Moving Gender Diversity Forward

A report for the UK Department for Transport

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Background

Gender diversity in the workplace has been proven to improve performance and effectiveness of teams. A study done by Badal (2014) concluded that gender-diverse teams perform better than single-gender teams because men and women have different viewpoints, ideas, and market insights, which enables better problem solving.[1] There is additional research which highlights the positive impacts gender diversity can have on financial performance, client relationships and innovation (Exhibit 1). The Department for Transport in the UK has recognized the findings of this research and has committed to becoming the leader on inclusion in the Civil Service and in transport. The Permanent Secretary, Philip Rutnam, was quoted saying "It's the right thing to do and it's vital for our business. To keep Britain moving it is essential to attract people from all walks of life and to make the most of everyone's talents."[2] The Department has made progress in addressing its levels of inclusion across all areas of diversity and is now focused on increasing gender diversity in male-dominated roles.

The Department for Transport is a ministerial department in the UK that plans, invests in, and manages the transport infrastructure across the country. The Department and its agencies employ 18,500 staff in locations around the country. The DfT has a Civil Service centre in London (DfTC) focused on policy making and three Executive Agencies: The Driver and Vehicle Licensing Agency (DVLA), the Maritime and Coastguard Agency (MCA) and the Vehicle Certification Agency (VCA). The data provided by the DfT on current employment levels indicate that the VCA and the MCA have significantly lower levels of women compared to the Department level and national averages (Exhibit 2). These two agencies have levels of approximately 27-29% women compared with the DfTc at 39% and the UK labor market in 2016 at 47%.[3]

This paper will focus on how behavioral insights can improve the levels of women in the workforce at the DfT, specifically within the MCA and the VCA. We focused on two roles that are heavily male-dominated and require engineering backgrounds. There are currently two women out of a total of 20 VCA Vehicle Type Approval Engineers and two women out of a total of 99 MCA Marine Surveyors- Grade 1. Below, we discuss the current recruitment process and possibilities for bias, potential interventions, research we have conducted on these interventions and we propose an empirical study to gain further insights. For the benefit of the DfT, we have also included additional recommendations based on our research findings.

Why is gender diversity important?

From both a business perspective and from a moral perspective, business leaders and academics have made a strong case for why gender diversity matters. As a business imperative, gender diversity can lead to better performance, better problem solving, and better team decision-making. Additionally, greater gender diversity can also spur new innovations and increase a company's customer base. A 2015 McKinsey report looked at 366 public companies and found that those in

the top quartile for gender diversity were 15% more likely to have financial returns above the industry mean.[4] A study from Spain, published in *Innovation: Management, Policy & Practice*, used statistical models to analyze the levels of gender diversity in research and development teams (R&D) and found that companies with more women were more likely to introduce new innovations into the market over a two-year period.[5] And when it comes to better team decision-making and problem solving, a study of mock jury panels found that when compared to homogenous panels, diverse panels produced more correct facts and recalled fewer errors in deliberations. [6]

In her book, "*What Works- Gender Equality by Design*," behavioral economist Iris Bohnet, a visiting professor at Harvard Business School, co-chair of Harvard's Behavioral Insights Group, and director of the Women and Public Policy Program at Harvard Kennedy School, delves into the moral imperative to promote a fair and equitable work environment citing the persistent inequality women face in both the Western world and globally. In a UK Government Equalities Office 2013 paper, the authors note "the recognition and valuing of difference in society is an essential part of the process of its eradication and the overcoming of ignorance."[7]

Recruitment process

The recruitment process for both the VCA Vehicle Type Approval Engineer role and the MCA Marine Surveyor- Grade 1 role consists of three parts: pool, attraction, and selection. The DfT is acting as a choice architect as it designs the various parts of this process and decides how to search and select employees. Therefore, the DfT should be able to use behavioral insights to influence their design. The first part of the process is the pool. This is where you attract candidates from and determine which skills and requirements are needed. The pool for these two specific roles poses a challenge due to the overall lack in gender diversity in engineers in the UK. In 2016, there were 2.3 million people in engineering roles in the UK and just 6.7% of them were female. Additionally, while 67% of men with engineering degrees go on to engineering occupations, only about 50% of women with the same degree do so. The encouraging information is that there was a 26.7% increase from 2013-2014 in the number of women enrolling in higher education engineering courses.[8] The DfT has limited control over the pool given the technical nature of the two roles but does have room to increase female applicants.

The second part of the recruitment process is Attraction which is how the job is advertised, where it is posted and what language is used. In the most recent recruitment campaigns for these two roles, females were only 2% of the total applicants (Exhibit 3). This is significantly lower than the 6.7% females in engineering roles in the UK. As such, the DfT has room to improve on attraction.

The final part of the process is Selection. This part includes how candidates are interviewed, evaluated, and decided upon. Based on our conversations with the MCA and VCA, many of the current processes are designed to increase fair evaluation of all candidates given the agencies' constraints. Specific examples of such processes include multi-member, diverse evaluation panels, and standardized interviews. These robust processes are suitable for addressing potential gender bias, but the DfT also has room for improvement which is discussed later in the paper.

Unconscious bias and the potential points of failure in the recruitment process

Pioneered by Nobel prize winner Daniel Kahneman and Amos Tversky in "Thinking, Fast and Slow," and by University of Chicago economist Richard H. Thaler and Harvard Law School

Professor Cass R. Sunstein in "Nudge: Improving Decisions about Health, Wealth, and Happiness," unconscious bias and cognitive blind spots are defined as the unconscious errors of reasoning that can influence an individual's judgment of the world[9]. Unconscious gender bias can influence the hiring process. While all individuals have biases, it is very difficult to remove unconscious bias from an individual hiring manger. However, it is possible to design bias-free hiring procedures and processes through informed choice architecture.

Choice architecture is defined as the conditions or design under which people make choices[10]. The recruitment process can be a useful way of assessing a candidate's skills and abilities. However, if the method and process has not been carefully considered, bias and discrimination could affect the results of the hiring process.[11] By de-biasing and building behavioral insights into the choice architecture of a recruitment process it is possible to attract and hire more women to traditionally male roles.

From how roles are advertised to how candidate interviews are conducted, there are several points of failure in the process where the following biases could hold sway:

- **Representative bias**: The representative bias is a decision-making shortcut that employs the use of past experiences to guide the decision-making process[12]. Because the employees from MCA and VCA involved in the decision-making process are used to hiring more males than females, they will probably have an unconscious tendency to believe male candidates are a better fit for the role.
- **Framing:** How you word a job advert or interview questions are examples of how choices can be worded in a way that highlights the positive or negative aspects of the same decision, leading to changes in their relative attractiveness.
- **Status Quo Bias:** The status-quo bias is an emotional bias, a preference for the current state of affairs. The current baseline (or status quo) is taken as a reference point, and any change from that baseline is perceived as a loss[13]. Again, this would mean that, because the two roles at MCA and VCA have been male-dominated, employees involved in the recruitment process will unconsciously perceive hiring a female candidate as a loss.
- **Social Norms/ Confirmation Bias**: The statement "Women don't like getting dirty" that we overheard at MCA to explain why there was not many women is an example of social norms and confirmation bias which can both occur from the direct influence of desire on beliefs. When people would like a certain idea/concept to be true, they end up believing it to be true. This error leads the individual to stop gathering information when the evidence gathered so far confirms the prejudices one would like to be true[14].

Because biases are present across the recruitment process (pool, attraction, and selection), it will be important to de-bias the hiring process.

Interventions – focus on attraction

We believe that the DfT could have the biggest impact on gender diversification by focusing on the attraction step of the recruiting process for two reasons. First, the DfT is limited in its ability to influence the pool demographics, but their reach allows them to have a more significant impact on the attraction step to increase total applicants from the pre-existing pool. Indeed, a lot of external organizations are already focusing on increasing the number of women in the pool of candidates the DfT is recruiting from. Those organizations are having a significant impact on the gender

diversity of the potential candidates. As previously mentioned, there was a 26.7% increase from 2013 to 2014 in the number of females enrolling in higher education engineering courses in the UK[4]. Additionally, we believe that the DfT's impact on the selection step would be minimal since they already have a robust interview process. We only suggest minor tweaks to the selection process (detailed in the additional interventions section of this paper). Furthermore, during the last recruitment campaign only 2% of the candidates who applied were female suggesting there is significant room to improve the attraction step given that females represented 6.7% of the individuals in engineering occupations in the UK in 2016[3]. Second, based on the interviews that we conducted with VCA and MCA engineers, we concluded that the DfT would greatly benefit from reviewing its attraction process. Both VCA and MCA employees told us that they didn't know exactly what the VCA and MCA did before applying. Moreover, they told us that more of their female colleagues would have probably applied if they had known how diverse and flexible the jobs were.

Based on a literature review, we prioritized five possible low-cost interventions that the DfT could test and implement.

1. Re-wording job advertisement

Gaucher, Friesen, and Kay (2011)[15] found that the wording of job posting for male-dominated roles included predominantly masculine words (Exhibit 4) and that females found job advertisement with masculine wording less appealing. The DfT should review the wording of its job advertisement and remove any masculine words. There are a few tools available online to help organizations remove gendered wordings like the Gender Decoder based on the research by Gaucher, Friesen, and Kay and Textio.

From the engineers' comments and a research done by Goldin (2014)[16] highlighting that women have historically worked in occupations that allow for more flexibility, the job advertisement should also highlight flexibility and opportunities for flexible work practices at the DfT. Anything related to "competitive" compensation should also be removed from the job advertisements. Indeed, Flory, Leibbrandt, and List (2015)[17] have found that women prefer job adverts with less competitive compensation schemes i.e. compensation schemes that are less dependent on job performance. Similarly, the job advertisement should also emphasize teamwork.

Based on our conversations with women at VCA and MCA, we believe the DfT should highlight the following characteristics of the jobs that are attractive to females: variety (working on different cars and different vessels), flexibility, team work, training, client-facing, emphasis on safety, steady work, watch & learn, structured graduate program, opportunity for flexible travel.

2. Showing the number of people who have started the application process

A research by Gee (2014)[18] leveraging the job posting website LinkedIn found that seeing the true number of people who previously started an application increased the likelihood that a person will start/finish an application by 2-5%. It also found that, in addition to increasing the likelihood of application, it increased the percentage of women in the applicant pool. Based on those findings, we suggest that the DfT indicates the number of people who have already started the application process on the Civil Service Jobs website.

3. Creating role models by putting together profiles of successful women in these roles

Lockwood (2006)[19] found that women who read a newspaper article about a successful woman in their field were rating themselves higher than women who read about a successful man in their field. However, there was no significant effect on men. As such, the DfT should put together profiles of successful women at MCA and VCA to bolster the confidence of female applicants.

4. Show visual images of women on the website

Building on findings from Lockwood (2006)[20], we believe that the DfT could increase the number of female applicants by showing visual images of women on their website. This was recently done successfully by Transport for London to attract more diverse candidates (Exhibit 5).

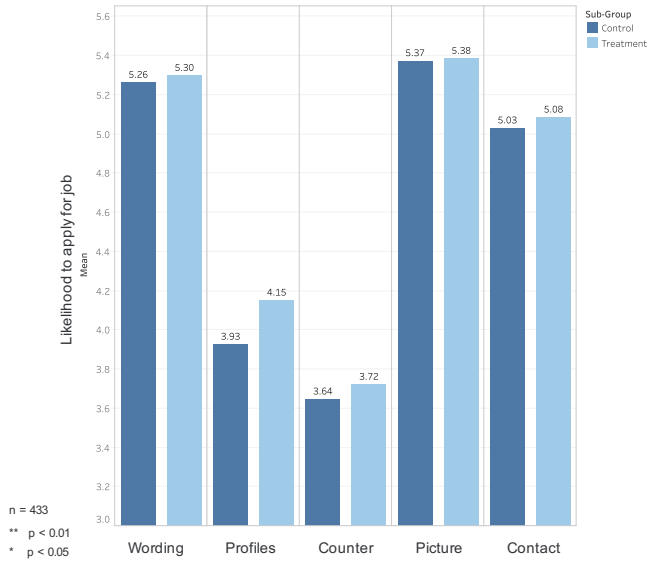
5. Make the contact person a woman in the job advertisement

The Australian Human Rights Commission published in 2013 a toolkit of strategies to attract more women in male-dominated industries[21]. Based on their research, they suggest making the contact person on the job advertisement a woman instead of a man. Allowing female applicants to ask questions to a woman in the agency will likely have a similar impact as putting together profiles of successful women.

To further explore these interventions, we ran our own research with Amazon's Mechanical Turk platform. We sent two surveys (one control and one treatment) (Exhibit 6) to test the five potential interventions for the attraction step of the recruiting process. We asked the respondents to rate how likely they were to apply for a job given the information available on a Likert scale ranging from 1 (least likely) to 7 (most likely). In addition, we asked the respondents to comment on why they chose a specific rating. The survey also included attention-check questions to ensure engaged participation. The survey was sent to a diverse group of 433 American respondents (Exhibit 7 details the survey demographics) who were paid for completing the information. We had roughly 200 in each control and treatment, evenly split among gender.

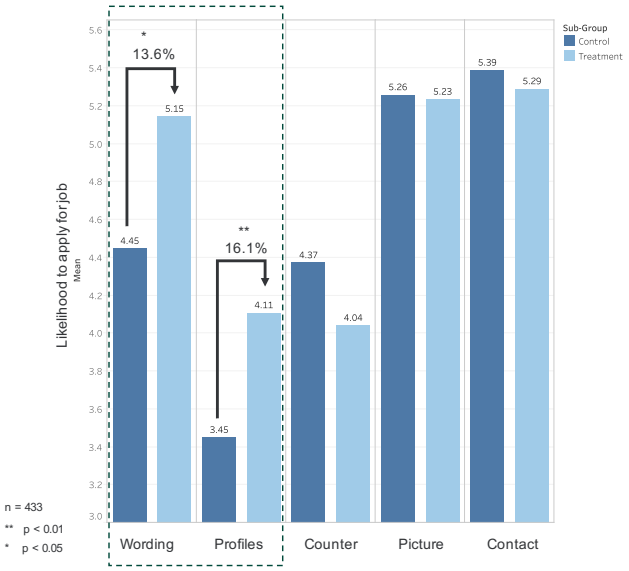
Our results show that the treatments had no significant effect on males (Figure 1).

Figure 1 Survey results for male respondents



However, two of the treatments (the re-wording of the job advertisement and the profiles of successful women) had a statistically significant impact on the likelihood of females to apply for the job (Figure 2). The results show that the re-wording or the job advertisement increases the likelihood of women to apply for the job by 13.6% (p=0.01) and that including profiles of successful women increases the likelihood of women to apply for the job by 16.1% (p=0.006). The other treatments had no significant effect. Those findings are interesting because they show that re-wording the job advertisements and putting together profiles of successful women will increase the number of female applicants, but have no impact on the number of male applicants. Since the survey respondents don't necessarily represent the applicant pool the DfT is recruiting from, those results must be validated by further testing. An empirical approach to test and measure the impact of these two interventions will be detailed in the next section.

Figure 2 Survey results for female respondents



In addition to the quantitative results, the qualitative part of the survey (Exhibit 8) also showed that the re-wording of the job advertisement and the profiles of successful women can have a significant impact on the perception of the job. For example, as female respondents in the control group felt that the 4 weeks overseas travel was a strong deterrent, most female respondents in the treatment group, which had more flexible language about travel, felt that the travel didn't seem to be too much.

Empirical approach to test and measure the impact of the interventions

Empirical study is an important component of the behavioral insights approach. Understanding the impacts of the potential interventions in the attraction phase of the recruitment process will be important for several reasons:

- Ensure that the interventions employed by the DfT will impact the specific population they want to target (women and men applying to the specific roles of interest)
- Identify the level of impact possible through these interventions to help diagnose the need for further interventions in the pool and selection processes of recruitment

- Identify different versions of these behavioral interventions (i.e., different wording) that would be most effective in driving a more equitable applicant pool

As such, the specific interventions we suggest in the attraction phase of the DfT recruitment process should be rigorously tested using something similar to an A/B testing approach; in the classic literature, this is called a randomized control trial. At a high-level, the goal is to show some people the job advertisement with the interventions and show other people the status quo job advertisement to see if there is a measurable difference in the number of women applying to these roles.

We chose specific interventions for further testing and implementation because of the favourable results that were shown in our research and through the academic documentation. While additional interventions may be effective, it will be difficult to test even more interventions due to the small sample size of people generally applying to the role of interest in MCA and VCA. The specific interventions for this empirical study are:

1) Re-wording the job description
2) Including female profiles in the job advertisement

<u>Testing conditions</u>

There will be four different treatments in the empirical study that we propose: control, re-wording only, female profiles only, and both re-wording and female profiles together.

Control treatment

The first treatment is the control treatment. This is the job advertisement as it currently stands without any changes (Exhibit 9). This will form the baseline for our assessment.

Re-wording

The next condition is a job advertisement with re-worded description of the roles. We have provided a detailed example of how to work with the Automotive Engineer role within the VCA (Exhibit 10).

- We have removed all masculine words: leading and confidently.
- We have inserted the term "flexibility" into the description, where accurate and appropriate, as this is shown as a term that promotes women to apply.
- We have also emphasized the aspect of the inspections group working as a "team".
- We have changed the stringent requirement of 5 years of experience to a more accurate representation of the background that is required for the role.
- We have changed the travel requirement to reflect the existing flexibility to planning those trips as part of the broader role.

We recommend that the DfT use these interventions. But, we want to ensure that the DfT reviews this carefully to match the role and make any other changes that they think will follow the academic research regarding re-wording job advertisements (cited previously in this document) while accurately reflecting the job.

Female profiles

The third test treatment will be including a job profile of a successful woman in the role alongside the job description. We envision this working on the Civil Service Jobs website as a button on the

job description page (Exhibit 10). This button will show a picture of a woman in the role and be titled a variation on "Meet me" and include a quote from the woman about her experience at the VCA. Finally, the button should be clickable and lead to a short video featuring the female Automotive Engineer speaking about her experiences in the role.

Re-wording and female profiles together
The fourth treatment group will include both the interventions mentioned in treatment two and treatment three (i.e., both re-wording the description and including the profile of a successful woman in the role). An example of what this could look like is shown in Exhibit 10.

As we are testing two different interventions, it is important to test them separately and together. In the real world, there may be unforeseen interaction effects regarding the interventions and the DfT needs to settle on the current intervention or sets of interventions that will be most effective.

Sample
A challenge in running an empirical study in the attraction portion of the recruitment process is that it is difficult to control for the sample of individuals that approach the job recruitment process. However, the process of randomization means that we can assume that if we randomly assign treatments, any other factors with the individuals will be equally spread across the groups. So, we propose that the sample be **all the individuals who arrive at the Civil Service Jobs website to learn more about or apply for these roles in the MCA and VCA during the next recruitment campaign**. It is important to note that this sample includes both men and women. That is because the primary objective is regarding women, but we also want to see the impact on men to make sure we are not hurting their recruitment prospects.

Metrics
The key metric of interest across the testing groups will be **the number of women who apply for the role** under the different treatments. Ideally, we would be able to make this a percentage of the overall women who viewed the specific job advertisement. However, it is likely technologically infeasible to know the gender of those who are viewing the job advertisement if they do not apply. To maximize the effectiveness of this metric, we need to ensure that equal number of individuals see each of the different treatments (25% of the sample will be assigned to each treatment). While we will be unable to ensure that equal numbers of females (and males) see each treatment, with large samples, we can assume that randomization will lead to fairly equal splits.

A secondary metric of interest will be the number of men who apply for the role under the different treatments on the job advertisement. Our research tells us that these changes should not impact male application rates. So, the DfT should use this opportunity to validate this proposition.

Methodology
As mentioned above, the methodology for this study is to randomly show a different treatment of the job advertisement to each person who arrives to this specific page of the Civil Service Jobs website (25% of the people should be re-directed to each of the four treatments). From discussions with the DRG team, the best way to do so, while following regulation, will be to post the job four times on the website, each with a different treatment under the empirical study. In addition, each job posting must have an attachment that is identical regarding the details of the job. Finally, we

propose that the website add the functionality such that each of the treatments could randomly be shown first on the list when a search is done for the job. Therefore, we can reach a more equitable split across treatments; else, we might run into the issue that most visitors see just one of the treatments.

The technology team has said that adding functionality to gather information on whether a viewer is male of female is likely infeasible i.e. we will only know the gender of the applicants once they have applied. However, if that changes, we recommend the DfT should use this functionality to calculate the percentage of the females who decide to apply after viewing the job advertisement. In addition, an important functionality to add, if possible, is to track cookies on each visitor to ensure that if they visit again, they see the same job advertisement that they viewed previously; else, we may face bleeding of results across treatments.

Finally, the tracking should be done on the back end of the recruitment campaign to see how many women and men applied according to which treatment of the job advertisement they viewed on the Civil Service Jobs website.

Now, we understand there are challenges to carrying out this empirical study, a few which we've seen already:

- Respondents seeing more than one treatment: This could be mitigated by using cookies to track users and taking them back to the initial treatment that they see.
- Unequal samples across treatments: The best way to address this is by randomizing the order in which the four identical job results will show up on the search page.
- Small sample size: There are limited number of individuals who apply for these roles (from the standpoint of large empirical studies). Therefore, it can be more difficult to have sufficient numbers to draw meaningful results. Power calculations should be made to ensure the sample size is big enough to draw statistically significant conclusions.
- Testing different variations: the DfT may want to test different variations on the wording or the profiles. Or, they may want to test other interventions. In one study, it will be difficult to test too much because it will divide a small sample size into even smaller treatment groups.

Given the challenges that exist, the DfT must work to best find feasible mitigation strategies to run a full empirical study. However, there are also additional actions that can be taken. For one, the DfT could work to triangulate results on the impact of these interventions by running more specific surveys like the Mechanical Turk survey that we conducted that was detailed earlier in this paper. For this effort, we recommend that the DfT work with the Behavioural Insights Team and their emerging survey tool called Predictiv. In addition, additional academic research, perhaps more specific to the subset of women of interest to the DfT (e.g., women engineers), can further corroborate results in ambiguous empirical environments.

Additional interventions

Though the interventions discussed above should be prioritized, we are including additional recommendations that could also have a sizeable impact based on our research findings. These potential solutions address the behavioral points of failure we identified throughout the different stages of the recruitment process: pool, attraction, and selection. Potential interventions in

attraction were discussed in detail in the section above, so, in this section, we focus on pool and selection.

Pool

A Hewlett Packard internal report which has since been quoted at multiple places including Harvard Business Review and Forbes found that men apply for a job even if they meet only 60% of the job requirements, but women apply only if they meet 100% of them[22]. Based on this insight, we suggest reviewing the job requirements to broaden the skills/experience required and establish leadership capabilities focusing on what is genuinely needed. For example, the MCA currently has some alternative qualifications that they accept, so it would be beneficial to make them clearer so that women with those alternative qualifications feel like they are part of the pool. For VCA, the DfT could increase transparency of the recruiting process upfront (e.g., timeline, security requirements). De-biasing the requirements wording by using broader language could be another great way of attracting more female applicants. To eradicate discipline bias, the DfT should focus on the required capabilities rather than specific experience in an industry. For example, if the experience required is 2 to 5 years, the job advertisement should ask for 2 to 5 years of experience and not 5 years; or, instead of asking for a specific degree the advertisement could ask for a background in mechanical engineering. We suggest that both VCA and MCA continue to experiment with how the necessary competencies are presented in the job requirements.

Another intervention to improve the gender balance in the pool could be to consider recruiting from different sources, including women-oriented publications, women re-entering the industry, and women from overseas. MCA could hire more ship surveyors (relative to other sources) because the proportion of women in the pool of candidates is higher. The DfT could also create engagement activities to broaden the pool of potential applicants (e.g., schools, communities, apprenticeship program for young women). MCA could have a presence on campuses during school fairs and offer internships to leverage the recent increase in female students in engineering disciplines. An additional engagement strategy would be to create women champions for women applicants. We heard that many applicants have applied and come in through knowing someone on the team already; as the team is predominantly male, their contacts might also tend to be male. Connections to the team could be helpful in navigating the process, and women without such connections may be disadvantaged. So, to ensure a more even opportunity, creating women champions who female applicants can reach out to could help provide more equal opportunity.

Improving the branding of MCA and VCA by increasing transparency about the role and highlighting why it is a great position for women could be very impactful as well. For example, the MCA communications team could focus more on surveying compared to the common misperception that MCA is only the Coast Guard. VCA could provide more insight into the role and the agency publicly. Currently, the website is written for customers but a page specifically design for potential applicants who may not be familiar with what VCA does could be especially effective.

Selection

Numerous experiments in France, the Netherlands, and Germany anonymized resumes for certain firms and found that they led to more balanced interview pools. From a German example, migrants were more likely to receive an interview with anonymized resume screens (compared to 14% less

likely in the control group). Thus, removing demographic information from job applications could have a great impact.[23]

In a study by Bohnet, van Geen, and Bazerman, subjects were given an opportunity to evaluate a candidate for a gender-stereotyped task either singularly or along with another candidate; while there was a gender bias when evaluating singularly, the gender gap completely vanished when candidates were evaluated comparatively.[24] Thus, when possible, the DfT should evaluate candidates comparatively and hire in batches. At MCA, interviewers could take notes on each individual interviewee, but then only make final hiring decisions once all interviews are finished. At VCA, we suggest that they try to do this at least for the graduate hiring program.

According to research, the groupthink bias can be overcome by providing more structure to the interview process.[25] While the MCA already uses a fairly diverse panel, VCA could include an HR representative in the panel interview and ensure gender diversity on the panel to avoid groupthink and mitigate other biases in the selection process.

Furthermore, consistent and standardized formats for interviews can ensure fair evaluations[26]. In the MCA context, there is a presentation portion and an interview; MCA could start with the presentation and end with the interview to not let "likeability" of the person influence the presentation results. This will reinforce the structure present in the standardized interview guide.

Researchers are split on the validity of unconscious bias training, but many agree that they may be helpful to a point. The focus should be on building capacity and giving people concrete tools, with the understanding that it's not a "box to check". An intervention could be to train interviewers regarding unconscious biases and their impact in the hiring process by building capabilities and sharing concrete tools[27]. Situational Attribution Training could be used to eliminate bias by having individuals look at situational and stereotypical answers and choose the situational one prior to having to make decisions[28].

Conclusion

Aiming for greater gender equality in male-dominated roles in the DfT is an important component of the DfT's continuing diversity initiatives. Gender diversity clearly aligns closely with the values of the DfT, but also has been proven to generate better performance. While achieving greater gender diversity involves many aspects of the job, this work has focused on the hiring process. The hiring process can be broken down into three components – pool, attraction, and selection – each of which can be impacted by biases (e.g., unconscious bias, status quo bias, framing) that hurt the potential for gender equality.

Due to the highest potential for impact, VCA and MCA should first focus on the attraction portion of the recruitment process. In particular, the attraction portion can be influenced by changing the job advertisement. Our proprietary research has shown that rewording the job advertisement and adding profiles of women in the job may be the most effective interventions. It is critically important for the DfT to test these findings in an empirical manner to confirm them. All effective interventions should then be implemented to the fullest. After addressing the attraction portion of the funnel, MCA and VCA should also consider ways of mitigating biases in the other portions of the recruiting process; these should also be tested wherever possible.

Finally, while this work has focused on specific, engineering-focused roles at the MCA and VCA, the findings can be adapted and applied to many other roles throughout the DfT. We encourage other agencies and groups to consider the research and take an empirical approach to applying these behavioral insights as they best fit in each context. Together, we can move gender diversity forward at the DfT.

Exhibit 1 – Gender Diversity Research Overview

Better performance	A 2015 McKinsey report on 366 public companies found that those in the top quartile for ethnic and racial diversity in management were 35% more likely to have **financial returns above their industry mean**, and those in the top quartile for gender diversity were 15% more likely to have returns above the industry mean.
Better problem solving	Research suggests that gender-diverse teams perform better than single-gender teams because men and women have different viewpoints, ideas, and market insights, which enables **better problem solving.** (Gallup, 2014)
Increased customer base	A gender-diverse workforce allows the company to serve an **increasingly diverse customer base.** (Gallup, 2014)
Better team decision making	When compared to homogeneous panels, diverse panels produce **more facts and fewer errors**. (Sommers, 2006)
New innovations	In a study looking at 4,277 companies in Spain, researchers using statistical models, found that companies with more women were more likely to introduce **radical new innovations** into the market over a two-year period. (Diaz-Garcia, Gonzalez-Moreno, Saez-Martinez, 2014)

Exhibit 2 – Male and Female Percentages in the DfT workforce

Department for Transport Labour 2016	Male (%)	Female (%)
Department for Transport (excl. agencies)	61.3	38.7
Driver and Vehicle Licensing Agency	39.0	61.0
Driver and Vehicle Standards Agency	71.1	28.9
Maritime and Coastguard Agency	66.1	33.9
Office of Rail and Road[12]	61.4	38.6
Vehicle Certification Agency	73.2	26.8

Source: Civil Service Statistics Dataset

Exhibit 3 – Recruitment Statistics from Most Recent Campaign

			Totals	Gender					
				Male		Female		Prefer not to say	
TOTAL			328	318	97%	6	2%	4	1%
	MCA		240	235	98%	3	1%	2	1%
		MCA Marine Surveyor Grade 1 Engineer	102	101	99%	0	0%	1	1%
		MCA Marine Surveyor Grade 1 Naval Architect	47	44	94%	3	6%	0	0%
		MCA Marine Surveyor Grade 1 Nautical	91	90	99%	0	0%	1	1%
	VCA		88	83	94%	3	3%	2	2%
		VCA Graduate Engineer	60	56	93%	3	5%	1	2%
		VCA Type Approval Engineer	28	27	96%	0	0%	1	4%

**Report Generated: 26th August 2016*

Exhibit 4 – List of gendered words

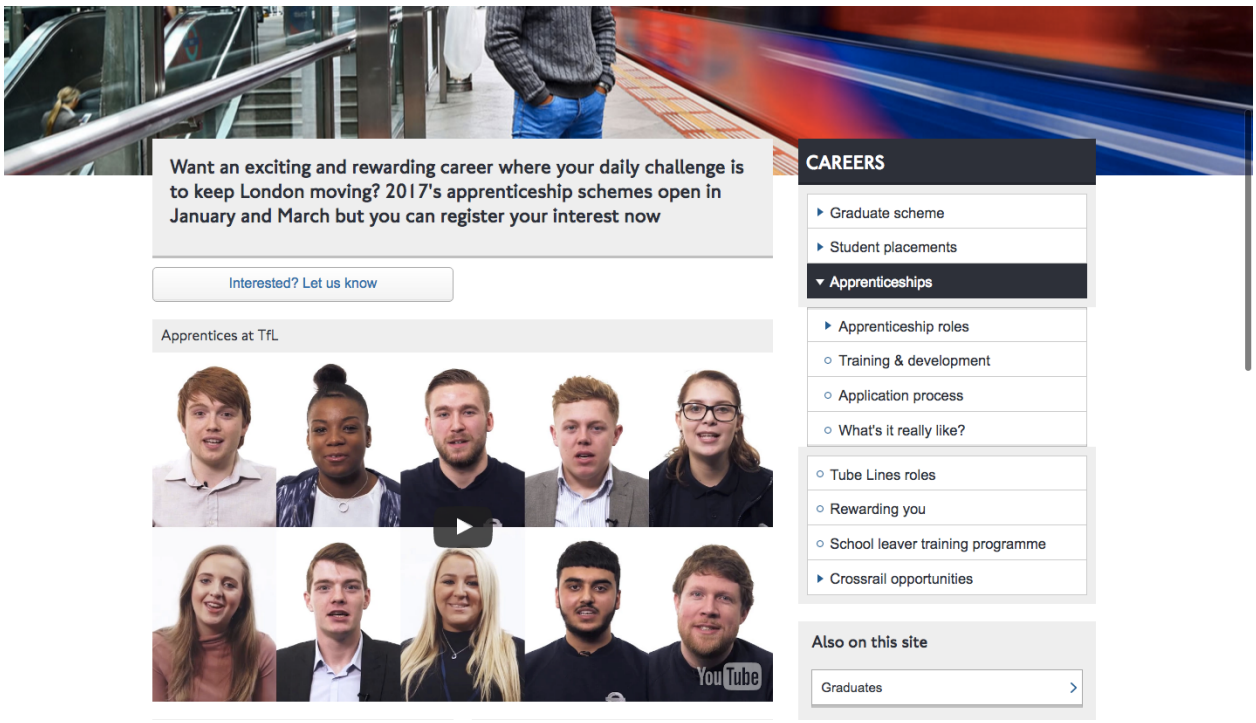
Masculine words	
Active	Headstrong
Adventurous	Hierarch*
Aggress*	Hostil*
Ambitio*	Impulsive
Analy*	Independen*
Assert*	Individual*
Athlet*	Intellect*
Autonom*	Lead*
Boast*	Logic
Challeng*	Masculine
Compet*	Objective
Confident	Opinion
Courag*	Outspoken
Decide	Persist
Decisive	Principle*
Decision*	Reckless
Determin*	Stubborn
Dominant	Superior
Domina*	Self-confiden*
Force*	Self-sufficien*
Greedy	Self-relian*

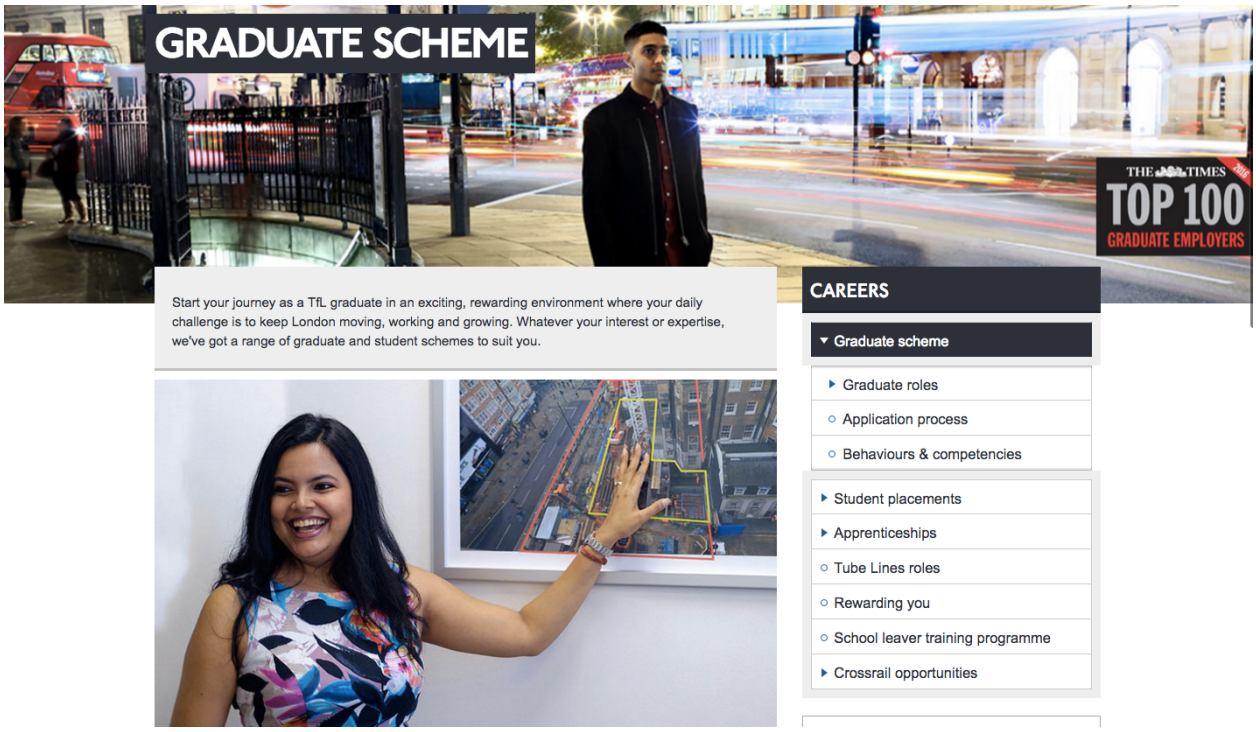
Feminine words	
Affectionate	Loyal*
Child*	Modesty
Cheer*	Nag
Commit*	Nurtur*
Communal	Pleaseant*
Compassion*	Polite
Connect*	Quiet*
Considerate	Respon*
Cooperat*	Sensitiv*
Depend*	Submissive
Emotiona*	Support*
Empath*	Sympath*
Feminine	Tender*
Flatterable	Together*
Gentle	Trust*
Hones	Understand*
Interpersonal	Warm*
Interdependen*	Whin*
Interpersona*	Yield*
Kind	
Kindship	

Note: The asterisk denotes the acceptance of all letters, hyphens, or numbers following its appearance.

Source: Danielle Gaucher, Justin Friesen, and Aaron C. Kay. "Evidence That Gendered Wording in Job Advertisements Exists and Sustains Gender Inequality", *Journal of Personality and Social Psychology,* 2011, pp.109-128.

Exhibit 5 – Transport for London website (images of women and diversity)





Source: Transport for London. "Careers", https://tfl.gov.uk/corporate/careers/, accessed January 2017.

Exhibit 6 – MTurk survey design

Control

Job Posting 1

Please read the following job posting and indicate how likely you are to apply for the role with "The Association", a reputable employer.
For the purposes of this survey, assume that you are interested in and qualified for this position.

Inspector (A)

These varied and interesting roles offer the chance to apply your technical expertise to a wide range of vehicles and areas of speciality, expand your knowledge and work with some of the biggest names in the automotive industry. There will also be opportunities to travel and progress your career into a variety of other areas in the future. At the same time, you'll enjoy the excellent training and development and other attractive civil service benefits you'd associate with a high profile Government organisation. The Association is responsible for certifying vehicles, systems and components to statutory environmental and safety standards, working closely with leading global manufacturers of passenger cars and commercial vehicles.

You'll liaise with manufacturers to obtain technical specifications, agree and carry out the test programme, write technical test reports and produce the approval documentation. This will involve everything from appraising facilities, undertaking engineering assessments and dealing with queries to providing technical advice and conducting worst case meetings.

We need flexible, enthusiastic people with a degree in automotive, mechanical or electrical engineering and for suitable relevant experience in lieu of a degree to join us. You'll be capable of prioritising your own workload, communicating confidently with customers and adapting to changing priorities. You'll also be prepared to stay overseas for up to four weeks if required.

How likely are you to apply for this position? *

1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	○	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Job Posting 2

Please view the following career site landing page and indicate how likely you are to apply for a position in this organization.
Assume, for the purposes of this survey, that there is a role that you are interested in and qualified for.

Working for BCD Association

Our staff

Our staff work in a wide number of roles, including:

- Project management
- IT
- Strategy
- Communications
- Engineering
- Economics
- Law

Skills we value

You'll find specific descriptions in the advertisements we post for jobs but there are essential skills you will need:

How likely are you to apply for this position? *

1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	○	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Job Posting 3

Please view the following job application form and indicate how likely you are to apply for the role. Assume, for the purposes of this survey, that this is a role that you are interested in and qualified for.

Apply for this Job

Name *

Email *

Message *

Browse... Upload resumé (zip, pdf, doc, txt, rtf)

Browse... Upload cover letter (zip, pdf, doc, txt, rtf)

Is fire "*hot*" or "*cold*"? *

Apply for Job

Apply Online | Print Job

How likely are you to apply for this position? *

1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	○	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Job Posting 4

Please read the following career website landing page and indicate how likely you are to apply for a role with BCD Association.
Assume you are looking for a new job and there is one that interests you and you are qualified for.

Working for BCD Association

Our staff

Our staff work in a wide number of roles, including:

- Project management
- IT
- Strategy
- Communications
- Engineering
- Economics
- Law

We value

You'll find specific descriptions in the advertisements we post for jobs but there are essential skills you will need:

- being able to work in a team
- self-motivation
- excellent communication skills, so we can negotiate with, and influence, our partners effectively

We also value people who can demonstrate excellent management skills.

Benefits

Many of our staff say it's the interesting, varied and worthwhile work that's the real benefit for working with us.
Our staff get:

- free health checks
- retail discounts
- an opportunity to 'buy' more holiday entitlement
- clear objectives that can lead to an annual bonus

How likely are you to apply for a position with BCD Association? *

1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	○	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Job Posting 5

Please read the following job description and indicate how likely you are to apply for a role with WXYZ, Inc. Association.
Assume that this is a role you are interested in and qualified for.

WXYZ, Inc. is hiring a Business Development Representative to help get the word out about how our platform is revolutionizing residential real estate. In this role we're looking for someone to act as the first point of contact with prospective customers, helping understand their needs and how WZYZ, Inc. can contribute to their success.

IDEALLY, YOU HAVE:

- A 4-year university degree
- Experience in a customer facing role (ideally at another technology startup)
- Strong written and verbal communication skills
- Ambition to be part of a fast-paced, high-growth sales culture

RESPONSIBILITIES:

- Perform outbound sales activity, including cold calling and lead follow-up
- Qualify new opportunities by gathering information on their needs and how Hightower can help solve them
- Own a territory becoming an expert on the players and relationships within the market
- Research and proactively reach out to prospective clients within your territory

WE OFFER BENEFITS LIKE:

- Competitive performance based compensation
- Health, dental, and vision insurance
- Catered company lunches
- An incredible team of smart, dedicated, and supportive people

About WXYZ, Inc.
WXYZ, Inc. is a rapidly growing technology startup based in New York. Our mission is to make the residential real estate industry dramatically more productive with beautiful, purpose built technology that empowers its professionals to do their best work, no matter where they are.

Contact Point for Applicants:
john.smith@wxyz.com
John Smith, Hiring Manager

How likely are you to apply for a position with WXYZ, Inc.? *
1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	○	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Treatment

Job Posting 1

Please read the following job posting and indicate how likely you are to apply for the role with "The Association", a reputable employer.
For the purposes of this survey, assume that you are interested in and qualified for this position.

Inspector (B)

These dynamic and interesting roles offer the chance to apply your technical expertise to a wide range of vehicles and areas of speciality, expand your knowledge and work with some of the biggest names in the automotive industry. There will also be opportunities to travel and progress your career into a variety of other areas in the future. At the same time, you'll enjoy the excellent training and development, the flexibility, and other attractive civil service benefits you'd associate with a high profile Government organisation. At the Association, we are responsible for certifying vehicles, systems and components to statutory environmental and safety standards, working closely with global manufacturers of passenger cars and commercial vehicles.

Working as part our inspections team, you'll liaise with manufacturers to obtain technical specifications, agree and carry out the test programme, write technical test reports and produce the approval documentation. This will involve everything from appraising facilities, undertaking engineering assessments and dealing with queries to providing technical advice and conducting worst case meetings.

We need flexible, enthusiastic people with a background and experience in automotive, mechanical, or electrical engineering to join us. You'll be capable of prioritising your own workload, communicating with customers and adapting to changing priorities. The job may also require overseas travel for up to four weeks which you would be able to schedule with your team and supervisor.

How likely are you to apply for this position? *

1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	○	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Job Posting 2

Please view the following career site landing page and indicate how likely you are to apply for a position in this organization.
Assume, for the purposes of this survey, that there is a role that you are interested in and qualified for.

Working for BCD Association

Our staff

Our staff work in a wide number of roles, including:

- Project management
- IT
- Strategy
- Communications
- Engineering
- Economics
- Law

Skills we value

You'll find specific descriptions in the advertisements we post for jobs but there are essential skills you will need:

How likely are you to apply for this position? *

1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	○	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Job Posting 3

Please view the following job application form and indicate how likely you are to apply for the role. Assume, for the purposes of this survey, that this is a role that you are interested in and qualified for.

Apply for this Job

Number of people who have started this application: 50

Name *

Email *

Message *

Browse... Upload resumé (zip, pdf, doc, txt, rtf)

Browse... Upload cover letter (zip, pdf, doc, txt, rtf)

Is fire "*hot*" or "*cold*"? *

Apply for Job

Apply Online | Print Job

How likely are you to apply for this position? *

1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	●	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Job Posting 4

Please read the following career website landing page and indicate how likely you are to apply for a role with BCD Association.
Assume you are looking for a new job and there is one that interests you and you are qualified for.

Working for BCD Association

Our staff

Our staff work in a wide number of roles, including:

- Project management
- IT
- Strategy
- Communications
- Engineering
- Economics
- Law

We value

You'll find specific descriptions in the advertisements we post for jobs but there are essential skills you will need:

- being able to work in a team
- self-motivation
- excellent communication skills, so we can negotiate with, and influence, our partners effectively

We also value people who can demonstrate excellent management skills.

Benefits

Many of our staff say it's the interesting, varied and worthwhile work that's the real benefit for working with us.
Our staff get:

- free health checks
- retail discounts
- an opportunity to 'buy' more holiday entitlement
- clear objectives that can lead to an annual bonus

Profiles

Amy, Account Executive

> "The work at BCD is extremely engaging and interesting. I love my co-workers and how much they support me in my personal and professional roles."

Jessica, Engineer

> "At BCD Association, I love how much I've been able to accomplish as part of this team while also being able to balance the other parts of my life."

Job Posting 5

Please read the following job description and indicate how likely you are to apply for a role with WXYZ, Inc. Association.
Assume that this is a role you are interested in and qualified for.

WXYZ, Inc. is hiring a Business Development Representative to help get the word out about how our platform is revolutionizing residential real estate. In this role we're looking for someone to act as the first point of contact with prospective customers, helping understand their needs and how WZYZ, Inc. can contribute to their success.

IDEALLY, YOU HAVE:

- A 4-year university degree
- Experience in a customer facing role (ideally at another technology startup)
- Strong written and verbal communication skills
- Ambition to be part of a fast-paced, high-growth sales culture

RESPONSIBILITIES:

- Perform outbound sales activity, including cold calling and lead follow-up
- Qualify new opportunities by gathering information on their needs and how Hightower can help solve them
- Own a territory becoming an expert on the players and relationships within the market
- Research and proactively reach out to prospective clients within your territory

WE OFFER BENEFITS LIKE:

- Competitive performance based compensation
- Health, dental, and vision insurance
- Catered company lunches
- An incredible team of smart, dedicated, and supportive people

About WXYZ, Inc.
WXYZ, Inc. is a rapidly growing technology startup based in New York. Our mission is to make the residential real estate industry dramatically more productive with beautiful, purpose built technology that empowers its professionals to do their best work, no matter where they are.

Contact Point for Applicants:
amy.smith@wxyz.com
Amy Smith, Hiring Manager

How likely are you to apply for a position with WXYZ, Inc.? *

1 is least likely, 7 is most likely.

	1	2	3	4	5	6	7	
Will not apply	○	○	○	○	○	○	○	Definitely Apply

Please explain your response above. *

Exhibit 7 – Survey Demographics

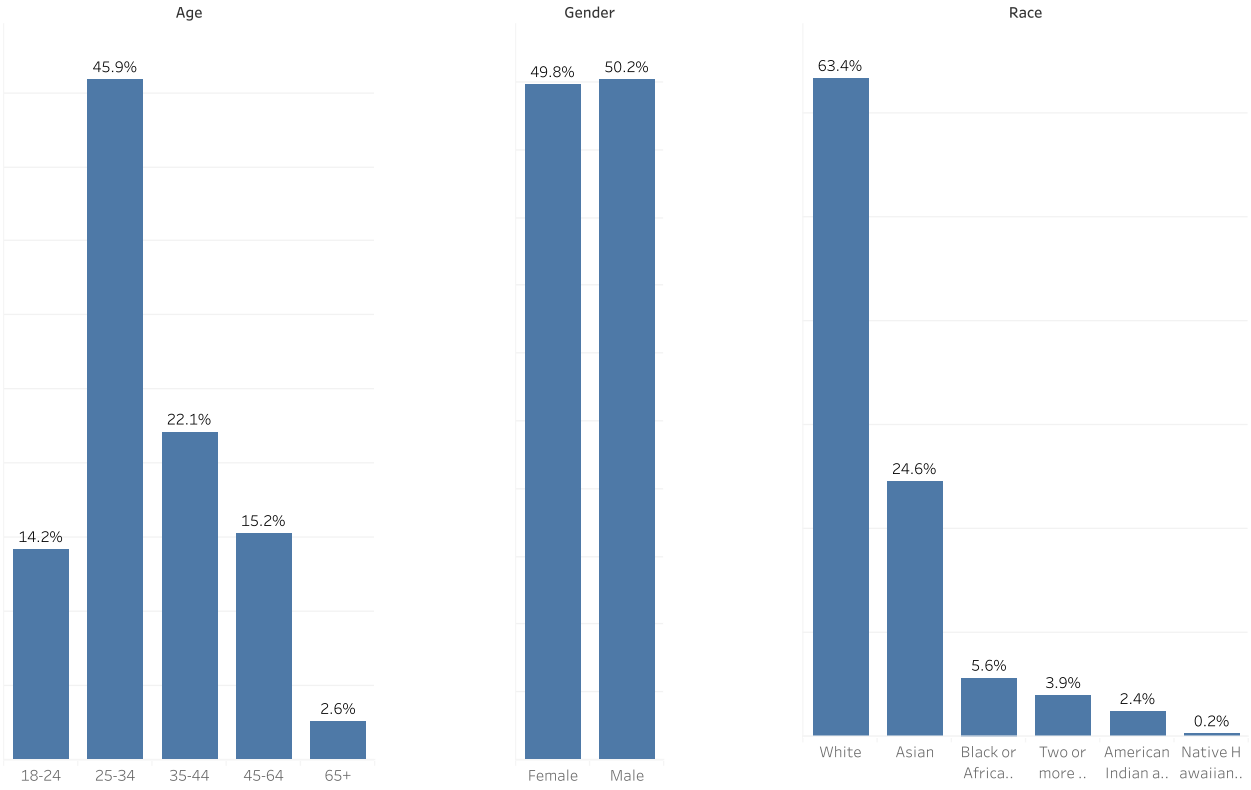


Exhibit 8 – Sample of qualitative survey results from female respondents

Control	Treatment
*"I do wish they included the **technical skills needed** for this role (in case I didn't have an appropriate degree, but I had the experience)."*	*"I appreciate the description showing a **team effort** is valued as well as the potential to travel."*
*"I wouldn't know if I was **100 percent qualified** is my only concern."*	*"The **travel** required is also appealing; it **doesn't seem to be too much**."*
*"The ad is very wordy and does not clearly state the requirements for the job nor the **responsibilities day to day**. Information is not presented in an easy to read way. I would be unlikely to read the entire ad the way it is written."*	*"I would consider myself to be an enthusiastic person and I am very **flexible**. I thrive on having a **flexible** schedule."*
*"The job sounds both interesting and demanding but I am **not sure** about **a 4 week oversees assignment**"*	*"**Flexibility** and being allowed to prioritise my own workload is hugely important to me"*
	*"Seems to be a **diverse** position"*

Exhibit 9 – Status Quo Job Advertisement for VCA Automative Engineer

DFT/835/16/VCA Automotive Engineer

Return to search results

Vehicle Certification Agency

Closing date: 20 Jan 2017

Reference number
1488149

Salary
£33,242 - £36,565

Grade
Executive Officer

Contract type
Permanent

Business area
Other

Type of role
Engineer

Working pattern
Full-time

Hours
37

Location

Bristol, South West, BS5 6XX : Nuneaton, East Midlands, CV10 0UA

About the job

Job description

These varied and interesting roles offer the chance to apply your technical expertise to a wide range of vehicles and areas of speciality, expand your knowledge and work with some of the biggest names in the automotive industry. There will also be opportunities to travel and progress your career into a variety of other areas in the future. At the same time, you'll enjoy the excellent training and development and other attractive civil service benefits you'd associate with a high profile Government organisation. The Association is responsible for certifying vehicles, systems and components to statutory environmental and safety standards, working closely with leading global manufacturers of passenger cars and commercial vehicles.

You'll liaise with manufacturers to obtain technical specifications, agree and carry out the test programme, write technical test reports and produce the approval documentation. This will involve everything from appraising facilities, undertaking engineering assessments and dealing with queries to providing technical advice and conducting worst case meetings.

We need flexible, enthusiastic people with a degree in automotive, mechanical or electrical engineering and for suitable relevant experience in lieu of a degree to join us. You'll be capable of prioritising your own workload, communicating confidently with customers and adapting to changing priorities. You'll also be prepared to stay overseas for up to four weeks if required

Exhibit 10 – Treatment Condition with two interventions for VCA Automative Engineer

DFT/835/16/VCA Automotive Engineer

Return to search results

Vehicle Certification Agency

Apply now

Closing date: 20 Jan 2017

Reference number
1488149

Salary
£33,242 - £36,565

Grade
Executive Officer

Contract type
Permanent

Business area
Other

Type of role
Engineer

Working pattern
Full-time

Hours
37

Location

Bristol, South West, BS5 6XX : Nuneaton, East Midlands, CV10 0UA

Meet Amy, Automotive engineer

"At VCA, I love how much I've been able to accomplish as part of this team while also being able to balance other parts of my life"

About the job

Job description

These dynamic and interesting roles offer the chance to apply your technical expertise to a wide range of vehicles and areas of speciality, expand your knowledge and work with some of the biggest names in the automotive industry. There will also be opportunities to travel and progress your career into a variety of other areas in the future. At the same time, you'll enjoy the excellent training and development, the flexibility and other attractive civil service benefits you'd associate with a high profile Government organisation. At the Association, we are responsible for certifying vehicles, systems and components to statutory environmental and safety standards, working closely with global manufacturers of passenger cars and commercial vehicles.

Working as part our inspections team, you'll liaise with manufacturers to obtain technical specifications, agree and carry out the test programme, write technical test reports and produce the approval documentation. This will involve everything from appraising facilities, undertaking engineering assessments and dealing with queries to providing technical advice and conducting worst case meetings.

We need flexible, enthusiastic people with a background and experience in automotive, mechanical, or electrical engineering to join us. You'll be capable of prioritising your own workload, communicating with customers and adapting to changing priorities. The job may also require overseas travel for up to four weeks which you would be able to schedule with your team and supervisor.

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