

Understanding the under- representation of women in engineering apprenticeships

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1.Executive Summary

Introduction

Women are under-represented in many STEM areas, but within the engineering sector the gender imbalance is particularly stark. Just 9% of the current engineering workforce is female, contributing to wider gender pay inequalities and posing significant challenges to the supply of skills into the economy.

Successfully tackling this imbalance will require the efforts of a wide range of stakeholders, including government, employers and education providers; and the effective use of all available levers. One such lever is the apprenticeship programme, where the government has made a commitment to achieve 3 million apprenticeship starts by 2020.

However, while more than half of all apprentices are women; this overall figure masks significant gender segregation. In 2014/15 just 600 of 17,500+ engineering and manufacturing technologies (EMT) apprenticeship starts were female – fewer than 3.5%. Unless this is addressed, we face a significant risk that rather than widening opportunities for women and girls, the apprenticeship programme could instead further exacerbate the gender bias within the sector.

The study

In order to help better understand and tackle gender stereotypes in STEM apprenticeships, the Gatsby Charitable Foundation commissioned Learning and Work Institute (L&W) to conduct an analysis of the government's (SFA) *Find an Apprenticeship* dataset.

Find an Apprenticeship is the official website for searching and applying for apprenticeships in England. Although not all applications are submitted through the system, nor all opportunities advertised on it, the dataset covers a substantial number across a breadth of sectors and locations. It allows for the analysis of a large volume of records, with a combination of variables and records of unsuccessful applications not available elsewhere.

Findings

Although women are not generally under-represented in apprenticeships, the overall figures mask significant gender segregation within sectors. The dataset contains records for over 22,000 applicants who were successful in 2015 and early 2016, with just over half (52.5%) of those for whom gender data is available being female. However, within engineering and manufacturing technologies (EMT), women accounted for just 140 (6.7%) of successful applicants.

Given the existing gender imbalance within the sector, it is perhaps unsurprising to find that **women are much less likely than men to apply for apprenticeship opportunities in the EMT sector**, whether successfully or unsuccessfully. Only 3.7% of all female applicants submitted an application to the EMT sector in 2015 and early 2016, compared with 34.6% of male applicants; and EMT accounted for just 1.7% of all successful female applicants.

It is reassuring, however, that when applications are submitted, **there is little difference in the success rates for male and female applications to the EMT sector**, one of the few sectors with

no significant difference between the two. This remained the case for most demographic groups, with the exception of applications submitted by candidates from a BAME background, where female applications had a significantly higher success rate than male applications.

There is **also little difference in success rates for men and women within most EMT frameworks**, with the sole exception of 'improving operational performance', with a higher success rate for men. A similar proportion of male and female applicants to EMT applied to each apprenticeship level, with no difference in success rates found between them for intermediate or advanced opportunities. The success rate of female applicants to EMT did vary by framework and location; however, this pattern was also apparent for male applicants. Age was also a small factor, with the success rate of female applications to the EMT sector slightly decreasing as age increased.

Interestingly, the results indicate that **women who apply to the sector tend to focus less on it than men**; instead they are more likely to have applied to a wide range of different sectors. Alternative sectors are frequently unrelated to EMT; for example, the next most common sectors for female applicants to EMT are 'business, administration and law' and 'retail and commercial enterprise'. 39.6% of female applicants to EMT had applied *only* to this sector, compared with 55.8% of men.

Furthermore, **women are less likely than men to be persistent in applying for apprenticeships within the sector**; only around 25% of women who unsuccessfully applied for an EMT apprenticeship subsequently made further applications to the sector, compared with 43% of men. On average, female applicants submitted 1.53 EMT applications per person, significantly lower than the equivalent figure of 2.16 for male applicants.

Data on reasons for an application's lack of success show a significant difference between male and female applicants. **Women were more likely to be judged 'not eligible for the apprenticeship' or for the 'training provider to be unable to contact them'**. In contrast, men were more likely to be informed that 'you met the employer's/provider's requirements but have been unsuccessful' or that the apprenticeship was withdrawn.

Within all of this, it is important to remember that **women are not a homogenous group**, and that the differences between particular groups of women can be as important as those between men and women. In this analysis, the only demographics found to be associated with a woman's likelihood to apply to the EMT sector are ethnicity and location. **Women from a BAME background are significantly less likely to apply to the sector than those from a White background**. This corresponds with the under-representation of women from a BAME background in the labour market, who in 2015 had an employment rate of 55.0 percent compared with a rate of 71.2% for women from a White background.¹ However, it contrasts with the over-representation of

¹ ONS, 2017. Annual Population Survey: Dec 2016 data: 16-64 employment rate. Accessed at <https://www.nomisweb.co.uk/>

female learners from a BAME background in further education and skills provision, who made up 19.9% of learners in 13/14 compared with 14.5% of the population.²

Geography also has a key role to play, with different regions having large differences in the number of women who have applied to the EMT sector; both in terms of absolute numbers and as a percentage of total applicants. In particular, **the percentage of EMT applicants who are women varies substantially between counties**; the best performing county had over double the percentage than that of the poorest performing.

Recommendations

1. Our analysis of the quantitative data has identified a number of expected *and* unanticipated findings. We recommend that these are now tested with potential applicants, apprentices and employers within the EMT sector in order to further develop our understanding and fully assess their implications. This testing could be undertaken through a series of interviews, focus groups or workshops with individual and employer representatives.
2. More women have applied to an EMT apprenticeship than previously thought. While applications from women are just as likely to be successful than men, they submit far fewer applications within the sector – giving themselves less chance of success. In addition to ongoing efforts to encourage more women to apply in the first instance, we recommend that interventions to encourage greater persistence be explored and piloted.
3. The *Find an Apprenticeship* dataset provides useful information about apprenticeship applicants and the opportunities that they apply for. However, the format of the data as provided does not allow for certain analyses to be conducted, and limits the sample size for other analyses. As a consequence, our ability to undertake detailed end-to-end analysis of the apprenticeship journey has been restricted. We recommended that government should address this by providing data in two complementary datasets, both with a unique identification number to enable them to be linked:
 - A dataset of individual records, each containing data on each application (both successful and unsuccessful) submitted by each candidate, alongside demographic data.
 - A dataset of each successful and unsuccessful application submitted through the system, including personal and demographic data of the applicant.

Importantly, the datasets should also contain linking variables with the Individualised Learner Record (ILR) to ensure that applications can be matched with data on apprenticeship starts and achievements.

² FE data library: equality and diversity, 2016. Equality and diversity tables: 2008 to 2009 and 2014 to 2015 & Equality and diversity annex tables: 2008 to 2009 and 2013 to 2014. Available at: <https://www.gov.uk/government/statistical-data-sets/fe-data-library-equality-and-diversity>

2. Introduction

Women are under-represented in many STEM areas, but within the engineering sector the gender imbalance is particularly stark. Just 9% of the current engineering workforce is female, contributing to wider gender pay inequalities and posing significant challenges to the supply of skills into the economy.

Successfully tackling this imbalance will require the efforts of a wide range of stakeholders, including government, employers and education providers; and the effective use of all available levers. One such lever is the apprenticeship programme, where the government has made a commitment to achieve 3 million apprenticeship starts by 2020.

However, while more than half of all apprentices are women; this overall figure masks significant gender segregation. In 2014/15 just 600 of 17,500+ engineering and manufacturing technologies (EMT) apprenticeship starts were female – fewer than 3.5%. Unless this is addressed, we face a significant risk that rather than widening opportunities for women and girls, the apprenticeship programme could instead further exacerbate the gender bias within the sector.

In order to help better understand and tackle gender stereotypes in STEM apprenticeships, the Gatsby Charitable Foundation commissioned Learning and Work Institute (L&W) to conduct an analysis of the government's *Find an Apprenticeship* dataset.

The *Find an Apprenticeship* website, from which this data is sourced, is an application route for a large number of apprenticeship candidates. Although it does not contain every available apprenticeship opportunity, it covers a substantial number across a full breadth of sectors and locations, and can therefore provide a good picture of applicants' characteristics and patterns of applications.

Our analysis addressed the following three research questions, with a specific focus on female applicants to the EMT sector.

1. What are the typical characteristics of women's applications through the 'Find an Apprenticeship' system, and how do these vary within and between groups?
2. What is the interaction between gender, application success rate and other underlying variables?
3. Do underlying structural issues account for any of the gender imbalance in apprenticeship applications?

3. Methodology

The methodology involved an analysis of application data submitted through the government's *Find an Apprenticeship* website. L&W has access to data relating to applications submitted in 2015 and early 2016. SFA supply the data in three datasets with separate but overlapping sets of variables. These are:

- A dataset of registered applicants, containing records for over 135,000 applicants who registered on the *Find an Apprenticeship* system during 2015 and early 2016.
- A dataset of successful applicants, containing records for over 22,000 successful apprenticeship applications submitted through the *Find an Apprenticeship* website during 2015 and early 2016.
- A dataset of unsuccessful applications, containing records for over 849,000 unsuccessful applications submitted through the *Find an Apprenticeship* system during 2015 and early 2016.

The initial stage of the project involved a process of data management. This began with the matching of the registered applicant dataset to records contained within the other two datasets, in order to include additional variables in the analysis where possible. Only a limited proportion of the successful and unsuccessful datasets could be so matched, and so it is important to note that some variables, such as data on ethnicity, are not available for all records.

A second stage of data management was the aggregation of records in the unsuccessful application dataset. This created a dataset of over 229,000 individual records, each containing the details for every available unsuccessful application submitted by the candidate during 2015 and early 2016. This aggregated dataset allowed for an analysis of individual candidates' patterns of application. The aggregated dataset was also matched with the successful dataset in order to include candidates' successful applications where available.

Analysis involved a combination of descriptive statistics, significance testing and regression analysis. Patterns of application, including the type of opportunities applied for and the characteristics of applicants, were analysed using the successful and aggregated unsuccessful datasets. Approximate success rates for different groups or combinations of variables were also calculated by comparing the successful and (non-aggregated) unsuccessful datasets. Structural issues and the effect of underlying variables were examined throughout and through additional regression analyses.

It is important to note that there are several characteristics of the data that limit the extent to which it can be generalised to the wider apprenticeship population; therefore, findings

should be considered only as indicative. For example, data is available only for applications submitted during 2015 and early 2016; candidates may have submitted applications outside of this time period that would not have been included in the analysis. Additionally, not all applications submitted during the time period were available in all datasets or for all variables.

A final important characteristic is that not all apprenticeship applications are submitted through the *Find an Apprenticeship* system, and not all opportunities are advertised on it. For example, candidates may apply directly through providers or via a brokerage service, opportunities may be advertised on alternative recruitment websites or employees may convert onto an apprenticeship with their existing employer. Although this characteristic limits the scope of the data, the exclusion of apprenticeship conversions also benefits the analysis by narrowing the focus to include only those individuals who are applying to enter a sector, rather than those already working in it. In addition, the use of *Find an Apprenticeship* data allows for an extremely large number of records to be analysed, with a combination of variables and records of unsuccessful applications not available from any alternative source.

4. Findings

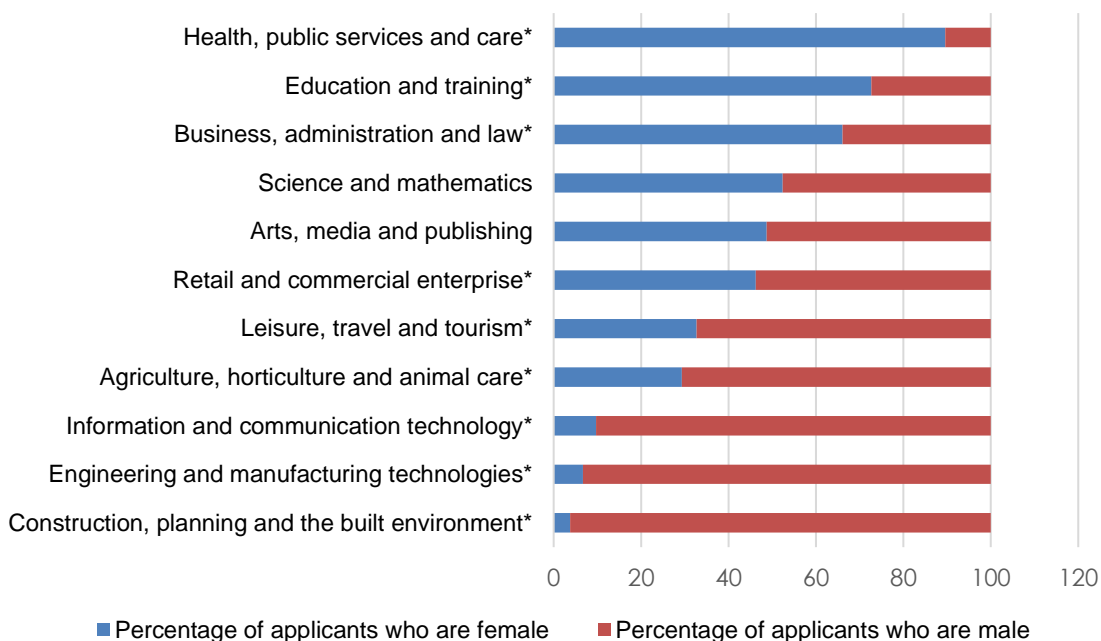
4.1 Successful applications

The successful application dataset contains the records of 22,223 applicants who were successful in 2015 and early 2016. Gender data is available for 70.4% of the records in this dataset, with female applicants representing half (52.5%) of these.

Sector

Although women are not generally under-represented in apprenticeships, the overall figures mask significant gender segregation within sectors.³ Within engineering and manufacturing technologies (EMT), women account for just 6.7% (140) of successful applicants (see Figure 1), second only to 'construction, planning and the built environment', where women account for 3.8% (18) of successful applicants. By contrast, women account for 89.6% (1,956) of successful applicants to 'health, public services and care', 72.7% (330) of successful applicants to 'education and training' and 66.1% (4,324) of successful applicants to 'business, administration and law'.

Figure 1: Successful applicants by gender and sector

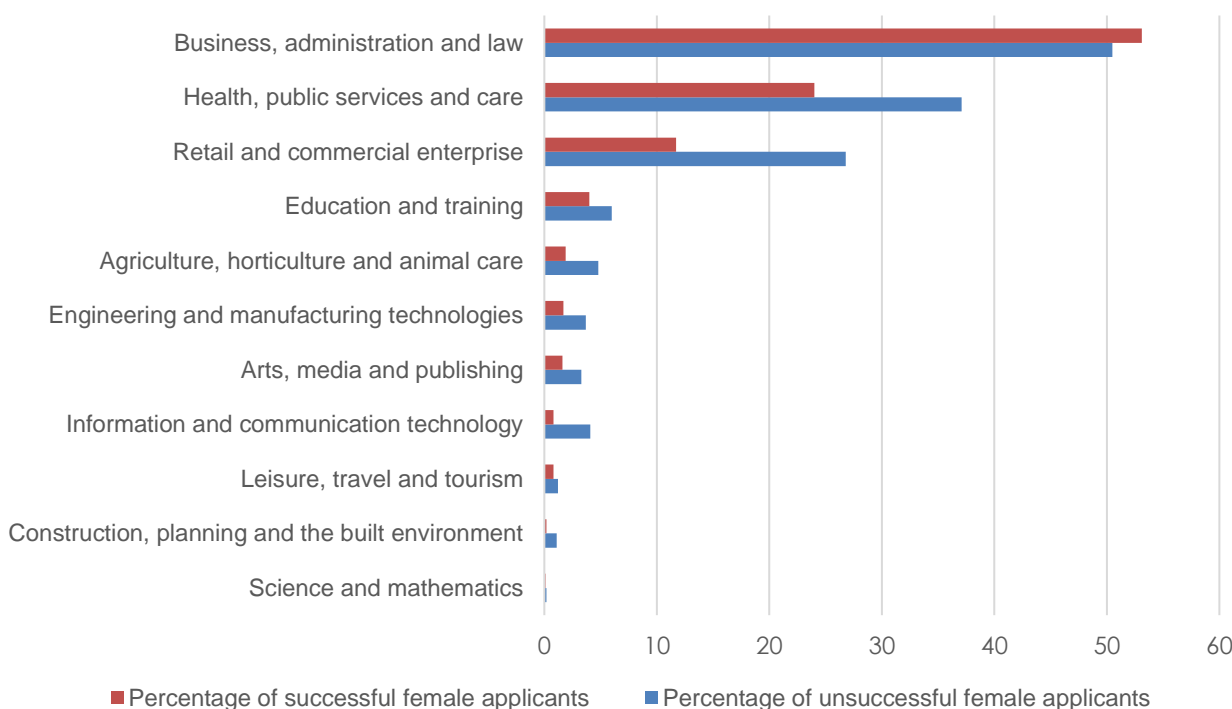


³ Sectors where there is a significant difference between the percentage of applicants who are male and female are marked with a star. This is the case for most sectors, with the exception of science and mathematics, for which there is a very small sample size, and arts, media and publishing. Full details are provided in Table A in the Appendix.

Over one half (53.1%) of all successful female applicants apply to the ‘business, administration and law’ sector, a further 24% to ‘health, public services and care’, and 11.7% to ‘retail and commercial enterprise’. In total, these three sectors account for almost nine out of every ten (88.8%) successful female applicants (see Figure 2).⁴

As a sector, EMT accounts for just 1.7% of successful female applicants; a similar proportion to ‘agriculture, horticulture and animal care’ (1.9%) and ‘arts, media and publishing’ (1.6%). At 0.1%, ‘science and mathematics’ accounts for the smallest proportion. A similar pattern is evident for unsuccessful applicants, with a full breakdown given in Table B in the Appendix.

Figure 2: Proportion of successful and unsuccessful female applicants who applied to each sector



By comparing Figures 1 and 2, it is clear that a small number of sectors not only have significantly more female than male successful applicants, but also make up a large proportion of successful female applicants. For example, women account for 89.6% (1,956) of successful applicants to ‘health, public services and care’; a sector which makes up almost a quarter (24.0%) of all successful female applicants.

In other sectors, different patterns are evident. The ‘retail and commercial enterprise sector’ has significantly more male than female successful applicants (54.8% compared

⁴ Since unsuccessful applicants frequently submitted more than one application, the numbers add up to over 100 percent.

with 46.2%), but still makes up the third largest sector for women in terms of overall number of successful applicants.

A final set of sectors, including EMT, both have significantly more male than female successful applicants *and* represent a small proportion of female successful applicants overall.

Engineering and manufacturing technologies

Our data includes 140 successful female applicants to EMT. Just under two thirds (62.9%) are in intermediate level apprenticeships and just over a third (36.4%) in advanced level apprenticeships; only one candidate’s successful application is to a higher apprenticeship (see Table 1). No significant difference was found between these proportions and those for successful male applicants to EMT,⁵ which are very similar at 62.7% in intermediate level and 36.6% in advanced level apprenticeships.

However, successful female applicants to the EMT sector are significantly more likely than female applicants to other sectors⁶ to be in an advanced level apprenticeship, and less likely to be in an intermediate level apprenticeship; and the same is true for successful male applicants.⁷ The reason for this difference is unclear and cannot be determined through the *Find an Apprenticeship* data. It may be that applicants to the EMT sector are more likely to choose an advanced level apprenticeship than those in other sectors. Alternatively, it may be that there are more advanced level opportunities available in EMT. Since the same pattern is similar for both female and male applicants, it is unlikely to be related to gender.

Table 1: Level of successful applications by gender and sector

| | % of successful female EMT applications (N) | % of female successful applications in other sectors (N) | % of successful male EMT applications (N) | % of successful male applications in other sectors (N) |
|--------------|---|--|---|--|
| Intermediate | 62.9 (88) | 87.3 (6995) | 62.7 (1226) | 85.8 (4544) |
| Advanced | 36.4 (51) | 12.3 (989) | 36.6 (717) | 13.5 (853) |
| Higher | 0.7 (1) | 0.4 (29) | 0.7 (13) | 0.7 (35) |

Base: all successful applicants for whom gender and apprenticeship level data is available, n=15,541

⁵ P=0.996

⁶ P<0.001

⁷ P<0.001

A different pattern emerges within the Individualised Learner Record (ILR) dataset, which records apprenticeships starts (see Table 2). Within the EMT sector specifically, the percentage of individuals at each level is broadly similar. However, within other sectors the *Find an Apprenticeship* dataset contains a substantially higher proportion at an intermediate level and a lower proportion at both advanced and higher levels than the ILR. This suggests that advanced and higher apprentices in other sectors are more likely to be recruited through alternative means to *Find an Apprenticeship*, including those apprentices who were already employed before beginning the programme – so-called converter apprenticeships.

Table 2: Comparison of the levels of successful applicants in the *Find an Apprenticeship* (FAA) dataset and apprenticeship starters in the ILR dataset

| | % of successful EMT applications in FAA dataset (N) | % of EMT starters in ILR dataset (N) | % of successful applicants to other sectors in FAA dataset (N) | % of starters in other sectors in ILR dataset (N) |
|--------------|---|--------------------------------------|--|---|
| Intermediate | 62.7% (1314) | 59.8% (46,920) | 85.7% (11,539) | 56.7% (244,380) |
| Advanced | 36.6% (768) | 39.4% (30,900) | 13.7% (1,842) | 37.1% (160,000) |
| Higher | 0.7% (14) | 0.8% (660) | 0.5% (64) | 6.2% (26,540) |

Base: all successful applicants in the *Find an Apprenticeship* dataset for whom gender and apprenticeship level data is available, n=15,541 & all apprenticeship starters in the ILR for whom sector and level data is available, n=509,400

Within the EMT sector, apprentices are engaged on a range of frameworks. As can be seen in Figures 3 and 4,⁸ the most popular frameworks are similar for both men and women; all four of the frameworks with over 5% of male applicants also have over 5% of female applicants. However, female applicants were also well represented in an additional three frameworks.

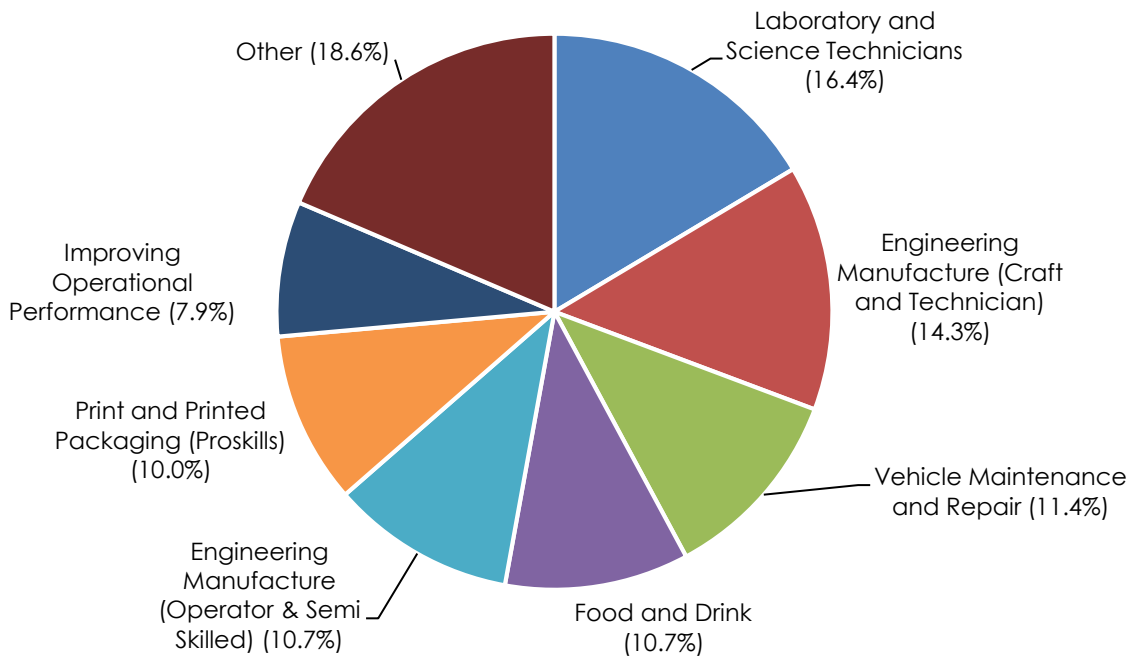
Although the sample size for most frameworks is too small to test whether differences between female and male applicants are significant, women are significantly more likely than men to have applied to 'laboratory and science technicians' (16.4% compared with 2.9%)⁹ and 'food and drink' (10.7% compared with 2.4%).¹⁰ This suggests that there may be some underlying difference in the proportion of men and women who successfully apply to different frameworks in the EMT sector.

⁸ These exclude frameworks representing fewer than 5% of applicants

⁹ P<0.001

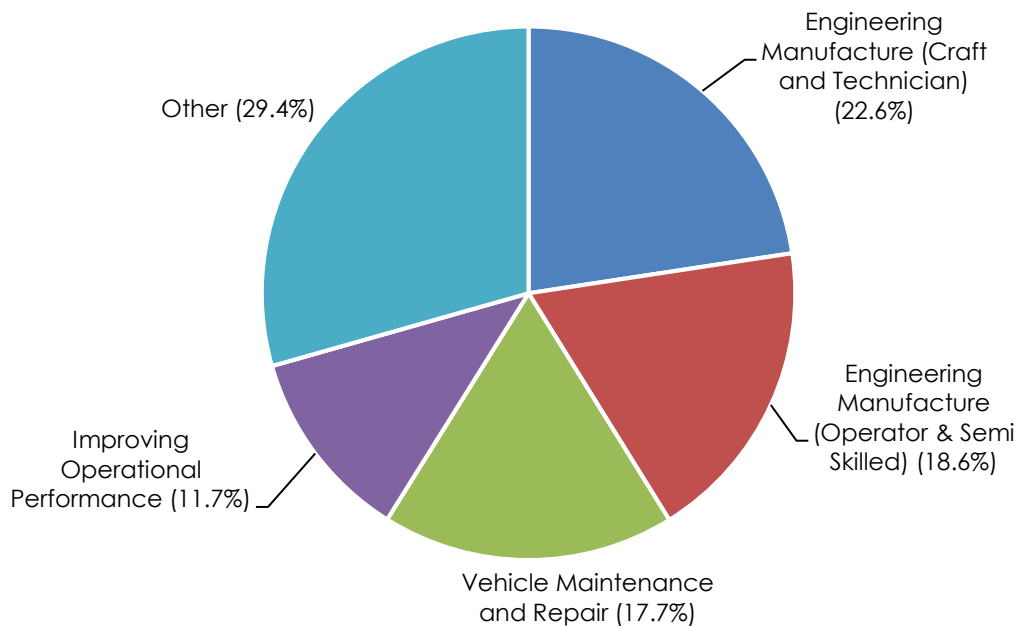
¹⁰ P<0.001

Figure 3: Frameworks for successful female EMT applications



Base: successful female applicants to the EMT sector, n=140

Figure 4: Frameworks for successful male EMT applications



Base: successful male applicants to the EMT sector, n=1956

An analysis of the regional pattern of successful applicants to the EMT sector found an uneven distribution across England. However, it is likely that this is influenced by differential availability of apprenticeships in the EMT sector across the country, especially as the same pattern was found for both male and female applicants. Full results of this analysis are shown in Table C of the Appendix.

Table 3 shows the proportion of successful EMT applicants in each region who are female. There is little difference between most regions; all but two are within less than one percentage point of each other. However, it is notable that the North East has a particularly large proportion of successful EMT applicants who are female and Yorkshire and The Humber has a particularly small proportion.

Table 3: Proportion of successful applicants to EMT identified as female by region

| Region | % of successful applications (N) |
|--------------------------|----------------------------------|
| North East | 9.9 (15) |
| West Midlands | 7.2 (22) |
| East of England | 7.1 (17) |
| London | 7.0 (7) |
| South East | 6.6 (21) |
| South West | 6.6 (16) |
| North West | 6.4 (14) |
| East Midlands | 6.3 (20) |
| Yorkshire and the Humber | 4.2 (8) |

Base: Successful applicants in the engineering and manufacturing technologies sector for whom location data is available, n=2,090

Table 4 shows the breakdown of successful female applicants to EMT and other sectors by whether applicants live in a rural or urban location, derived from postcode data. It shows a similar proportion of applicants to the EMT sector for both types of location, although the numbers are too small to test for significance.

Table 4: Rural/urban breakdown of successful female applicants by sector

| | % EMT (N) | % other sectors (N) |
|-------|-----------|---------------------|
| Rural | 2.3 (22) | 97.7 (921) |
| Urban | 1.6 (118) | 98.4 (7,135) |

Base: Successful female applicants for whom location data is available, n=8,196

Since data on ethnic background is only available for 17 successful female applicants to the EMT sector, it is not possible to analyse any differences related to this variable.

Although age at application is also only available for 17 successful female applicants in the EMT sector, it is possible to perform some simple analysis. The results show that median age at successful application for women in the EMT sector is approximately 18 years and two and a half months. This is very similar to the median age for women in other sectors and men in EMT, both also approximately 18 years and two and a half months.

4.2 Unsuccessful applications

Records in the unsuccessful application dataset were aggregated to create a dataset of 229,265 records, each containing all of the unsuccessful applications submitted by a particular individual during 2015 and early 2016. Candidates submitted a mean of 3.7 unsuccessful applications per person during this period, although some candidates submitted substantially more. In general, analysis was limited to the first 15 applications per person, covering over 95% of applications.

4.2.1 Matched with successful applications

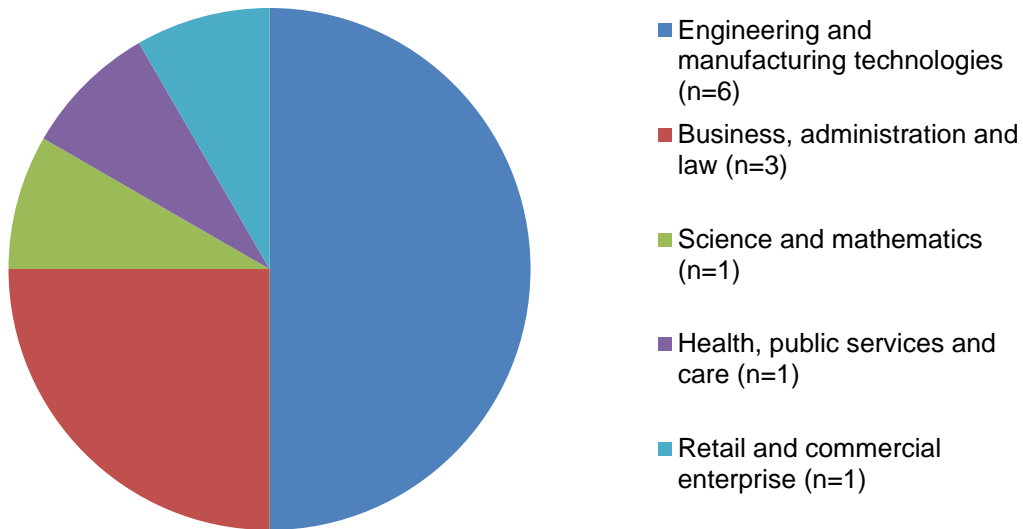
Matched records of an applicant's complete application process are available for 23 of the women who successfully applied to the EMT sector. These provide details of each of their unsuccessful applications (to any sector), along with their subsequent successful application to EMT. Although this number is too small for detailed analysis, this section briefly describes their application patterns.

In total, 12 applicants only submitted one unsuccessful application during 2015 and early 2016, prior to a subsequent successful application. Out of the other candidates, 1 submitted two applications, 1 submitted three, 3 submitted four, 2 submitted five, 1 submitted six, 1 submitted ten, 1 submitted twenty-five and 1 submitted thirty-nine.

Sectors

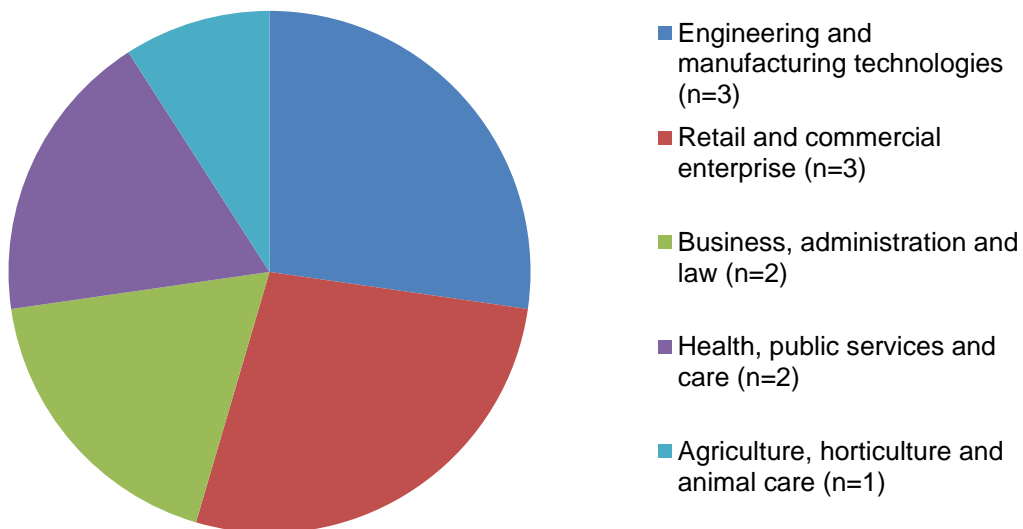
Out of the 12 applicants who submitted only one unsuccessful application prior to their successful application, half submitted their unsuccessful application to the EMT sector and half to other sectors: 'business, administration and law', 'science and mathematics', 'health, public services and care' or 'retail and commercial enterprise'. This is illustrated in Figure 5.

Figure 5: Sectors applied to by candidates who submitted only one unsuccessful application



Out of the 11 applicants who submitted more than one unsuccessful application prior to their successful application, only 3 submitted their first application to EMT, with the remaining 8 submitting their first application to other sectors – retail and commercial enterprise, business, administration and law, health, public services and care or agriculture, horticulture and animal care. This is illustrated in Figure 6.

Figure 6: Sectors applied to in first unsuccessful application by candidates who submitted multiple unsuccessful applications



Additionally, out of the 11 applicants who submitted multiple unsuccessful applications prior to their successful application, four had submitted no previous applications to the EMT sector; only three of the 11 had submitted the majority of their applications to it.

Table 5 shows the number of applicants who had submitted unsuccessful applications to each sector. Although EMT is the sector with the highest number of applicants, it is followed closely by 'retail and commercial enterprise' and 'business, administration and law'. Perhaps surprisingly, sectors closer to EMT such as 'science and mathematics', 'information and communication technology' and 'construction, planning and the built environment' are all poorly represented, with just two, one and one applicants respectively.

Table 5: Number of candidates who had submitted unsuccessful applications to each sector

| Sector | Number |
|--|--------|
| Engineering and manufacturing technologies | 11 |
| Retail and commercial enterprise | 10 |
| Business, administration and law | 8 |
| Health, public services and care | 4 |
| Science and mathematics | 2 |
| Agriculture, horticulture and animal care | 2 |
| Arts, media and publishing | 1 |
| Information and communication technology | 1 |
| Construction, planning and the built environment | 1 |

Base: all female applicants who were successful in the EMT sector for whom unsuccessful applications could be matched, n=23

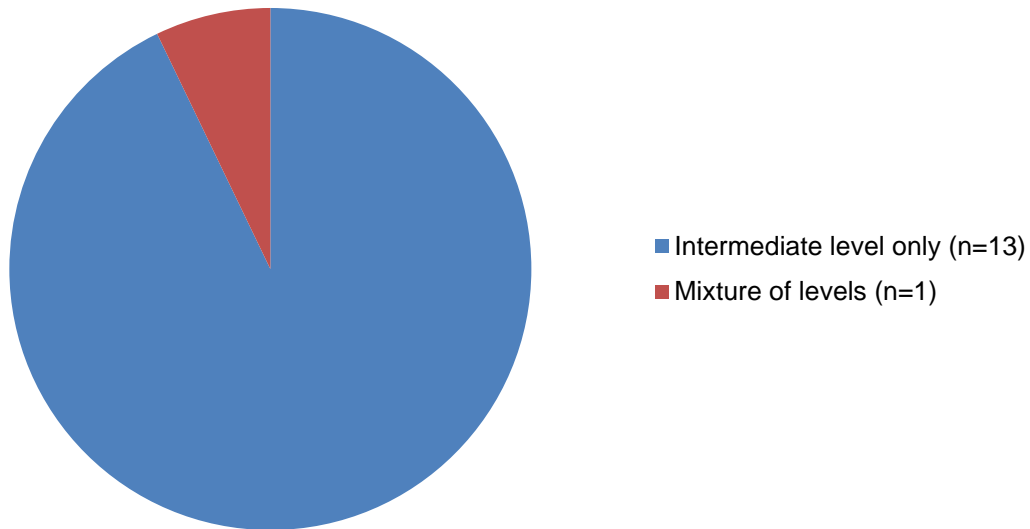
Although based on small numbers, when taken together these findings suggest that a high proportion of women who successfully apply to the EMT sector have also applied to a wide variety of different, and mostly unrelated, sectors.

Levels

Out of the 23 matched successful female applicants to EMT, 14 were successful in intermediate level apprenticeships and the remaining 9 in advanced level apprenticeships.

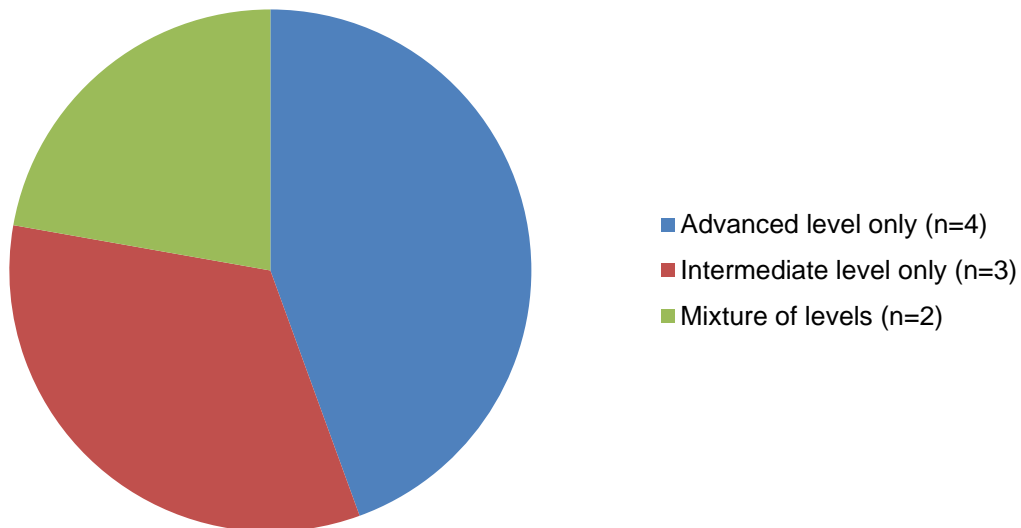
All but one of the 14 applicants who secured an intermediate level apprenticeship had only applied for apprenticeships at this level; the other had applied for apprenticeships at both intermediate and advanced levels. This is illustrated in Figure 7.

Figure 7: Levels applied to by candidates whose successful application is to an intermediate level apprenticeship



For the 9 applicants who secured an advanced level apprenticeship, the picture was different. Of these, only 4 had restricted their applications to this level. Three had previously only applied for intermediate level apprenticeships and 2 had applied for a mixture of both levels. This is illustrated in Figure 8.

Figure 8: Levels applied to by candidates whose successful application is to an advanced level apprenticeship



4.2.2 All unsuccessful applicants

In total, 3.7% of female applicants had submitted at least one application to an opportunity in the EMT sector; substantially lower than the equivalent figure of 34.6% for male applicants. Together, these women account for 8.7% of overall EMT applicants.

An analysis of application patterns for these applicants shows that 39.6% of female applicants to EMT had applied *only* to this sector, with 78.4% submitting only one unsuccessful application to it. By contrast, a much higher number of male applicants to EMT had applied *only* to this sector (55.8%), with a lower proportion (63.4%) submitting only one unsuccessful application. Additionally, only 4.7% of female applicants who had solely applied to EMT had submitted four or more unsuccessful applications, lower than the equivalent 7.0% of male applicants.

These figures show that, in addition to a substantially lower proportion of female applicants to the EMT sector, women are also substantially less likely than men to focus their applications solely on EMT.

Number of applications

Table 6 shows the difference in the number of applications submitted to EMT by women and men. It includes all individuals who had submitted at least one unsuccessful application to the sector, and shows the percentage who had submitted each number of applications to it, from one to 15. The table shows that, as well as fewer women submitting applications to EMT than men, they are also more likely to submit fewer applications per person to it. Approximately three quarters (75.4%) of female applicants submitted only one unsuccessful application to EMT, substantially higher than the corresponding figure of 57.1 for male applicants. In total, 94.2% of female applicants submitted three or fewer applications compared with 85.1% of men and 97.4% of female applicants submitted five or fewer applications compared with 93.3% of men. Female applicants submitted a mean of 1.53 applications to EMT per person; significantly¹¹ lower than the equivalent figure of 2.16 for male applicants.

¹¹ p<0.001

Table 6: Number of applications submitted to the EMT sector by gender

| Women | | | | | |
|------------------------|-----------------|------------------------|-----------------|------------------------|-----------------|
| Number of applications | % of candidates | Number of applications | % of candidates | Number of applications | % of candidates |
| 1 | 75.4 | 6 | 0.8 | 11 | 0.3 |
| 2 | 13.8 | 7 | 0.5 | 12 | 0.03 |
| 3 | 5.0 | 8 | 0.4 | 13 | 0.1 |
| 4 | 2.0 | 9 | 0.1 | 14 | 0.03 |
| 5 | 1.2 | 10 | 0.3 | 15 | 0.07 |
| Men | | | | | |
| Number of applications | % of candidates | Number of applications | % of candidates | Number of applications | % of candidates |
| 1 | 57.1 | 6 | 1.9 | 11 | 0.3 |
| 2 | 19.0 | 7 | 1.4 | 12 | 0.3 |
| 3 | 9.0 | 8 | 1.0 | 13 | 0.3 |
| 4 | 5.0 | 9 | 0.6 | 14 | 0.2 |
| 5 | 3.2 | 10 | 0.5 | 15 | 0.3 |

Base: All candidates with at least one unsuccessful application to EMT, n=47,699

Sector mix

Over half (56.8%) of women who applied to EMT submitted half or more of their applications to the sector. This is substantially lower than the 77.6% of men who did so.

Women who had applied to both EMT and other sectors are roughly evenly split between those who had applied in blocks to EMT and then blocks to other sectors and those who had applied interchangeably. Roughly two thirds (66.7%) of the women who had applied to both EMT and other sectors had applied to a different sector first before EMT, with only a third applying to EMT first.

Table 7 focuses on women who had submitted at least one unsuccessful application to the EMT sector, and shows the percentage of their applications which were submitted to each sector. The table shows that, although the largest single sector applied to by these candidates is EMT (32.8%), this is closely followed by 'business, administration and law' (30.7%). Sectors in similar fields to EMT, namely 'information and communication technology', 'construction, planning and the built environment', and 'science and mathematics', have much lower levels of applications, at 2.9%, 2.0% and 0.2% respectively. This demonstrates that women who had applied to the EMT sector also frequently applied to other, mostly unrelated, sectors.

Table 7: Percentage of applications to each sector for women who had submitted at least one unsuccessful application to the EMT sector

| Sector | % of applications |
|--|-------------------|
| Engineering and manufacturing technologies | 32.8 |
| Business, administration and law | 30.7 |
| Retail and commercial enterprise | 14.5 |
| Health, public services and care | 11.3 |
| Information and communication technology | 2.9 |
| Agriculture, horticulture and animal care | 2.4 |
| Construction, planning and the built environment | 2.0 |
| Arts, media and publishing | 1.5 |
| Education and training | 1.1 |
| Leisure, travel and tourism | 0.5 |
| Science and mathematics | 0.2 |

Base: women who had at least one application to the EMT sector, n=3,037

Matched records of the complete application process (including both unsuccessful and successful applications) are available for 54 of the female applicants who had submitted at least one unsuccessful application to the EMT sector. Eleven of these applicants were eventually successful in the EMT sector. However, the majority (43) were successful in different sectors (see Table 8). The most common sector was 'business, administration and law', which was the destination for 22 applicants. This was followed by 'retail and commercial enterprise' (8) and 'health, public services and care' (6). All but one of the applicants were eventually successful in sectors unrelated to EMT, with only one applicant successful in the related sector of 'construction, planning and the built environment'. There was no significant difference in application success rates between those whose first application was to the EMT sector, and those who first applied elsewhere.¹² Although based on a small sample size, these results suggest that a substantial number of women who apply to the EMT sector eventually start apprenticeships in unrelated sectors.

In order to further explore the issue of persistence, our analysis also sought to compare the subsequent applications of male and female applicants whose first unsuccessful application was to the EMT sector. Out of those who submitted an additional unsuccessful application, 56.6% (474) of women submitted at least one further application to the EMT sector; a significantly lower proportion than the equivalent figure for men of 81.5% (10501).¹³

¹² P=0.080

¹³ P<0.001

There was a small but significant correlation¹⁴ between gender and the proportion of further applications to the EMT sector (as opposed to other sectors), with female applicants associated with a lower proportion. For example, 68.1% (370) of women submitted at least half of their additional applications to the EMT sector compared with 77.7% (9063) of men; 58.9% (291) of women submitted at least three quarters of their additional applications to it compared with 67.5% (7324) of men; and 54.6% (259) of women submitted all of their applications to it compared with 62.0% (6513) of men. Full results are shown in Table D in the Appendix.

Table 8: Sector of successful application for women who were unsuccessful in their application(s) to the EMT sector

| Sector | Number of applicants |
|--|----------------------|
| Business, administration and law | 22 |
| Retail and commercial enterprise | 8 |
| Health, public services and care | 6 |
| Arts, media and publishing | 3 |
| Education and training | 2 |
| Agriculture, horticulture and animal care | 1 |
| Construction, planning and the built environment | 1 |

Base: women who had submitted at least one unsuccessful application to the EMT sector and whose records could be matched with the successful dataset, n=43

Level mix

Three fifths (60.5%) of female candidates who had submitted at least one application to the EMT sector submitted all of their applications to opportunities at the same level. The remaining two fifths (39.5%) of applicants submitted applications to a mixture of levels. Those submitting to a mixture of levels often favoured one level; in total, three fifths (59.1%) of the applicants who submitted four or more applications to a mixture of levels submitted a disproportionate number to one level.

In total, 14 female applicants to the EMT sector had submitted an application to a higher apprenticeship. Five of these individuals had also submitted an application to an intermediate apprenticeship. Although based on small numbers, this suggests that many female applicants to higher apprenticeships in the EMT sector also apply for apprenticeships at a much lower level.

Frameworks

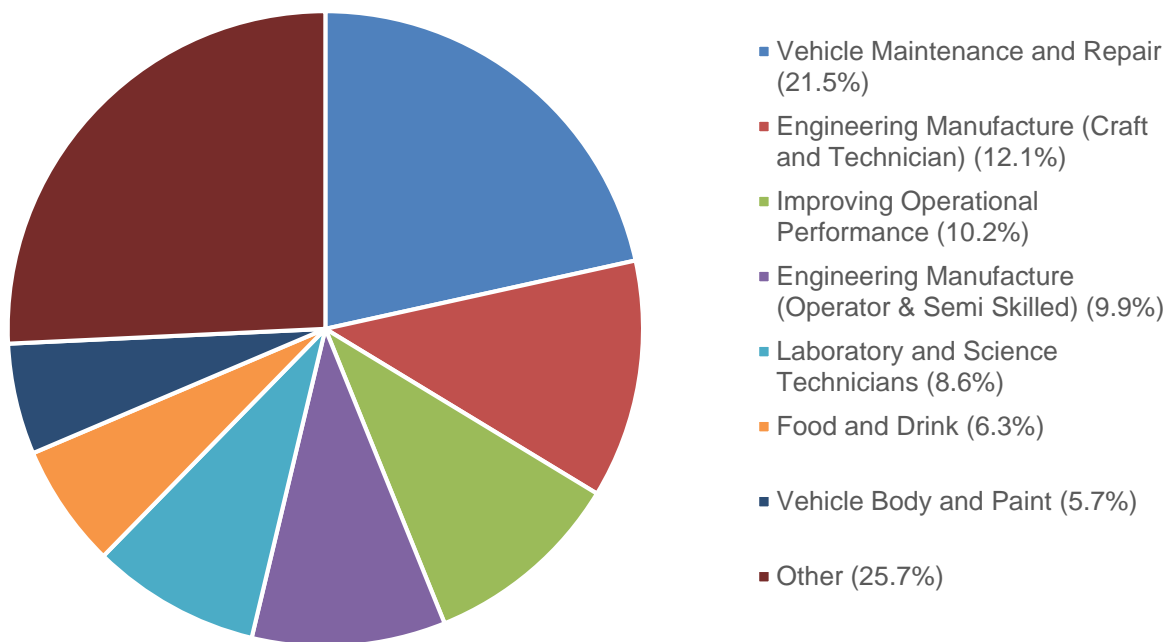
Figures 9 and 10 show the most common frameworks (those representing at least five percent of applications) applied for in unsuccessful applications to the EMT sector. The most common frameworks were similar for both men and women, although applications

¹⁴ R=-0.042, p<0.001

submitted by men tended to be more concentrated in fewer frameworks. For example, 'vehicle maintenance and repair' was the most common framework for both, and represented just over a fifth (21.5%) of applications submitted by women; significantly lower than the 30.5% of applications submitted by men.¹⁵ With the exception of 'vehicle body and paint',¹⁶ there was a significant difference in the proportion of applications from men and women submitted to each framework.¹⁷

A breakdown of framework by gender is provided in more detail in Table E and Table F in the Appendix.

Figure 9: Frameworks applied to in applications submitted by female candidates to the EMT sector

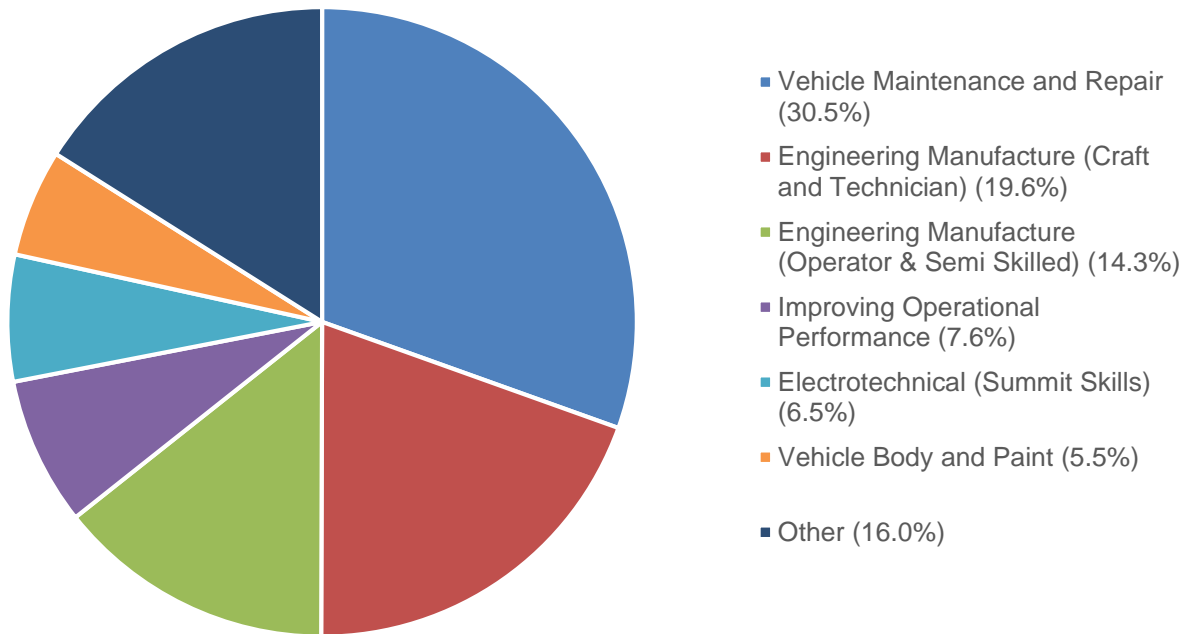


¹⁵ P<0.001

¹⁶ P=0.662

¹⁷ P<0.001 for each

Figure 10: Frameworks applied to in applications submitted by male candidates to the EMT sector



Demographics

Recognising the importance of cross-sectionality in understanding and tackling gender stereotypes, this section compares the wider demographics of women who had submitted at least one unsuccessful application to EMT with those who had not. Unsuccessful applications are used here as a proxy for all applications, in order to allow for a comparison of individuals who have applied to the EMT sector with those who have not.

In total, 4.1% of women who applied for EMT had a declared disability, compared with 3.7% of women who had not. Although there is a slight difference in these figures, it was not significant.¹⁸

For applicants where data on ethnic background is available, individuals from a White background are significantly more likely¹⁹ to have applied for an apprenticeship in the EMT sector than those from Black, Asian and Minority Ethnic (BAME) backgrounds, at 3.6% compared with 2.5%.

There is no significant difference²⁰ in median age at first application, with those who had applied to EMT, and those who had only applied to other sectors, both approximately 19 years and one month old.

¹⁸ P=0.205

¹⁹ P<0.001

²⁰ P=0.752

As was found for successful applicants (see above), there is a substantial and significant difference in the percentage of women in each region who had submitted an unsuccessful application to the EMT sector. The North East had the highest proportion of applicants at 5.1%. London had the lowest proportion, which at 2.2% is approximately two fifths that of the North-East proportion. A full breakdown is given in Table G in the Appendix.

However, as stated previously, these figures do not take into account disparities in the availability of apprenticeship opportunities in the EMT sector in different locations. Table 9 therefore shows the proportion of unsuccessful applicants who had applied to EMT in each region who are female. There is some variation between the regions, with the East Midlands showing the highest proportion of female applicants (9.8%) and Yorkshire and the Humber the lowest (7.8%). Although no significant difference²¹ was found, the relatively small sample size in comparison to the number of regions means that this does not preclude a difference.

Table 9: Percentage of EMT applicants by region who are female

| Region | % of applicants (N) |
|--------------------------|---------------------|
| East Midlands | 9.8 |
| West Midlands | 9.3 |
| South West | 8.8 |
| East of England | 8.8 |
| London | 8.5 |
| North West | 8.5 |
| South East | 8.2 |
| North East | 8.1 |
| Yorkshire and the Humber | 7.8 |

Base: all unsuccessful applicants to the EMT sector for whom location data is available, n=34,663

An analysis of individual counties shows a much more substantial difference, as illustrated in Table 10.²² The county with the highest proportion of women among their unsuccessful EMT applicants is Northamptonshire at 12.6%, followed by Bedfordshire and Cornwall at 11.4% each. This is much higher than the equivalent figures for the poorest performing counties, which were Hampshire (5.8%), Dorset (6.3%) and Merseyside (6.6%). The reason for this difference is unclear, especially as the number of EMT opportunities within each county have been taken into account. Analysis by rural/urban home location sheds

²¹ P=0.65

²² All ceremonial counties in England are included except for Isle of Wight, City of London and Rutland, which were excluded due to small sample sizes

no more light on the issue; with no significant difference found²³ and no clear pattern apparent. Full results are shown in Table H in the Appendix.

Table 10: Percentage of EMT applicants by county who are female

| County | % of applicants | County | % of applicants |
|--------------------|-----------------|--------------------------|-----------------|
| Northamptonshire | 12.6 | Somerset | 8.8 |
| Bedfordshire | 11.4 | County Durham | 8.6 |
| Cornwall | 11.4 | Greater London | 8.5 |
| Cumbria | 10.9 | Cambridgeshire | 8.4 |
| Derbyshire | 10.6 | Northumberland | 8.3 |
| Shropshire | 10.6 | Hertfordshire | 8.1 |
| Berkshire | 10.1 | Nottinghamshire | 8.1 |
| Devon | 9.9 | Leicestershire | 8.1 |
| Kent | 9.8 | Wiltshire | 7.8 |
| Cheshire | 9.7 | Lancashire | 7.8 |
| North Yorkshire | 9.6 | West Sussex | 7.8 |
| Buckinghamshire | 9.6 | Tyne and Wear | 7.7 |
| Lincolnshire | 9.5 | East Riding of Yorkshire | 7.6 |
| West Midlands | 9.5 | Worcestershire | 7.4 |
| Greater Manchester | 9.4 | Oxfordshire | 7.4 |
| Essex | 9.3 | Norfolk | 7.4 |
| Herefordshire | 9.2 | South Yorkshire | 7.2 |
| Warwickshire | 9.1 | Bristol | 7.0 |
| Gloucestershire | 9.1 | West Yorkshire | 6.8 |
| Suffolk | 9.0 | Merseyside | 6.6 |
| East Sussex | 9.0 | Dorset | 6.3 |
| Surrey | 9.0 | Hampshire | 5.8 |
| Staffordshire | 8.9 | | |

Base: all unsuccessful applicants to the EMT sector for whom location data is available, n=34,663

Response time

Table 11 shows the mean response time from submission of application to receipt of unsuccessful notification. On average, the EMT sector had one of the longest response times, significantly longer than the overall average.²⁴

²³ P=0.541

²⁴ P<0.001

Table 11: Mean unsuccessful notification time by sector

| Sector | Mean response time (days) |
|--|---------------------------|
| Leisure, travel and tourism | 52.3 |
| Construction, planning and the built environment | 49.8 |
| Engineering and manufacturing technologies | 46.5 |
| Science and mathematics | 45.3 |
| Arts, media and publishing | 45.0 |
| Health, public services and care | 40.4 |
| Retail and commercial enterprise | 40.1 |
| Agriculture, horticulture and animal care | 38.4 |
| Education and training | 36.0 |
| Business, administration and law | 34.6 |
| Information and communication technology | 29.8 |
| Overall | 38.5 |

Base: all unsuccessful applications, n=845,134

4.3 Success rates

Given the limitations of the datasets, a strict success rate cannot be calculated. Nevertheless, a comparison of the successful and unsuccessful application datasets allows an approximate success rate to be calculated for different applicant groups and variables, as described in the methodology. Although this rate is not reliable enough to give an accurate value for the actual success rates of specific groups, it can be considered sufficient both to give an approximate figure and to allow for a reliable comparison of success rates between different groups and variables.

Sector

Table 12 compares the success rate of male and female applications across different sectors. The analysis shows that for some sectors, such as 'business, administration and law', there is a large difference between men and women's success rates. By contrast other sectors, such as 'education and training', have very similar success rates for male and female applicants. Interestingly, EMT is one of the sectors for which there is no significant difference in success rates between men and women.

Table 12: Success rate of applications by sector and gender

| Sector | Female application success rate (%) | Male application success rate (%) | Significance (p value) |
|--|-------------------------------------|-----------------------------------|-------------------------------|
| Science and mathematics | 6.7 | 5.0 | Sample too small to calculate |
| Leisure, travel and tourism | 4.5 | 3.8 | Not significant (p=0.269) |
| Education and training | 4.3 | 4.5 | Not significant (p=0.614) |
| Business, administration and law | 3.3 | 1.9 | Significant (p<0.001) |
| Arts, media and publishing | 3.2 | 2.3 | Significant (p=0.007) |
| Agriculture, horticulture and animal care | 2.7 | 5.2 | Significant (p<0.001) |
| Engineering and manufacturing technologies | 2.6 | 2.5 | Not significant (p=0.492) |
| Health, public services and care | 2.6 | 2.2 | Significant (p=0.028) |
| Retail and commercial enterprise | 2.0 | 2.5 | Significant (p<0.001) |
| Construction, planning and the built environment | 1.4 | 1.7 | Sample too small to calculate |
| Information and communication technology | 1.0 | 1.4 | Significant (p=0.020) |

Base: all applications for which gender data is available, n=344,079

Levels

Table 13 compares the success rates of applications to the EMT sector by level. Only intermediate and advanced levels are included due to very low numbers of applications to higher levels. As can be seen, there is no significant difference between the success rate of male and female applicants at either level. Although there is some difference in women's success rate between intermediate and advanced levels, it too is not significant.²⁵

²⁵ P=0.122

Table 13: Success rate for applications to the EMT sector by level and gender

| Level | Female application success rate (%) | Male application success rate (%) | Significance (p value) |
|--------------|-------------------------------------|-----------------------------------|---------------------------|
| Intermediate | 2.39 | 2.5 | Not significant (p=0.778) |
| Advanced | 3.1 | 2.4 | Not significant (p=0.084) |

Base: all applications in the EMT sector at intermediate and advanced levels, n=84,482

Frameworks

Table 14 compares the success rates of applications to the EMT sector by gender and framework (including only frameworks with a minimum of 200 male and female applicants). The results show a large difference in women's success rate for different frameworks. For example, the success rate for 'vehicle and body paint' (1.0%) is less than a fifth of that for 'print and printed packaging' (5.6%). However, there is less of a difference in success rates between males and females for each framework, with the difference only significant for the improving operational performance framework. This suggests a greater difference in success rates between frameworks than between men and women.

Table 14: Success rate for applications to the EMT sector by framework and gender

| Frameworks | Female application success rate (%) | Male application success rate (%) | Significance (p value) |
|---|-------------------------------------|-----------------------------------|---------------------------|
| Print and printed packaging (Proskills) | 5.6 | 6.5 | Not significant (p=0.626) |
| Laboratory and science technicians | 4.9 | 6.8 | Not significant (p=0.171) |
| Food and drink | 4.4 | 4.6 | Not significant (p=0.836) |
| Engineering manufacture (craft and technician) | 3.1 | 2.8 | Not significant (p=0.728) |
| Engineering manufacture (operator and semi-skilled) | 2.8 | 3.2 | Not significant (p=0.662) |
| Improving operational performance | 2.0 | 3.7 | Significant (p=0.040) |
| Vehicle parts | 2.0 | 2.0 | Not significant (p=0.967) |
| Vehicle maintenance and Repair | 1.4 | 1.4 | Not significant (p=0.901) |
| Vehicle body and paint | 1.0 | 1.8 | Not significant (p=0.315) |

Base: all applicants in the EMT sector in frameworks with at least 200 male and female applications, n=71,146

Regions

Table 15 shows the regional success rates for applications to the EMT sector by gender. For both genders, there is a significant difference in success rate across the regions.²⁶ However, for all but one region there is no significant difference in the success rate of males and females. The exception is the North East, where the success rate for female applications is over double that for male (3.5% and 1.6% respectively).

Table 15: Success rate for applications to the EMT sector by region and gender

| Region | Female applications (%) | Male applications (%) | Significance (p value) |
|--------------------------|-------------------------|-----------------------|---------------------------|
| South West | 3.9 | 3.8 | Not significant (p=0.917) |
| South East | 3.8 | 3.9 | Not significant (p=0.954) |
| East of England | 3.6 | 3.5 | Not significant (p=0.939) |
| North East | 3.5 | 1.6 | Significant (p=0.004) |
| East Midlands | 2.9 | 3.4 | Not significant (p=0.496) |
| West Midlands | 2.1 | 2.0 | Not significant (p=0.777) |
| North West | 2.0 | 1.8 | Not significant (p=0.728) |
| Yorkshire and the Humber | 1.8 | 2.2 | Not significant (p=0.490) |
| London | 1.3 | 1.2 | Not significant (p=0.872) |

Base: all applicants in the EMT sector for whom location and gender data is available, n=84,783

Rural or urban location

Table 16 shows the success rates for applications to the EMT sector by gender and rural or urban location type. There is no significant difference between the success rate of male and female applications for either location type. In addition, no significant difference was found²⁷ in women's success rate between the two locations types, although men from rural locations have significantly higher²⁸ success rates than men from urban locations.

Table 16: Success rate for applications to the EMT sector by location type and gender

| Location Type | Female applications (%) | Male applications (%) | Significance (p value) |
|---------------|-------------------------|-----------------------|---------------------------|
| Rural | 3.3 | 3.0 | Not significant (p=0.636) |
| Urban | 2.5 | 2.4 | Not significant (p=0.558) |

Base: all applicants in the EMT sector for whom gender and location data is available, n=84,183

Ethnic background

Table 17 shows the success rates for applications to the EMT sector by gender and ethnic background. Data on ethnic background is only available for a small proportion (18.7%) of

²⁶ P=0.035 for women and p<0.001 for men

²⁷ p=0.262

²⁸ p=0.001

applications; therefore, care should be taken in the interpretation of the results. It is also important to be aware that individuals who gave their ethnicity may not be representative of the population as a whole.

Among candidates from a BAME background, female applications have significantly higher success rate than male applications, at 2.0% compared with 0.5%. Applications submitted by male candidates from a BAME background performed particularly poorly, with a significantly lower success rate than applications submitted by male candidates from a White background.²⁹

Among candidates from a White background, there is no significant difference between male and female applications. Also, no significant difference was found between the success rate of female applications submitted by candidates from a White or BAME background.³⁰

Table 17: Success rate for applications to the EMT sector by ethnic background and gender

| Ethnic Background | Female applications (%) | Male applications (%) | Significance (p value) |
|-------------------|-------------------------|-----------------------|---------------------------|
| White | 1.5 | 1.5 | Not significant (p=0.984) |
| BAME | 2.0 | 0.5 | Significant (p=0.019) |

Base: all applicants in the EMT sector for whom gender and ethnicity data is available, n=20,199

Age at application

There is a small but significant³¹ correlation between application success and a candidate's age at application for female applicants to the EMT sector. The correlation coefficient is -0.033, which indicates a small decrease in success rate as the age at application increases. Similar results were found for applications submitted by male applicants to the EMT sector,³² and for applications submitted by female applicants to other sectors.³³

Reason for lack of success

Table 18 summarises the most common reasons given for an application's lack of success. As the table shows, there is a significant difference between the proportions of male and female applicants for several of the reasons. There is a particularly large difference for 'you met the employer's/provider's requirements but have been unsuccessful', with men significantly more likely to have received this reason than women (29.8% and 25.4% respectively). Men were also more likely to have been told that the apprenticeship was withdrawn (25.8% compared to 24.0%), whereas women were more likely to be not eligible for the apprenticeship (3.9% compared with 2.3%) and for the training provider to be unable to contact them (5.0% compared with 2.7%).

²⁹ P<0.001

³⁰ P=0.617

³¹ p=-0.033

³² r=-0.019, p<0.001

³³ r=-0.028, p<0.001

Table 18: Reason for lack of success of applications to the EMT sector by gender

| Reason | Female applications (%) | Male applications (%) | Significance (p value) |
|---|-------------------------|-----------------------|---------------------------|
| You haven't met the requirements | 27.8 | 27.3 | Not significant (p=0.488) |
| You met the employer's/provider's requirements but have been unsuccessful | 25.4 | 29.8 | Significant (p<0.001) |
| The apprenticeship has been withdrawn | 24.0 | 25.8 | Significant (p=0.004) |
| The training provider couldn't contact you | 5.0 | 2.7 | Significant (p<0.001) |
| You're not eligible for an apprenticeship | 3.9 | 2.3 | Significant (p<0.001) |
| You didn't attend the interview | 2.6 | 2.3 | Not significant (p=0.119) |
| Other | 11.0 | 10.5 | Not significant (p=0.233) |

Base: all unsuccessful applications to the EMT sector, n=113,702

A full breakdown of the reason for lack of success of female applicants by sector is provided in Table I in the Appendix. In comparison to other sectors combined, female applications to EMT were significantly more likely to have not met the apprenticeship requirements.³⁴ They were also significantly less likely to have met requirements but to still have been unsuccessful,³⁵ to have had the apprenticeship withdrawn³⁶ and to not have attended the interview.³⁷ Although no significant difference was found between these two groups in the proportion of candidates who could not be contacted, there was a substantial variation between individual sectors, from a low of 1.9% in 'agriculture, horticulture and animal care' to a high of 6.3% in 'retail and commercial enterprise'. In addition, female applications as a whole were significantly more likely to have been uncontactable,³⁸ at 4.9% compared with 4.0%.

A breakdown of the reason for lack of success by age group is provided in Table I in the Appendix. In total, five out of the eight reasons were significantly correlated with age at application. However, for four of these, the correlation coefficient was small, indicating a weak association. These were: 'you haven't met the requirements',³⁹ 'you met the employer's/provider's requirements but have been unsuccessful',⁴⁰ 'the apprenticeship has been withdrawn',⁴¹ and 'you didn't attend the

³⁴ P<0.001

³⁵ P<0.001

³⁶ P=0.040

³⁷ P<0.001

³⁸ P<0.001

³⁹ R=0.052, p<0.001

⁴⁰ R=-0.033, p=0.018

⁴¹ R=-0.097, p<0.001

interview'.⁴² The fifth reason for lack of success, 'you're not eligible for an apprenticeship' had a higher correlation coefficient, indicating a stronger (but still small) association with age.⁴³

⁴² R=-0.038, p=0.007

⁴³ R=0.229, p<0.001

5. Conclusions

Our analysis of the *Find an Apprenticeship* application data has highlighted a number of key findings that have served to develop our understanding of the under-representation of women in EMT apprenticeships.

Given the existing gender imbalance within the sector, it is unsurprising to find that **women are much less likely than men to apply for apprenticeship opportunities in the EMT sector**, whether successfully or unsuccessfully. In particular, only 3.7% of female applicants submitted an application to the EMT sector in 2015 and early 2016, and they represent only 6.7% of successful applicants to it.

It is reassuring, however, that when applications are submitted, **there is little difference in the success rates for male and female applications to the EMT sector**; one of the few sectors with no significant difference between the two. This remained the case for most demographic groups, with the exception of applications submitted by candidates from a BAME background, where female applications had a significantly higher success rate than male applications.

There is **also little difference in success rates for men and women within most EMT frameworks**, with the sole exception of 'improving operational performance'. A similar proportion of male and female applicants to EMT applied to each apprenticeship level, with no difference in success rates found between them for intermediate or advanced opportunities. The success rate of female applicants to EMT did vary by framework and location; however, this pattern was also apparent for male applicants. Age was also a small factor, with the success rate of female applications to the EMT sector slightly decreasing as age increased.

Interestingly, the results indicate that **women who apply to the sector tend to focus less on it than men**; instead they are more likely to have applied to a wide range of different sectors. Alternative sectors are frequently unrelated to EMT; for example, the next most common sectors for female applicants to EMT are 'business, administration and law' and 'retail and commercial enterprise'.

Furthermore, **women are less likely than men to be persistent in applying for apprenticeships within the sector**; only around 25% of women who unsuccessfully applied for an EMT apprenticeship subsequently made further applications to the sector, compared with 43% of men. On average, female applicants submitted 1.53 EMT applications per person, significantly lower than the equivalent figure of 2.16 for male applicants.

Within all of this, it is important to remember that **women are not a homogenous group**, and that the differences between particular groups of women, can be as important as those between men and women. In this analysis, the only demographics found to be associated with a woman's likelihood to apply to the EMT sector are ethnicity and location. **Women from a BAME background are significantly less likely to apply to the sector than those from a White background**. This corresponds with the under-representation of women from a BAME background in the labour market, who in 2015 had an employment rate of 55.0 percent compared with a rate of

71.2% for women from a White background.⁴⁴ However, it contrasts with the over-representation of female learners from a BAME background in further education and skills provision. In 2013/2014, they made up 19.9% of learners compared with 14.5% of the population.⁴⁵

Geography also has a key role to play, with different regions having large differences in the number of women who have applied to the EMT sector; both in terms of absolute numbers and as a percentage of total applicants. In particular, **the percentage of EMT applicants who are women varies substantially between counties**; the best performing county had over double the percentage than that of the poorest performing.

5.1 Recommendations

4. Our analysis of the quantitative data has identified a number of expected *and* unanticipated findings. We recommend that these are now tested with potential applicants, apprentices and employers within the EMT sector in order to further develop our understanding and fully assess their implications. This testing could be undertaken through a series of interviews, focus groups or workshops with individual and employer representatives.
5. More women have applied to an EMT apprenticeship than previously thought. While applications from women are just as likely to be successful than men, they submit far fewer applications within the sector – giving themselves less chance of success. In addition to ongoing efforts to encourage more women to apply in the first instance, we recommend that interventions to encourage greater persistence be explored and piloted.
6. The *Find an Apprenticeship* dataset provides useful information about apprenticeship applicants and the opportunities that they apply for. However, the format of the data as provided does not allow for certain analyses to be conducted, and limits the sample size for other analyses. As a consequence, our ability to undertake detailed end-to-end analysis of the apprenticeship journey has been curtailed. We recommended that government should address this by providing data in two complementary datasets, both with a unique identification number to enable them to be linked:
 - A dataset of individual records, each containing data on each application (both successful and unsuccessful) submitted by each candidate, alongside demographic data.
 - A dataset of each successful and unsuccessful application submitted through the system, including personal and demographic data of the applicant.

Importantly, the datasets should also contain linking variables with the ILR dataset to ensure that applications can be matched with data on apprenticeship starts and achievements.

⁴⁴ ONS, 2017. Annual Population Survey: Dec 2016 data: 16-64 employment rate. Accessed at <https://www.nomisweb.co.uk/>

⁴⁵ FE data library: equality and diversity, 2016. Equality and diversity tables: 2008 to 2009 and 2014 to 2015 & Equality and diversity annex tables: 2008 to 2009 and 2013 to 2014. Available at: <https://www.gov.uk/government/statistical-data-sets/fe-data-library-equality-and-diversity>

6. Appendix

Table A: Successful applicants by gender and sector

| Sector | % of applicants who are female (N) | % of applicants who are male (N) | Significance (p value) |
|--|------------------------------------|----------------------------------|-------------------------------------|
| Health, public services and care | 89.6 (1,956) | 10.4 (227) | Significant difference (p<0.001) |
| Education and training | 72.7 (330) | 27.3 (124) | Significant difference (p<0.001) |
| Business, administration and law | 66.1 (4,324) | 33.9 (2,217) | Significant difference (p<0.001) |
| Science and mathematics | 52.4 (11) | 47.6 (10) | No significant difference (p=0.992) |
| Arts, media and publishing | 48.7 (128) | 51.3 (135) | No significant difference (p=0.210) |
| Retail and commercial enterprise | 46.2 (957) | 53.8 (1,115) | Significant difference (p<0.001) |
| Leisure, travel and tourism | 32.7 (66) | 67.3 (136) | Significant difference (p<0.001) |
| Agriculture, horticulture and animal care | 29.3 (152) | 70.7 (366) | Significant difference (p<0.001) |
| Information and communication technology | 9.7 (68) | 90.3 (634) | Significant difference (p<0.001) |
| Engineering and manufacturing technologies | 6.7 (140) | 93.3 (1,956) | Significant difference (p<0.001) |
| Construction, planning and the built environment | 3.8 (18) | 96.2 (451) | Significant difference (p<0.001) |
| Total | 52.5 (8,150) | 47.5 (7,371) | |

Base: successful applicants for whom gender data is available, n=15,521

Table B: Proportion of successful and unsuccessful female applicants who applied to each sector

| Sector | % of successful female applicants (N) | % of unsuccessful female applicants (N) |
|--|---------------------------------------|---|
| Business, administration and law | 53.1 (4,324) | 50.5 (41,054) |
| Health, public services and care | 24.0 (1,956) | 37.1 (30,178) |
| Retail and commercial enterprise | 11.7 (957) | 26.8 (21,742) |
| Education and training | 4.0 (330) | 6.0 (4,894) |
| Agriculture, horticulture and animal care | 1.9 (152) | 4.8 (3,911) |
| Engineering and manufacturing technologies | 1.7 (140) | 3.7 (3,037) |
| Arts, media and publishing | 1.6 (128) | 3.3 (2,653) |
| Information and communication technology | 0.8 (68) | 4.1 (3,344) |
| Leisure, travel and tourism | 0.8 (66) | 1.2 (1,007) |
| Construction, planning and the built environment | 0.2 (18) | 1.1 (858) |
| Science and mathematics | 0.1 (11) | 0.2 (126) |

Base: all identified successful and unsuccessful female applicants, n=89,394

Table C: Proportion of successful applicants to the EMT sector by region and gender

| Region | % of successful female applicants (N) | % of successful male applicants (N) |
|--------------------------|---------------------------------------|-------------------------------------|
| North East | 2.6 (15) | 28.1 (137) |
| East Midlands | 2.0 (20) | 35.1 (298) |
| East of England | 1.9 (17) | 24.9 (224) |
| South East | 1.9 (21) | 27.6 (299) |
| West Midlands | 1.8 (22) | 27.3 (282) |
| North West | 1.6 (14) | 23.8 (206) |
| South West | 1.5 (16) | 26.6 (228) |
| London | 1.0 (7) | 16.3 (93) |
| Yorkshire and the Humber | 1.0 (8) | 23.9 (183) |

Base: Successful applicants in the EMT sector for whom gender data is available, n=2,090

Table D: Percent of further applications submitted to the EMT sector after initial unsuccessful application

| Women | | Men | |
|-------------------------|----------------------|-------------------------|----------------------|
| Percent of Applications | Cumulative Frequency | Percent of Applications | Cumulative Frequency |
| 100 | 54.6% (259) | 100 | 62.0% (6513) |
| 87.5 | 55.1% (264) | 87.5 | 63.1% (6673) |
| 75 | 58.9% (291) | 75 | 67.5% (7324) |
| 62.5 | 66.2% (315) | 62.5 | 72.5% (7920) |
| 50 | 68.1% (370) | 50 | 77.7% (9063) |
| 37.5 | 79.1% (377) | 37.5 | 88.8% (9355) |
| 25 | 88.2% (428) | 25 | 94.0% (10048) |
| 12.5 | 97.3% (465) | 12.5 | 98.7% (10395) |
| Under 12.5 | 100% (474) | Under 12.5 | 100% (10501) |

Base: Unsuccessful applicants who submitted their first unsuccessful application to the EMT sector and submitted at least one further application to it, n=10975

Table E: Most common frameworks of unsuccessful female applications to the EMT sector

| Framework | % of female applications (N) |
|---|------------------------------|
| Vehicle maintenance and repair | 21.5 (1124) |
| Engineering manufacture (craft and technician) | 12.1 (633) |
| Improving operational performance | 10.2 (532) |
| Engineering manufacture (operator & semi skilled) | 9.9 (514) |
| Laboratory and science technicians | 8.6 (448) |
| Food and drink | 6.3 (328) |
| Vehicle body and paint | 5.7 (295) |
| Vehicle parts | 4.8 (249) |
| Print and printed packaging (proskills) | 4.5 (234) |
| Jewellery, silversmithing and allied trades | 3.1 (162) |
| Electrotechnical (summit skills) | 2.6 (134) |
| Fashion and textiles: technical | 2.0 (103) |
| Signmaking (cogent) | 1.4 (74) |
| Process manufacturing | 1.1 (57) |
| Furniture, furnishing and interiors | 1.0 (51) |

Base: Unsuccessful female applications to the EMT sector where the framework represents at least 1% of total female applications, n=4938

Table F: Most common frameworks of unsuccessful male applications to the EMT sector

| Framework | % of male applications (N) |
|---|----------------------------|
| Vehicle maintenance and repair | 30.5 (23606) |
| Engineering manufacture (craft and technician) | 19.6 (15166) |
| Engineering manufacture (operator & semi skilled) | 14.3 (11069) |
| Improving operational performance | 7.6 (5898) |
| Electrotechnical (summit skills) | 6.5 (5036) |
| Vehicle body and paint | 5.5 (4270) |
| Vehicle parts | 3.3 (2540) |
| Food and drink | 1.2 (965) |
| Process manufacturing | 1.1 (864) |
| Driving goods vehicles (skills for logistics) | 1.0 (813) |
| Laboratory and science technicians | 1.0 (771) |

Base: Unsuccessful male applications to the EMT sector where the framework represents at least 1% of total female applications, n=70,998

Table G: Percentage of female unsuccessful EMT applicants by region

| Region | % of applicants (N) | Region | % of applicants (N) |
|---------------|---------------------|--------------------------|---------------------|
| North East | 5.1 | East of England | 3.5 |
| East Midlands | 4.6 | Yorkshire and the Humber | 3.4 |
| West Midlands | 4.4 | South East | 3.3 |
| South West | 4.1 | London | 2.2 |
| North West | 3.8 | | |

Base: Female applicants who had unsuccessfully applied to EMT and for whom location data is available, n=3,006

Table H: Percentage of EMT applicants who are female by location type

| Region | % of applicants (N) |
|-------------------------------------|---------------------|
| Rural hamlet and isolated dwellings | 10.7 |
| Rural village | 9.7 |
| Urban city and town | 8.7 |
| Urban major conurbation | 8.6 |
| Rural town and fringe | 8.6 |
| Urban minor conurbation | 8.1 |

Base: all unsuccessful applicants to the EMT sector for whom location data is available, n=34,663

Table I: Reason for lack of success of female applications by sector

| | You haven't met the requirements (N) | You met the employer's / provider's requirements but have been unsuccessful (N) | The apprenticeship has been withdrawn (N) | Other (N) | The training provider couldn't contact you (N) | You're not eligible for an apprenticeship (N) | You didn't attend the interview | Offered the position but turned it down (N) |
|--|--------------------------------------|---|---|----------------|--|---|---------------------------------|---|
| Engineering and manufacturing technologies | 27.8% (1,449) | 25.5% (1,327) | 24.1% (1,253) | 11.0% (574) | 5.0% (259) | 3.9% (201) | 2.6% (136) | 0.2% (8) |
| Agriculture, horticulture and animal care | 28.0% (1,542) | 34.0% (1,872) | 15.5% (853) | 12.3% (676) | 1.9% (106) | 4.9% (269) | 3.2% (179) | 0.2% (11) |
| Arts, media and publishing | 18.3% (718) | 39.7% (1,555) | 19.1% (748) | 7.3% (285) | 3.6% (142) | 10.2% (399) | 1.7% (68) | 0.1% (3) |
| Business, administration and law | 15.6% (20,021) | 35.5% (45,464) | 24.6% (31,466) | 11.3% (14,462) | 4.8% (6,186) | 3.6% (4,628) | 4.3% (5,526) | 0.2% (224) |
| Construction, planning and the built environment | 17.6% (223) | 36.5% (463) | 31.3% (398) | 6.3% (80) | 2.0% (25) | 2.9% (37) | 3.4% (43) | 0.1% (1) |
| Education and training | 17.2% (1,253) | 34.2% (2,500) | 17.1% (1,246) | 16.8% (1,229) | 2.8% (203) | 8.2% (601) | 3.7% (269) | 0.1% (5) |
| Health, public services and care | 19.1% (14,228) | 31.7% (23,541) | 27.7% (20,565) | 9.4% (6,987) | 4.6% (3,392) | 3.3% (2,477) | 4.1% (3,066) | 0.1% (111) |
| Information and communication technology | 19.3% (1,281) | 33.2% (2,199) | 18.5% (1,228) | 19.0% (1,262) | 2.7% (179) | 5.1% (338) | 2.0% (135) | 0.1% (6) |
| Leisure, travel and tourism | 19.6% (273) | 33.1% (461) | 24.3% (338) | 10.1% (140) | 6.0% (83) | 3.4% (47) | 3.2% (44) | 0.4% (6) |
| Retail and commercial enterprise | 14.1% (6,761) | 35.3% (16,961) | 27.2% (13,041) | 9.5% (4,545) | 6.3% (3,024) | 2.2% (1,037) | 5.3% (2,530) | 0.2% (86) |
| Science and mathematics | 19.3% (29) | 28.0% (42) | 20.7% (31) | 16.7% (25) | 2.0% (3) | 10.7% (16) | 2.7% (4) | 0.0% (0) |
| Total | 17.0% (47,778) | 34.2% (96,385) | 25.3% (71,167) | 10.7% (30,265) | 4.8% (13,602) | 3.6% (10,050) | 4.3% (12,000) | 0.2% (461) |

Base: All unsuccessful female applications, n=281,708

Table J: Reason for lack of success by age group for female applications to the EMT sector

| | 16-17 (N) | 18-20 (N) | 21-24 (N) | 25-29 (N) | 30-34 (N) | 35+ (N) |
|---|----------------|----------------|----------------|----------------|---------------|---------------|
| You haven't met the requirements | 26.3% (378) | 25.6% (521) | 32.0% (331) | 32.1% (125) | 28.4% (31) | 33.9% (41) |
| You met the employer's/provider's requirements but have been unsuccessful | 26.8% (385) | 26.2% (532) | 23.3% (241) | 23.8% (93) | 22.0% (24) | 21.5% (26) |
| The apprenticeship has been withdrawn | 27.2% (392) | 26.2% (533) | 22.9% (237) | 9.5% (37) | 13.8% (15) | 15.7% (19) |
| Other | 11.3% (163) | 11.1% (225) | 10.2% (105) | 11.3% (44) | 11.9% (13) | 11.6% (14) |
| The training provider couldn't contact you | 5.0% (72) | 6.2% (126) | 4.5% (46) | 2.3% (9) | 2.8% (3) | 2.5% (3) |
| You didn't attend the interview | 2.8% (41) | 3.2% (66) | 2.4% (25) | 0.5% (2) | 0.9% (1) | 0.8% (1) |
| You're not eligible for an apprenticeship | 0.4% (6) | 1.2% (25) | 4.5% (47) | 20.5% (80) | 20.2% (22) | 14.0% (17) |
| Offered the position but turned it down | 0.1% (2) | 0.2% (4) | 0.1% (1) | 0.0% (0) | 0.0% (0) | 0.0% (0) |
| Total | 100% (1439) | 100% (2032) | 100% (1033) | 100% (390) | 100% (109) | 100% (121) |

Base: Unsuccessful female applicants to the EMT sector for whom age data is available and who are aged between 16 and 65, n=5,124