We start the report by examining these broader patterns and trends, before providing a detailed focus on T and CD in GM. This second part of the report draws on an original analysis of graduate destinations (DLHE from HESA) data by Dr Charlie Ball of HECSU/ Graduate Prospects.

The data that we present and interpret were collected before the Coronavirus pandemic. Clearly, this is likely to have significant effects on the patterns of graduate movement that we are concerned with in this report. It is beyond the scope of the report to model the nature and extent of these effects — suffice to say they are likely to be significant. The report provides a baseline for interpreting these changes, and, through examination of the patterns and trends, a platform for others to anticipate them.

2. Graduate migration and mobilities – in the UK, and in Greater Manchester

The movement of graduates has long been a topic of interest. Geographic and social mobility inter-relate closely for individuals, whilst the retention and attraction of graduates contributes to regional economic growth. Assumptions about mobility align with human capital theory's dominance of education public policy and the role of universities in supplying graduates who will add to the economy. This has been a foundation of higher education expansion for decades.

2.1 Patterns and trends of migration in the UK

A number of writers have used publicly available data from the Higher Education Statistics Agency (HESA) to illuminate graduates' geographical movement after university. The rapid expansion of participation in higher education adds to the interest in understanding patterns, which have moved far beyond default assumptions about university students as mainly being young people who move away from home to go to university and then move to another place in order to secure the best job for themselves as graduates. Research consistently shows this type of student is in the minority across the whole higher education sector.

Ball (2005) has led the way in raising awareness of graduate migration patterns and the important influence of home domicile for UK graduate destinations, which had emerged from work in the South West of England (Perryman, Pollard, Hillage, & Barber, 2003). In academic literature, Hoare and Corver (2010) further illustrated this trend with data from 1999-2003 to trace regional imbalances with regard to how locations benefited from having a graduate population. In their period of analysis, the single, emphatic winner region was London, which recruited about twice or more first-degree graduates as it provided home students to the system. They adapted Ball's (2005) typology to describe movement – locals, returners, stayers and outsiders, showing that the pull of having been originally domiciled in a region was the most powerful factor in terms of where a graduate ended up working at the time of the graduate destinations survey (six months after graduation). They observed the success of London which is the nation's key 'escalator region', with upwardly spiralling growth, but also argue that this risks draining skilled, graduate labour from 'the regions', adding that this is something that too often the regions are then blamed for incorrectly by policymakers. They make prescriptions for different regions and argue for an increase in local students' participation in higher education in order to increase graduate labour in many regions.

Ball's more recent work updates this analysis of secondary data, and his 'loyals, returners, stayers and incomers' typology (Ball, 2015) has been influential in reaching a large audience and securing widespread awareness about the mobility of graduates. Figure 1 illustrates the migration patterns across regions using his typology. In the period of Ball's 2015 analysis, in the North West region, 79.2% of graduates working there were originally from the region. It does seem that despite idealised assumptions about graduates moving for the best jobs, this is not the case as many are rooted in a locale. Ball (2018) has continued to make this case, a trend that has been influential in stimulating recent public policy to target support at students and graduates who wish to stay local, e.g. Office for Students (OFS) Challenge competition (OFS, 2018). Notably, there has been less research done about migration patterns in sub-regions and this promises to be a valuable area of enquiry (Brophy, 2019).

Figure 1: Breakdown of graduates from 2012/13 employed in each region after six months by migration category (Source: Ball, 2015)

	NE	NW	Yorks	E. Mids	W. Mids	East	London	SE	SW	Wales	Scotland	N. Ireland
Incomers	8.2%	8.6%	10.9%	14.9%	13.9%	21.5%	35.6%	20.7%	16.2%	7.4%	5.1%	1.4%
Returners	15.7%	20.3%	25.0%	29.5%	31.1%	40.5%	23.0%	32.6%	29.6%	15.6%	4.4%	16.4%
Stayers	13.7%	12.2%	18.3%	15.2%	9.7%	6.6%	12.4%	10.5%	13.9%	12.2%	6.2%	0.5%
Loyals	62.3%	58.9%	45.9%	40.4%	45.4%	31.4%	28.9%	36.1%	40.4%	64.8%	84.3%	81.7%
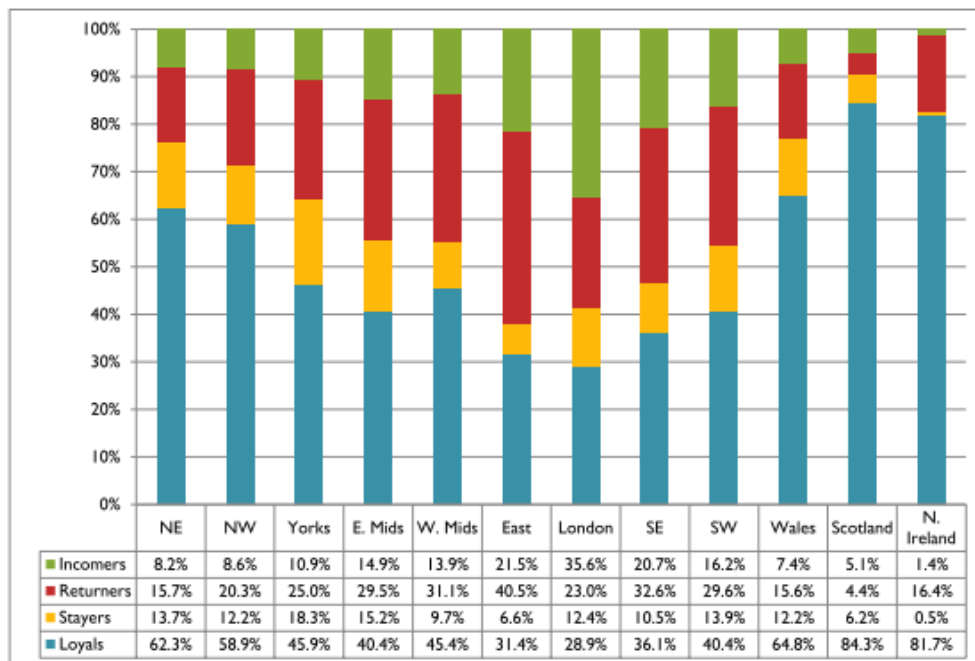
Source of data: HESA's Destinations of Leavers from Higher Education 2012/13

It appears then that many graduates are not geographically mobile, despite the fact that other work using HESA data (2002/3) has shown that mobile graduates have an earnings advantage over their peers (Kidd, O'Leary, & Sloane, 2017), arguably due to students extending their job search horizon. Faggian and McCann (2009) have also shown that regional economies benefit by greater innovation when there is a greater inward mobility of highly educated people. The Centre for Cities (Swinney & Williams, 2016) work illustrates that the most mobile graduates are those with the highest grades (first or upper second degrees) and from the elite institutions (Russell Group universities), and these 'high achievers' are disproportionately attracted to London. For other cities, they do experience a 'graduate brain gain', but they do not retain most of the non-local students graduating from local institutions.

2.2 Graduate Migration to and from Manchester

GM performs relatively well with regard to its graduate population, though still trailing behind London. Ball (2018) uses ONS data to support this, illustrating that in Manchester itself 59.2% of residents aged 30-39, and 53.6% of the whole resident population have a degree. This is higher than the national average and confirms a relatively well-educated population.

The work from the Centre for Cities (Swinney & Williams, 2016) confirms that London dominates but like Ball, they illustrate that cities generally gain in terms of graduates unlike towns and rural areas. Figure 2 illustrates the numbers of graduates in cities, showing that Manchester is second to London.

Figure 2: Share of all working graduates six months after graduation
(Source: Swinney and Williams, 2016)

	City	Share of all graduates, 2013/14-2014/15 (%)	Share of jobs, 2015 (%)
1	London	24.4	18.7
2	Manchester	4.5	3.8
3	Birmingham	4.0	3.6
4	Leeds	1.8	1.5
5	Newcastle	1.6	1.4
6	Bristol	1.6	1.3
7	Glasgow	1.6	1.8
8	Liverpool	1.5	1.0
9	Sheffield	1.4	1.2
10	Edinburgh	1.4	1.1

Source: HESA destination of leavers survey

Of relevance to policymakers in GM, they recommend that if a city wants to attract and retain a greater number of graduates, then it needs to support economic growth, rather than rely on narrower policies specifically targeted at graduate attraction and retention. They argue that cities should aim to support the creation of more jobs, and particularly high-skilled knowledge jobs. The measures they recommend to make this happen include:

- boosting of educational attainment to improve skills throughout the workforce;

- putting in place good economic fundamentals that underpin successful city economies — transport, housing and planning;

- boosting demand for high-skilled workers among businesses by concentrating on innovation, inward investment and enterprise policies;

- making the most of universities as part of a wider economic strategy.

McDonald (2019) in her Centre for Cities report focused on Manchester offering a detailed analysis of migration to and from the city. There is a broadly positive story to tell about Manchester. Her conclusions are reproduced in Box 1. There are implications that Manchester outperforms the North West region as a whole.

Box 1: Centre for Cities report about Manchester (Source – McDonald, 2019)

Migration between Manchester and the rest of the North West region is very common. A third of those moving into the city came from the North West, and a third of those leaving Manchester stayed in the region. Overall, between 2009 and 2017 more people left the city to live elsewhere in the UK than moved in, leading to a net outflow of 31,620 people.

Young people migrate to the city for university and work, while older graduates move away. The city is an attractive place for both students and young professionals given its universities, job opportunities and amenities, but as workers age, they start to value more spacious homes. The city saw a net outflow of 31-to 45-year-old graduates between 2010 and 2011 but most stay close within a commutable distance to the city.

A third of Manchester's university students grew up in the city, and one in five is an international student. The city's universities also attract many students from London and Birmingham. But the make-up of students varies a lot by institution. The University of Manchester has a diverse group of students, with only 27 per cent from the North West while two-thirds of the University of Salford's students are from the region.

Manchester has one of the highest retention rates of all UK cities. Over half of graduates stay to work in the city, compared with 29 per cent retention in Leeds and 31 per cent in Liverpool. The universities with the most local students had the highest retention rates.

Manchester gains more graduates than it loses. It has the largest gain in graduates of all UK cities except London. Interestingly though, many of Manchester's university students are only in the city to study, they move in and then out again on graduation. The overall gain occurs despite these movements and shows the national and international educational role the city plays.

Manchester attracts graduates despite offering low wages. The average graduate salary is lower than in most UK cities, but this research shows that wages are not the major priority for graduates. They look for career progression opportunities when choosing where to work.

2.3 Cultural and relational drivers for student and graduate mobility

There has been an increasing interest in writing which explores inequalities in relation to which groups of graduates may be mobile or not, while at the same time arguing that for many students and graduates, staying local may be a positive choice for them associated with culture and family and not just a default response to necessity (Finn & Holton, 2019).

Donnelly and Gamsu use the term 'regional structures of feeling' (Donnelly & Gamsu, 2018) in their analysis which mainly looks at students entering university (like others they utilise HESA data and in their case analyse 2014 undergraduate entrants). They argue that:

geographic mobility to go to university was clearly the preserve of the most socio-economically advantaged, and was less common for Pakistani and Bangladeshi ethnic groups. Significantly, the student's 'home' region emerges as the most important factor driving im/ mobility even when social, ethnic and educational differences are held constant. The concept 'structures of feeling' can help make sense of immobility in areas of the North-East, North-West and Wales, where students are likely to look on higher education choice through a different lens of accumulated and contemporary, inter-generational cultural experience.

Complementary to Donnelly and Gamsu's analysis of secondary data, a number of writers (Cunningham & Christie, 2019; Finn, 2017) have conducted more qualitative work with students and graduates in the North West region and explore important relational and place-based ties and loyalty. Much of this work highlights the positive choices individuals may make to

stay close to home, and the trade-offs between staying local and accelerated career prospects. It appears that it is often those from more socio-economically advantaged backgrounds that are geographically mobile.

However, graduates who wish to 'stay local' in GM with cultural and relational ties that draw them to do so, are relatively better positioned than students whose home may be in coastal or rural regions. Recent work from the Bridge Group (2019) highlights that graduates who want to stay local in urban areas have many more opportunities for career progression and development than those who are more geographically isolated in what is their 'home' location, and who may have no option but to move away.

Changing participation patterns in higher education with more students staying local for university has attracted interest in the different needs of what are being called 'commuter students'. Thomas and Jones (2017) undertook a recent study about this group which they define as:

> *Those who travel to their higher education provider (HEP) from their parental or family home, which they lived in prior to entering higher education rather than having re-located to live in student accommodation (or close to the HEP) for the purposes of studying. This includes full-time and part-time, undergraduate and postgraduate, and in all disciplines and types of institution.*

Their evidence suggests that there are very practical barriers to engaging beyond the academic sphere caused by the travelling itself, and reinforced by the structure and culture of many higher education institutions, which assume a traditional model of student residency and engagement. They also support the idea that those who live in family home during university tend to have poorer employment outcomes as graduates. Such conclusions are contested by other writers who argue strongly against deficit assumptions with regard to local students who are commuters (Finn & Holton, 2019). A strong case is made that the infrastructure of the university needs to adapt to such students rather than always comparing them to a default student ideal of a young person who has moved away from home to study and lives in student accommodation, with the option of engaging in all university extra-curricular activities.

2.4 Summary

In summary, this section has shown that GM and more especially Manchester itself performs relatively well in terms of graduate migration patterns, though still trails a long way behind London. McDonald's (2019) work for the Centre for Cities indicates that it is a 'cool city', which adds to its attraction for highly educated workers. The large population of students in Manchester means there is a strong pool of graduate labour that may want to stay in the city region. Existing trends illustrated by a number of writers (Ball, 2015; Donnelly & Gamsu, 2018) show that original home domicile is the strongest predictor of where UK graduates choose to live and work (based on the six months after graduation DLHE survey). The city region can capitalise on this.

Questions are raised about how GM can capitalise on its existing strengths. There are numerous push and pull factors for graduates which relate to employment as well as relational ties to place. Many graduates want to live and work in GM — especially those who have grown up in the city region, moved away and want to return, and those who have grown up and studied in the region and want to continue to live and work here, if the right opportunities are available. This supports the argument for greater information and advice for students and graduates about opportunities in the local labour market especially in emerging fields such as in T and CD.

The design of the Third Term project at Manchester Met is of particular value to local students who are still in the city after the main academic year has concluded and can address the concerns of writers who criticise how university infrastructure can limit student engagement of commuter students (Finn & Holton, 2019; Thomas & Jones, 2017).

3. Graduate Mobilities in the T and CD Sectors in Greater Manchester

We now move on to examine patterns and trends in the movement of graduates into the T and CD sectors in GM. As noted in Report 1, T and CD is a growth sector in GM, but is a sector where the national picture is one of mismatch between supply and demand, with sometimes contradictory themes. For example, with specific reference to the creative industries, Comunian and Faggian (2014) question whether GM has a strong enough labour market for creative jobs to retain all the creative graduates educated by the local universities. This is interesting, given what we know about the buoyancy of the T and CD sector and may be linked to a mismatch of courses to the job market. However, there are implications that some creative students could be targeted specifically for the Third Term Digital skills project as it is possible that increasing the digital skills of creative graduates may support the transferability of their skills into the local creative industries, which we know are increasingly digitally-oriented.

In order to explore these issues in more granular detail in this part of the report we draw on an analysis of the five most recent years of the Destinations of Leavers of Higher Education (DLHE) data from the HESA. We start with an explanation of how the T and CD sectors are defined for the purpose of the analysis, before looking at trends in the kind of T and CD work that graduates are entering in GM. We then look at the demographic characteristics of entrants to this labour market – who is going into T and CD work in GM? – before exploring how GM's T and CD graduate labour market compares with others in the UK.

3.1 Defining the T and CD Sectors: a more detailed approach

Mapping the digital economy using conventional labour market data is notoriously difficult. The definitions we use here in order to analyse patterns of graduate employment add greater granularity to our summary of the creative and tech sectors used in Report 1. Occupational data is not appropriate for the task due to the tension between role and industry. An IT specialist at an accountancy firm would not normally be considered part of the digital economy; the CFO of an IT consultancy would. Consequently, industrial classifications are the better solution. Unfortunately, the Standard Industrial Classification (SIC) system used to categorise industries is only updated infrequently and so can quickly become out of date for fast-moving industries such as digital. It was this kind of issue that prompted Nathan et al.'s (Nathan, Rosso, Gatten, Prash Majmudar, & Mitchell, 2013) report for the National Institute of Economic and Social Research, which proposed that Big Data methods were more effective than a more standard interrogation of SIC data. Unfortunately, this kind of dataset is not always easy to access and we do not currently have an equivalent to draw upon for this report. We do have several years of DLHE data, a comprehensive examination of the early outcomes of university leavers with an 80% response rate and excellent demographic information, which allows us to take quite a detailed view of the employment of graduates.

DLHE uses a relatively familiar set of coding tools, but the main difference between this and other national labour market information is that it uses finer grained version of the Standard Occupational Classification that allows a more detailed look at certain professional employment groups than is commonly possible with national statistics.

We will use the definition of digital, creative and tech used by the DCMS as it stood in September 2019 (DCMS, 2019). The difficulty of properly defining these sectors via SIC is illustrated by the lengthy list of revisions to the methodology that took place in the 3 years since a definition was first proposed, but it allows us to make comparisons both between regions and with official datasets, so this is what we will use (see Table 1).

Table 1: Digital sectors (Source: DCMS, 2019)

SIC	Industry
2611	Manufacture of electronic components
2612	Manufacture of loaded electronic boards
2620	Manufacture of computers and peripheral equipment
2630	Manufacture of communication equipment
2640	Manufacture of consumer electronics
2680	Manufacture of magnetic and optical media
4651	Wholesale of computers, computer peripheral equipment and software
4652	Wholesale of electronic and telecommunications equipment and parts
5811	Book publishing
5812	Publishing of directories and mailing lists
5813	Publishing of newspapers
5814	Publishing of journals and periodicals
5819	Other publishing activities
5821	Publishing of computer games
5829	Other software publishing
5911	Motion picture, video and television programme production activities
5912	Motion picture, video and television programme post-production activities
5913	Motion picture, video and television programme distribution activities
5914	Motion picture projection activities
5920	Sound recording and music publishing activities
6010	Radio broadcasting
6020	Television programming and broadcasting activities
6110	Wired telecommunications activities

SIC	Industry
6120	Wireless telecommunications activities
6130	Satellite telecommunications activities
6190	Other telecommunications activities
6201	Computer programming activities
6202	Information technology consultancy activities
6203	Computer facilities management activities
6209	Other information technology service activities
6311	Data processing, hosting and related activities
6312	Web portals
6391	News agency activities
6399	Other information service activities n.e.c.
9511	Repair of computers and peripheral equipment
9512	Repair of communication equipment

This also includes all of the 'digital tech' SICs as identified by Tech Nation (2018) and some additional sectors) so can be considered a reasonably widely adopted set of definitions.

The 'tech' sector overlaps with this definition (although it does not include any areas of manufacturing), but whilst the 'creative' industry overlaps to an extent, it also includes the following:

Table 2: Creative Sectors (Source: DCMS, 2019)

SIC	Industry
3212	Manufacture of jewellery and related articles
7021	Public relation and communication activities
7111	Architectural activities
7311	Advertising agencies
7312	Media representation services
7410	Specialised design activities
7420	Photographic activities
7430	Translation and interpretation activities
8552	Cultural education
9001	Performing arts
9002	Support activities to performing arts
9003	Artistic creation

SIC	Industry
9004	Operation of arts facilities
9101	Library and archives activities
9102	Museums activities

These definitions are not without their issues. SIC 3212, 'Manufacture of jewellery and related articles' is considered a creative industry, but SIC 3213, 'Manufacture of imitation jewellery and related articles' is not. Likewise, museums are considered part of the creative industry, but historical sites and monuments are not. However, these are the current extant definitions, so we will use them. The numerical data that we present is rounded to the nearest five in accordance with established data protection guidelines on the use of the DLHE dataset.

3.2 The T and CD sectors in the UK and in GM

In total, the sector recruited between 33,000 and 35,500 new university leavers in the UK in each of the five years under examination.

Around 75% of all new entrants (see table 3). each year were at first degree level, although Masters also supplied around 14-15% every year and Masters graduates were particularly important in film, publishing, IT, advertising and the creative arts. PhDs were important in the computer programming industry and specialist PG diplomas were, unsurprisingly, important in architecture. The contribution of each qualification level is summarised in Figure 3.

Table 3: New entrants to T and CD sectors in UK

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Total new entrants	33755	35435	33780	33260	34085

Figure 3: New HE level entrants to T and CD in the UK

	2012/13	2013/14	2014/15	2015/16	2016/17
Other UG	1140	1055	1000	830	915
HND/FD	560	410	395	380	295
First degree	25080	27085	25265	24655	25440
Other PG	1250	1510	1575	1530	1605
PGCE	135	105	115	125	100
Masters	5195	4840	4935	5265	5195
Doctorate	395	430	505	475	535
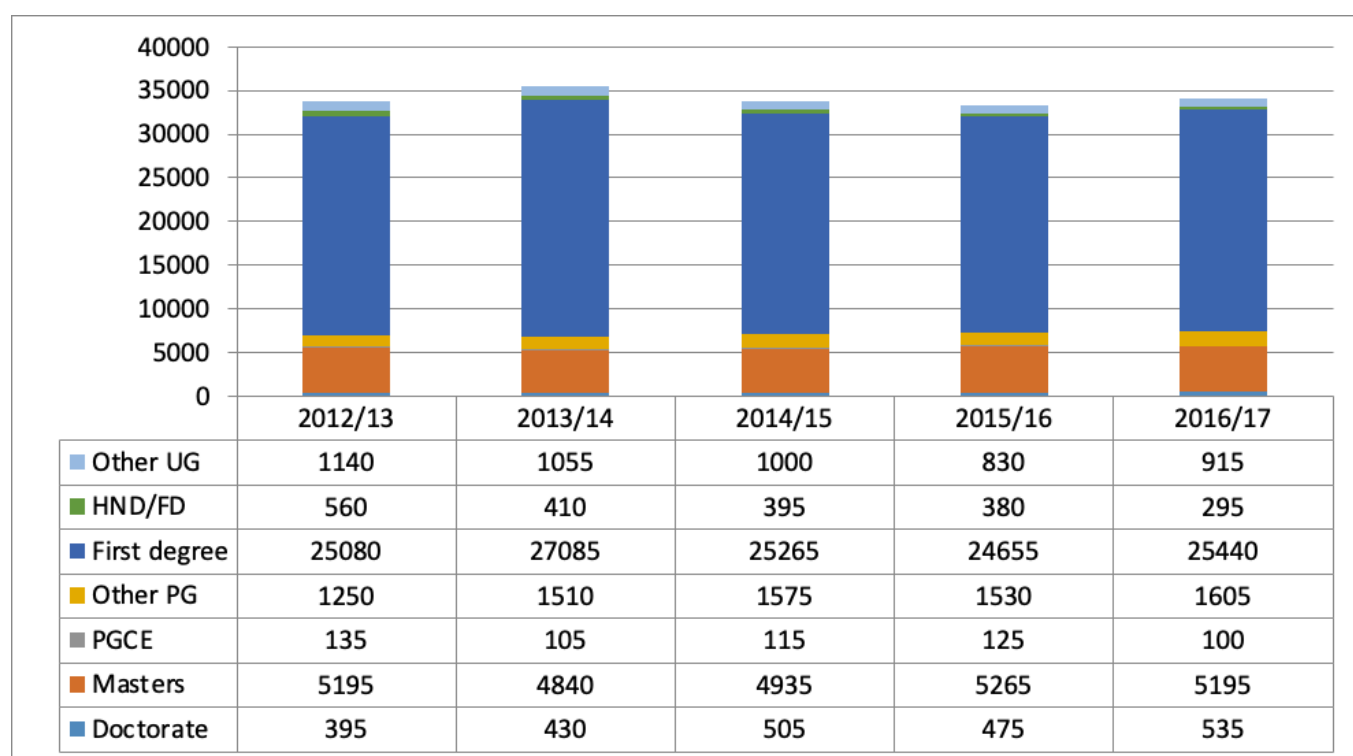
Each year between 4 and 4.4% of the new UK T and CD workforce began their careers in GM (see table 4). As in the UK, numbers peaked in 2013/14 but the numbers of new entrants remained quite stable over the period under examination. The 2013/14 peak seems to be at least in part due to a large entry cohort into IT, marketing and PR as those industries increased staffing in the wake of the recession.

Table 4: New entrants to T and CD sectors in GM

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Total new entrants	1345	1550	1410	1470	1495

Manchester's pattern is similar but with a slightly higher first degree cohort as a proportion of the total – around 80% of the new entrant workforce – and a slightly lower Masters and PG diploma, seemingly largely due to Manchester not having as large a film or architecture industry as London's.

Each year over 1000 new first degree graduates enter the T and CD sector in GM – as seen in Figure 4, and it will be this cohort that the rest of this report will focus on.

A key feature of the T and CD sector is the prevalence of SMEs and in GM, 61% of new entrants to the sector in 2016/17 entered SMEs. 31% entered microbusinesses with fewer than 10 employees. This sector is likely to be vulnerable to disruption caused by COVID-19.

Figure 4: New HE level entrants to T and CD in Greater Manchester

	2012/13	2013/14	2014/15	2015/16	2016/17
Other UG	30	40	40	40	35
HND/FD	25	10	15	15	15
First degree	1055	1285	1100	1170	1165
Other PG	40	50	60	45	70
PGCE	10	10	5	5	5
Masters	180	145	175	175	180
Doctorate	10	10	20	15	25
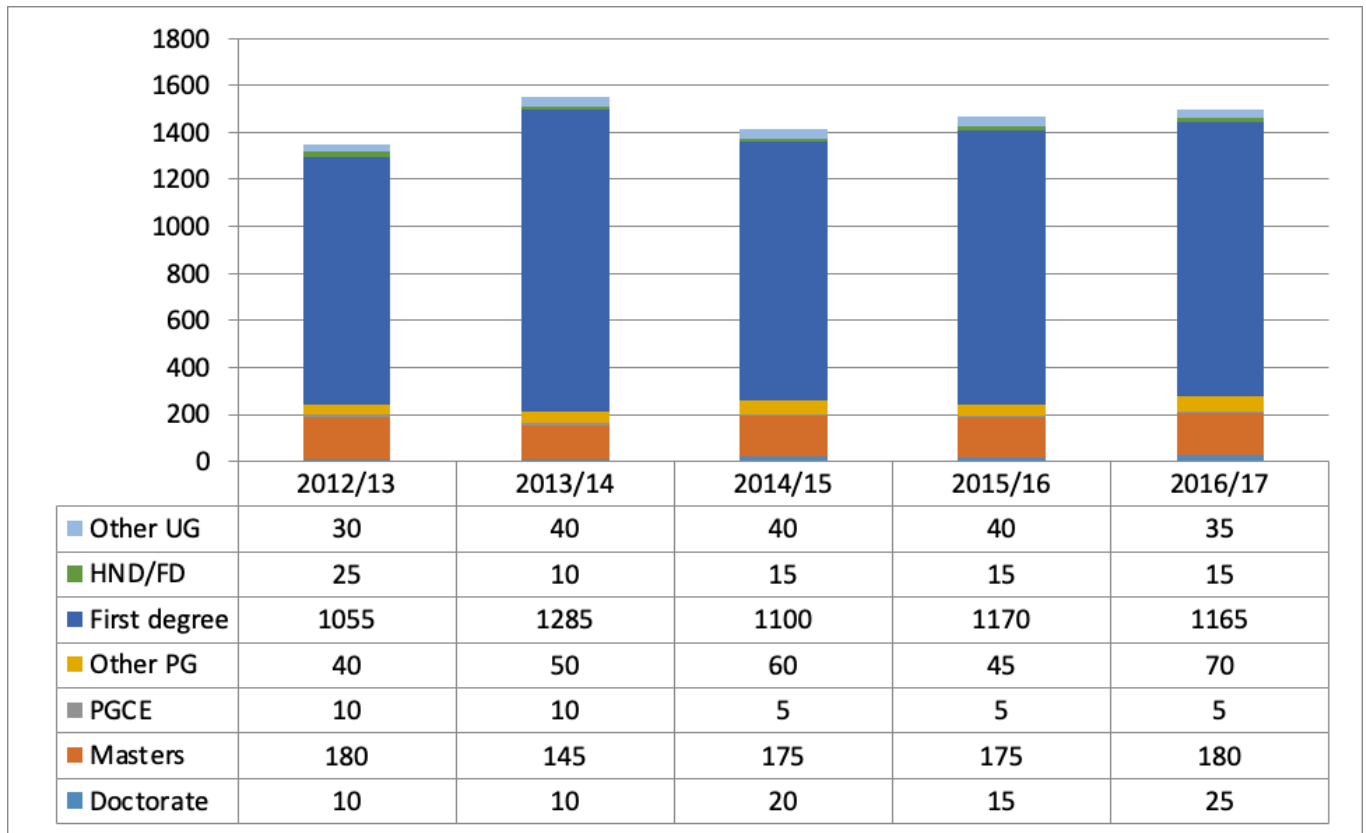
In general, at least half the cohort went to work in Manchester proper[1], with about 20% starting in Salford, particularly in broadcasting and IT consultancy and Trafford also locally important in IT and advertising.

Within the cohort, the most important industries in GM were computer programming, advertising, IT consultancy, architecture, broadcasting, TV and film production, design and the performing arts.

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1 This analysis is not straightforward as employer postcode data, especially for the 2016/17 cohort, is not always complete and so although a significant minority of the sample is almost certainly working in Manchester proper it is not possible to be entirely sure and it is simply assigned to 'Greater Manchester'. The full postcode data thus probably underestimates employment in the city of Manchester itself.

Table 5: T and CD new first degree graduate starters in Greater Manchester by year and industry (4 digit SIC)

Standard Industrial Classification – 4-Digit Level	2012/13	2013/14	2014/15	2015/16	2016/17
(2611) Manufacture of electronic components	5	5	5	10	5
(2612) Manufacture of loaded electronic boards	0	0	0	0	0
(2620) Manufacture of computers and peripheral equipment	5	0	5	0	0
(2630) Manufacture of communication equipment	0	0	0	0	0
(2640) Manufacture of consumer electronics	0	0	5	5	5
(2680) Manufacture of magnetic and optical media	0	0	0	0	0
(3212) Manufacture of jewellery and related articles	5	5	0	0	0
(4651) Wholesale of computers, computer peripheral equipment and software	0	0	0	5	5
(4652) Wholesale of electronic and telecommunications equipment and parts	0	5	5	0	0
(5811) Book publishing	5	0	5	5	5
(5812) Publishing of directories and mailing lists	0	0	0	0	0
(5813) Publishing of newspapers	5	15	10	5	10
(5814) Publishing of journals and periodicals	10	15	20	15	10
(5819) Other publishing activities	10	10	15	10	20
(5821) Publishing of computer games	5	0	0	0	0
(5829) Other software publishing	0	25	0	15	15
(5911) Motion picture, video and television programme production activities	45	55	40	55	50
(5912) Motion picture, video and television programme post-production activities	10	10	15	10	15
(5913) Motion picture, video and television programme distribution activities	0	0	0	0	0
(5914) Motion picture projection activities	10	15	20	25	10
(5920) Sound recording and music publishing activities	10	15	10	15	15
(6010) Radio broadcasting	5	15	10	15	10

Standard Industrial Classification – 4-Digit Level	2012/13	2013/14	2014/15	2015/16	2016/17
(6020) Television programming and broadcasting activities	50	60	70	65	70
(6110) Wired telecommunications activities	5	5	5	5	5
(6120) Wireless telecommunications activities	10	5	0	0	5
(6130) Satellite telecommunications activities	0	0	0	0	0
(6190) Other telecommunications activities	40	70	45	55	35
(6201) Computer programming activities	80	135	120	135	145
(6202) Information technology consultancy activities	50	50	60	75	75
(6203) Computer facilities management activities	10	0	0	0	0
(6209) Other information technology service activities	95	60	90	55	55
(6311) Data processing, hosting and related activities	15	20	10	20	15
(6312) Web portals	5	0	0	5	0
(6391) News agency activities	0	0	0	0	0
(6399) Other information service activities n.e.c.	5	10	5	10	10
(7021) Public relation and communication activities	30	35	20	25	0
(7111) Architectural activities	70	90	75	95	85
(7311) Advertising agencies	160	190	165	165	165
(7312) Media representation services	0	30	5	10	15
(7410) Specialised design activities	75	75	65	60	45
(7420) Photographic activities	20	35	20	30	30
(7430) Translation and interpretation activities	10	5	5	10	10
(8552) Cultural education	30	30	20	25	25
(9001) Performing arts	45	85	55	60	70
(9002) Support activities to performing arts	20	10	5	10	20
(9003) Artistic creation	50	45	20	40	50
(9004) Operation of arts facilities	30	35	35	30	40

Standard Industrial Classification – 4-Digit Level	2012/13	2013/14	2014/15	2015/16	2016/17
(9101) Library and archives activities	5	5	5	0	5
(9102) Museums activities	10	10	15	5	5
(9511) Repair of computers and peripheral equipment	5	0	0	0	0
(9512) Repair of communication equipment	0	0	0	0	0
Total	**1055**	**1285**	**1100**	**1170**	**1165**

3.3 Characteristics/Backgrounds of T and CD entrants

3.3.1 Subject

Figure 5 examines data on the subject of study of new first degree graduate entrants to the GM T and CD labour market between 2012/13 and 2016/17. Computer science overtook design as the most common subject of entry to the jobs market as the local labour market in IT waxed and the design market waned. Media studies was the next commonest subject of entry throughout the time period. Subject numbers tended to remain stable suggesting demand for these subjects would also be stable in ordinary times.

Just below this list of subjects, others that have been important throughout the last five years include history, electronic engineering, management and journalism whilst the number of graduates with degrees associated with computer gaming went up sharply in the last three years. The top ten subjects in GM in 2017 were the same as the national list of top ten subjects; media studies and marketing being slightly more popular in Manchester than in the country as a whole, almost certainly reflecting Manchester's strong marketing industry and the major national media presence in Salford.

Figure 5: Main subjects of study of new first degree level entrants to T and CD in Greater Manchester

	2012/13	2013/14	2014/15	2015/16	2016/17
Computer science	80	120	110	130	135
Design studies	135	155	125	120	95
Media studies	60	90	80	85	90
Music	50	80	60	60	75
Architecture	40	65	60	75	65
Marketing	45	60	45	50	55
Cinematics & photography	40	50	35	55	55
Drama	40	55	45	40	45
Business studies	50	70	55	50	40
English studies	40	40	35	45	35
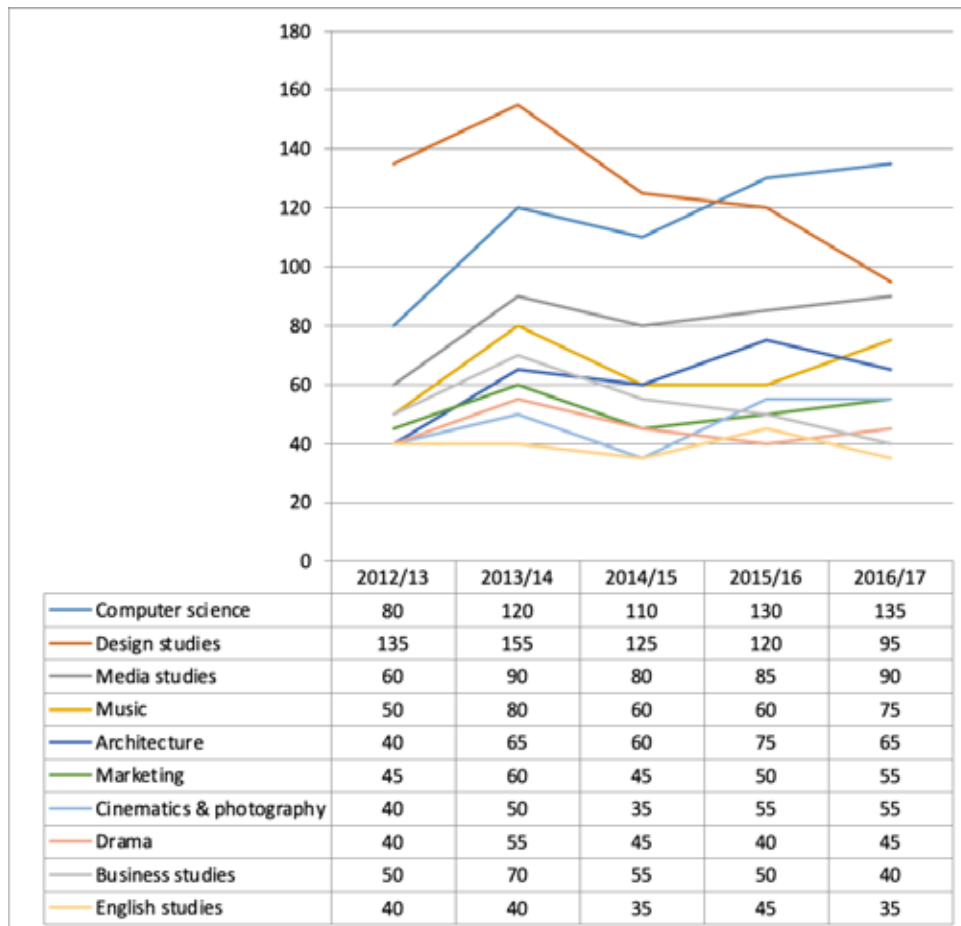
3.3.2 Gender

New entrants to the sector in GM were predominantly male, due to the importance of the computing industry, which has an overwhelmingly male workforce, to the overall sector balance

The TV production and broadcasting industry locally also recruited a majority male graduate workforce, as did the performing arts industry, whilst the advertising industry was a majority female-recruiting industry. Overall, the T and CD sector locally was slightly more male than the UK workforce, which recruited about 55% male graduates in 2016/17.

Table 6: Gender of new entrants to the GM T and CD sectors

Gender	2012/13	2013/14	2014/15	2015/16	2016/17
Female	42.0%	43.9%	40.9%	41.2%	41.4%
Male	58.0%	56.1%	59.1%	58.8%	58.5%

3.3.3 Ethnicity

This is a majority white graduate workforce, with the proportion of non-white entrants to the local industries generally in the region of 15% and particularly varying with demand from the IT industry. No particular ethnicity has a large presence in the local recruitment cohort.

Although the figures for the non-white recruitment cohort are slightly lower than for the UK as a whole, this is heavily influenced by the much more diverse London labour market. The figures for GM are typical of the rest of the UK outside London.

Table 7: Ethnicity of new entrants to the GM T and CD sectors

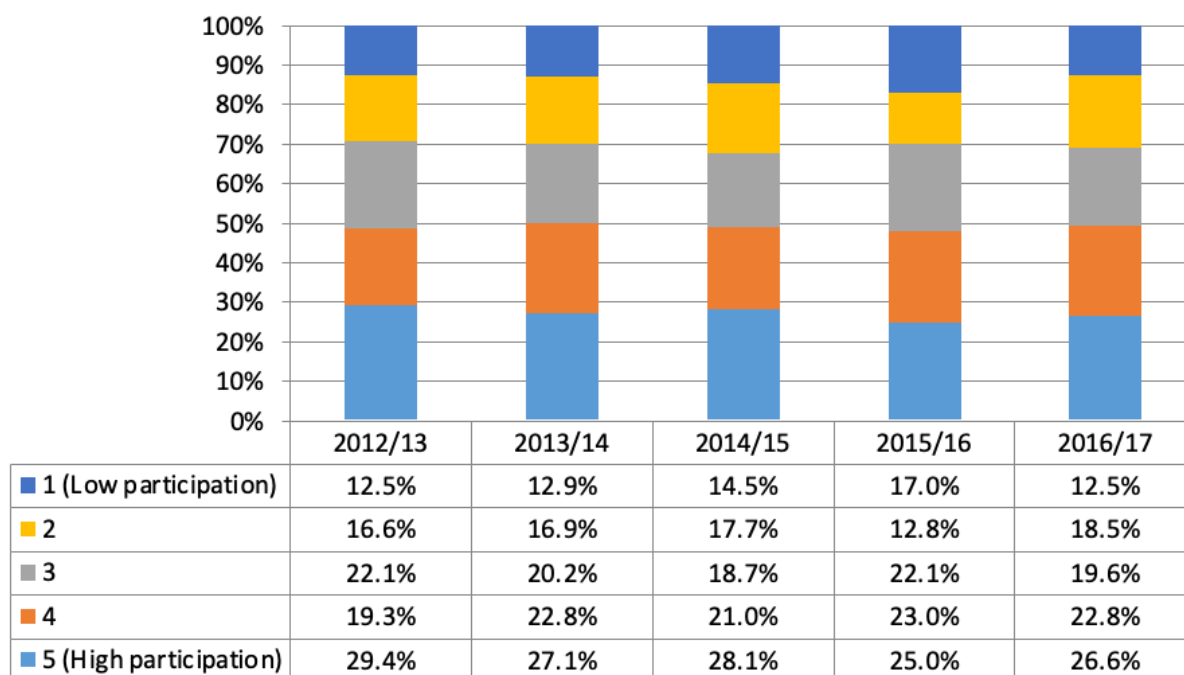| Ethnicity	2012/13	2013/14	2014/15	2015/16	2016/17
White	86.3%	87.2%	84.8%	81.7%	84.1%
BAME	13.7%	12.8%	15.2%	18.3%	15.9%

3.3.4 Background

This analysis uses POLAR3 data, based on postcode of domicile, to examine the backgrounds of university leavers. Like all background markers, POLAR3 has issues, but it provides a useful lens to examine aspects of the likely social capital held by entrants to the sector.

Generally, just less than half the new cohort of entrants to T and CD in GM comes from neighbourhoods in the top 40% of participation in higher education. Across the UK the proportion is

over 50%. Manchester has a slightly more diverse entry cohort for three main reasons; the GM graduate workforce tends to hail from less affluent backgrounds than the graduate workforce in the south-east of England and, especially, London; the IT industry is a major recruiter in Manchester and takes a larger proportion of graduates from lower participation backgrounds; and the publishing industry, which overwhelmingly recruits from affluent backgrounds, is less strong in GM.

Figure 6: POLAR 3 quintiles of new first degree level entrants to T and CD in Greater Manchester

	2012/13	2013/14	2014/15	2015/16	2016/17
■ 1 (Low participation)	12.5%	12.9%	14.5%	17.0%	12.5%
■ 2	16.6%	16.9%	17.7%	12.8%	18.5%
■ 3	22.1%	20.2%	18.7%	22.1%	19.6%
■ 4	19.3%	22.8%	21.0%	23.0%	22.8%
■ 5 (High participation)	29.4%	27.1%	28.1%	25.0%	26.6%

3.3.5 Disability

Approximately one in six new entrants to the GM T and CD workforce reported a disability. This is in line with the UK T and CD workforce as a whole. The broadcasting industry tends to have a slightly higher level of the new graduate workforce reporting a disability; the advertising and IT industries slightly less.

Table 8: Disability of new entrants to the GM T and CD sectors

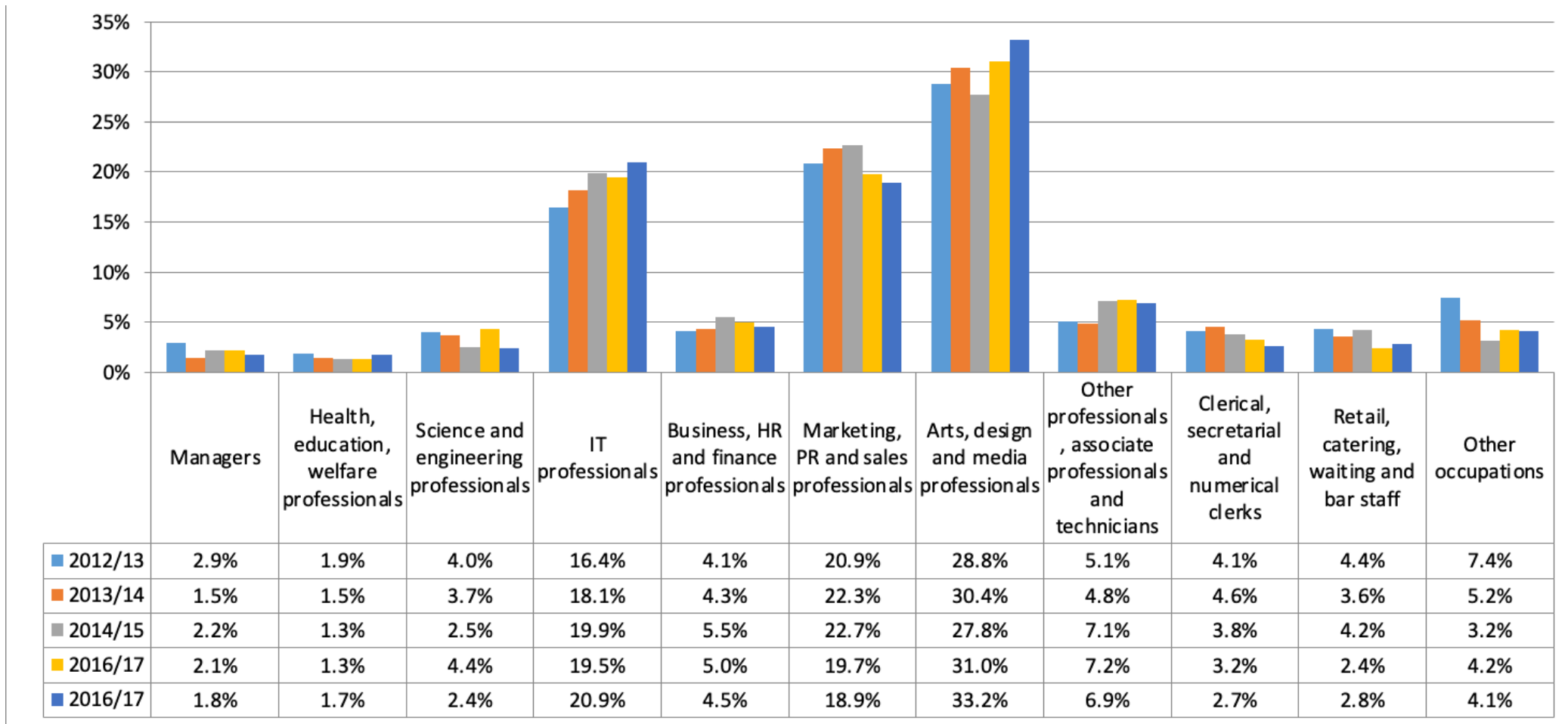| Disability Marker	2012/13	2013/14	2014/15	2015/16	2016/17
Has a disability	12.3%	12.0%	14.8%	13.8%	16.3%
No known disability / Unknown	87.7%	88.0%	85.2%	86.2%	83.7%

3.4 Occupations

Figure 7 below uses a version of the occupational classifications used in the Prospects/AGCAS annual joint publication, 'What do graduates do?', with some of the categories collapsed together to make the data easier to read. This classification is, in turn, based on SOC2010 (Prospects Luminate, 2018).

The proportion of new entrants coming in at professional level is high and increasing. It stood at over 90% in 2016/17. The main ways in which graduates enter these industries at non-graduate level is as administrative staff, particularly in the broadcasting industry; as sales and retail staff across multiple sectors; and in service and hospitality at arts facilities and museums.

Table 9: Proportion of new entrants to GM T and CD in professional employment

Year	2012/13	2013/14	2014/15	2016/17	2016/17
Proportion of new entrants in professional level employment	84.2%	86.7%	88.9%	90.3%	90.4%

Figure 7: Occupations of new first degree level entrants to T and CD in Greater Manchester

	Managers	Health, education, welfare professionals	Science and engineering professionals	IT professionals	Business, HR and finance professionals	Marketing, PR and sales professionals	Arts, design and media professionals	Other professionals, associate professionals and technicians	Clerical, secretarial and numerical clerks	Retail, catering, waiting and bar staff	Other occupations
2012/13	2.9%	1.9%	4.0%	16.4%	4.1%	20.9%	28.8%	5.1%	4.1%	4.4%	7.4%
2013/14	1.5%	1.5%	3.7%	18.1%	4.3%	22.3%	30.4%	4.8%	4.6%	3.6%	5.2%
2014/15	2.2%	1.3%	2.5%	19.9%	5.5%	22.7%	27.8%	7.1%	3.8%	4.2%	3.2%
2016/17	2.1%	1.3%	4.4%	19.5%	5.0%	19.7%	31.0%	7.2%	3.2%	2.4%	4.2%
2016/17	1.8%	1.7%	2.4%	20.9%	4.5%	18.9%	33.2%	6.9%	2.7%	2.8%	4.1%

The following table summarises the occupations of new entrants to the T and CD labour market in GM in the last five years. Coders and marketers are consistently the two main occupations represented. Over the time period under examination, employers trying to recruit into a number of these roles reported recruitment difficulties; software developers, marketing professionals (particularly in market research and quantitative analysis, where Manchester is strong); town planning technicians; business sales and many areas of specialist IT (user experience, or UX, in particular) were all in shortage and some of these numbers may represent a balance between the capacity of the local sector to recruit and a restricted supply of entrants to some in-demand roles.

Table 10: Commonest occupations of new T and CD first degree graduate entrants in Greater Manchester by year

Standard Occupational Classification (SOC) (5 Digit)	2012/13	2013/14	2014/15	2015/16	2016/17
Programmers and software development professionals	85	105	95	95	125
Marketing associate professionals	80	130	115	110	115
Photographers, audio-visual and broadcasting equipment operators	40	55	40	60	75
Architectural and town planning technicians	25	35	45	50	60
Arts officers, producers and directors	50	65	50	55	60
Business sales executives	40	45	50	40	45
Graphic designers	55	60	55	70	40
Information technology and telecommunications professionals n.e.c.	25	25	30	50	40
Authors, writers and translators	20	25	20	20	40
Artists	35	30	25	30	35
Musicians	25	50	30	30	35
Actors, entertainers and presenters	15	25	25	30	30
Sales accounts and business development managers	50	55	35	40	30
Web design and development professionals	25	55	40	40	25

3.5 Supply of Graduates to the local T and CD labour market

The majority of graduates entering the GM T and CD industry had not attended a Mancunian institution.

Data for 2016/17 illustrates the pattern.

Table 11: University attended by new entrants to GM T and CD sectors

Didn't attend a Manchester institution	Attended Man Met	Attended Manchester	Attended RNCM
65.8%	22.9%	9.3%	2.0%

ManMet is much the largest individual institutional supplier to this labour market, supplying more than double the number of graduates of any other institution (265), and is particularly important to architecture, photography and artistic creation as well as being highly significant to the large advertising sector. The Royal Northern College of Music is the largest supplier of new entrants to the performing arts (RNCM supplied 25 graduates in total). Interestingly Manchester University, although important in many sectors, particularly IT, was not the largest individual institutional supplier to any major T and CD sector in the region.

The University of Salford was the next most important institutional supplier, providing more graduates (135) than Manchester in 2016/17 (110). Other significant suppliers to the local T and CD labour market included (in order) UCLAN (80, far larger than the others on this list), Sheffield Hallam (35, much the largest supplier outside the North West), Edge Hill (35) and the University of Bolton (35).

37% of graduates starting work in the T and CD sector in the region 2016/17 were originally from GM, Manchester itself being the most common domicile. Lancashire, Cheshire East, Cheshire West and Cheshire, and Derbyshire were the most common domiciles of entrants from outside GM.

In total, 49% of graduates entering the T and CD sector in GM had attended an institution in GM and 67% had either attended an institution in the region or had been domiciled locally.

3.6 Comparisons of GM with other T and CD labour markets

GM's T and CD sector is the largest employer of new graduates outside the much larger London labour market, and is particularly strong for IT, television and advertising. However, there are a number of other metropolitan and urban labour markets in the UK with important T and CD sectors. The West Midlands, based around Birmingham and Coventry and with locally strong IT and design, West Yorkshire, centred on Leeds and with publishing, IT, film and design; Belfast's strong IT sector; Cambridgeshire's and Oxfordshire's tech industry based on Cambridge and Oxford respectively; Bristol's arts and publishing sectors and Edinburgh and Glasgow's diverse T and CD labour markets. An examination of 2016/17 recruitment in these respective labour markets is reproduced below.

Table 12: Industry of employment of new T and CD first degree graduate entrants from 2016/17 by major T and CD location in the UK

Standard Industrial Classification (SIC) (4 Digit)	Greater London	GM	West Midlands	West Yorkshire	Belfast	Cambs	Bristol	Edinburgh	Glasgow	Oxfords
(2611) Manufacture of electronic components	10	5	0	5	5	35	0	10	5	0
(2612) Manufacture of loaded electronic boards	0	0	0	0	0	0	0	0	0	0
(2620) Manufacture of computers and peripheral equipment	5	0	0	0	0	5	0	5	5	0
(2630) Manufacture of communication equipment	0	0	0	0	0	0	0	0	0	0
(2640) Manufacture of consumer electronics	10	5	0	5	0	0	0	0	0	0
(2680) Manufacture of magnetic and optical media	0	0	0	0	0	0	0	0	0	0
(3212) Manufacture of jewellery and related articles	15	0	10	0	0	0	0	0	0	0
(4651) Wholesale of computers, computer peripheral equipment and software	10	5	0	0	0	0	0	0	0	0
(4652) Wholesale of electronic and telecommunications equipment and parts	10	0	0	0	0	0	0	0	0	0
(5811) Book publishing	115	5	0	0	0	5	0	0	0	30
(5812) Publishing of directories and mailing lists	30	0	5	0	0	0	0	0	0	0
(5813) Publishing of newspapers	130	10	10	5	5	0	0	5	5	0

Standard Industrial Classification (SIC) (4 Digit)	Greater London	GM	West Midlands	West Yorkshire	Belfast	Cambs	Bristol	Edinburgh	Glasgow	Oxfords
(5814) Publishing of journals and periodicals	340	10	10	10	0	5	20	5	5	20
(5819) Other publishing activities	170	20	10	15	0	0	10	5	0	10
(5821) Publishing of computer games	5	0	0	0	0	0	0	0	0	0
(5829) Other software publishing	45	15	5	10	5	5	10	5	5	0
(5911) Motion picture, video and television programme production activities	675	50	30	40	30	5	25	15	30	10
(5912) Motion picture, video and television programme post-production activities	175	15	5	0	5	0	15	0	5	0
(5913) Motion picture, video and television programme distribution activities	20	0	5	0	0	0	0	0	0	0
(5914) Motion picture projection activities	80	10	15	20	5	5	5	15	15	5
(5920) Sound recording and music publishing activities	135	15	5	10	0	0	5	0	5	0
(6010) Radio broadcasting	50	10	5	5	0	0	5	0	0	0
(6020) Television programming and broadcasting activities	285	70	15	20	5	0	5	0	25	0
(6110) Wired telecommunications activities	10	5	0	0	0	5	0	0	0	0

Standard Industrial Classification (SIC) (4 Digit)	Greater London	GM	West Midlands	West Yorkshire	Belfast	Cambs	Bristol	Edinburgh	Glasgow	Oxfords
(6120) Wireless telecommunications activities	30	5	0	0	0	0	0	0	0	0
(6130) Satellite telecommunications activities	5	0	0	0	0	0	0	0	0	0
(6190) Other telecommunications activities	200	35	20	30	25	5	5	0	20	10
(6201) Computer programming activities	880	145	105	115	130	85	70	80	40	45
(6202) Information technology consultancy activities	590	75	80	60	30	10	15	50	30	10
(6203) Computer facilities management activities	15	0	0	0	0	0	0	0	0	0
(6209) Other information technology service activities	415	55	40	35	65	25	15	15	20	20
(6311) Data processing, hosting and related activities	115	15	5	15	10	0	0	5	5	5
(6312) Web portals	30	0	0	0	0	0	0	0	0	0
(6391) News agency activities	40	0	0	0	0	0	0	0	0	0
(6399) Other information service activities n.e.c.	190	10	10	5	5	0	5	0	0	5
(7010) Activities of head offices	0	0	0	0	0	0	0	0	0	0
(7111) Architectural activities	475	85	45	30	25	15	20	20	20	15
(7311) Advertising agencies	1340	165	80	100	25	10	45	35	30	20
(7312) Media representation services	65	15	5	5	0	0	0	0	0	0

Standard Industrial Classification (SIC) (4 Digit)	Greater London	GM	West Midlands	West Yorkshire	Belfast	Cambs	Bristol	Edinburgh	Glasgow	Oxfords
(7410) Specialised design activities	560	45	45	55	15	10	25	20	15	10
(7420) Photographic activities	190	30	25	15	5	5	5	5	0	10
(7430) Translation and interpretation activities	50	10	5	10	0	5	0	5	5	5
(8552) Cultural education	90	25	20	15	5	0	5	10	5	0
(9001) Performing arts	550	70	45	30	5	10	15	20	30	5
(9002) Support activities to performing arts	120	20	10	5	5	5	5	5	5	5
(9003) Artistic creation	265	50	20	35	5	10	25	20	20	15
(9004) Operation of arts facilities	220	40	30	15	5	5	10	5	20	5
(9101) Library and archives activities	25	5	5	0	0	5	0	5	5	5
(9102) Museums activities	165	5	10	10	15	5	5	10	5	5
(9511) Repair of computers and peripheral equipment	5	0	5	0	0	0	0	0	0	0
(9512) Repair of communication equipment	0	0	0	0	0	0	0	0	0	0
Total	**8945**	**1165**	**745**	**740**	**450**	**285**	**385**	**375**	**390**	**285**

3.7 Summary

Defining the T and CD sector as a whole is not a straightforward task and those definitions that have been developed have been revised repeatedly. This report uses a definition based on those Government reviews that were current at the time of writing.

Nationally, the T and CD sector takes between 33,000 and 35,500 new university leavers every year, about 75% of whom have a first degree on entry. Masters degrees were the next most common qualification held by new T and CD entrants. London has much the largest T and CD sector in the country, but GM's is substantial, a little over 4% of the total new T and CD entry cohort and around 1500 new university leaver entrants a year. Between 1100 and 1300 first degree graduates enter the T and CD sector in GM every year. The impact of COVID-19 is likely to reduce that number this year, as 61% of new entrants to the sector in 2016/17 entered SMEs. 31% entered microbusinesses with fewer than 10 employees.

At least half the cohort went to work in Manchester proper, with about 20% starting in Salford, particularly in broadcasting and IT consultancy and Trafford also locally important in IT and advertising.

Within the cohort, the most important industries in GM were computer programming, advertising, IT consultancy, architecture, broadcasting, TV and film production, design and the performing arts.

Computer science overtook design as the most common subject of entry to the jobs market in 2016/17 as the IT market improved. Media studies was the next commonest subject of entry throughout the time period. At least 50 graduates in music, architecture, marketing and cinematics found work in GM's T and CD sector in 2018, Subject numbers tended to remain stable suggesting demand for these subjects would also be stable in ordinary times.

Entrants to the GM market are majority male, and have a level of ethnic diversity typical of the UK graduating cohort. They tend to come from relatively affluent backgrounds, although there are significant differences between industries – the IT industry tends to recruit graduates from less advantaged backgrounds than broadcasting and, particularly, publishing.

The proportion of new entrants coming in at professional level is high and increasing. It stood at over 90% in 2016/17. The most common occupations recruited at degree level were software developers/programmers, marketing roles, photographers, AV and broadcasting professionals, architectural and town planning technicians (full architects were usually recruited at postgraduate level) and arts officers, producers and directors.

The majority (66%) of graduates entering the GM T and CD industry had not attended either Manchester University or Manchester Met. However, 49% of graduates entering the T and CD sector in GM had attended an institution in GM (Manchester, Manchester Met, Salford, Bolton) and 67% had either attended an institution in GM or had been domiciled locally, and so the sector is heavily reliant on local labour supply. Man Met is much the largest individual institutional supplier to this labour market, supplying more than double the number of graduates of any other institution (265), and is particularly important to architecture, photography and artistic creation as well as being highly significant to the large advertising sector.

4. Conclusion

In the context of the pervasive discourses around the 'brain drain' to London, GM performs relative well in retaining graduate human capital. It has a large student population, and thus a significant pool of graduates — it has England's largest concentration of graduates outside London. The region performs well in retaining graduates who were originally domiciled here, but also very well in retaining those who came to GM to study. It is an attractive city for students and for educated workers to live beyond graduation. The T and CD sector is a significant employer of graduates in GM. Annually, well over 1000 graduates enter the sector in the city region, and 90% of those enter graduate roles. Two-thirds of those are drawn from the local labour market — either people raised or educated in GM. Relative to other cities outside London, GM's T and CD labour market has particular strengths in IT, television and advertising. There also appear to be certain roles that graduates go into in greater numbers including programming, software development, arts production and direction, and marketing and sales.

Beneath these headline patterns lie some important complexities. Firstly, a large number of T and CD graduate opportunities are taken by graduates from institutions from outside Manchester. Universities and employers are likely to have an interest in drawing on talented local graduates who are not currently attracted to the sector, or feel confident and prepared to enter it. The various strands of the GfGM programme are well placed to help address this. Secondly, while GM has a vibrant T and CD sector, it is a relatively small part of the GM graduate labour market. This reinforces the need for a complementary emphasis on Universities' supply of the digital skills of graduates entering other sectors. Thirdly, SMEs account for a large proportion of the graduate intake. This is likely to create some vulnerability in times

of economic downturn (or indeed, crisis) and potentially demand-side challenges, as SMEs may be less well connected with the graduate 'pipeline', and less well-resourced to provide skills- and career- development opportunities. Developing relationships between SME employers (in particular) in the sector and Universities is likely to be important. Fourthly, the sector draws more heavily on Manchester Met for its graduate intake, and also from cognate/vocational degree subjects (including computer studies, design studies, media studies, music, business studies, marketing). This last point underscores the focus of GfGM on building digital skills and confidence amongst non-specialist graduates.

Finally, some reflections on diversity. The T and CD graduate intake in GM is disproportionately male — broadly in line with the sector nationally — and from less affluent backgrounds than the T and CD graduate intake nationally. The first point is likely to some extent to reflect the predominately male intake to 'feeder' courses in some of the larger sub-sectors (e.g. computer science). The second point is sensitive to the diversity of the sector, with IT graduates coming from less-affluent backgrounds and those entering publishing and broadcasting from more affluent ones. This points to a need for the design of interventions to be sensitive to diversity issues, both in terms of the diversity of entrants and in terms of the diverse sub-sectors in what is a very heterogenous sector.

We trust that this report, and the first report on T and CD skills, will have provided project stakeholders with some valuable background and context to the GfGM project, and this will be useful in shaping the project as it develops.

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