# GENDER EQUALITY PROJECT.

Evaluation Bias and Backlash: Dimensions, Predictors and Implications for Organisations

CENTRE FOR ETHICAL LEADERSHIP



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### EVALUATION BIAS AND BACKLASH: DIMENSIONS, PREDICTORS AND IMPLICATIONS FOR ORGANISATIONS

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#### **GENDER EQUALITY PROJECT**

The Gender Equality Project (GEP) is a networked organisation of industry partners, research partners and associates collaborating in pursuit of the common mission:

'To produce a significant and sustainable improvement in the gender balance in leadership roles of participating organisations'

The underlying assumption is that a more balanced representation of men and women in leadership and decisionmaking roles will mean that organisations are making better use of the full range of available talent and better meeting the needs of both men and women at work. Improving gender balance is both smart economics and good human rights.

The GEP aims to develop new, validated and tailored solutions to address gender inequality in leadership roles of industry partner organisations. The research is focused on the mission and aligns the activities of the GEP to the needs and goals of industry partners.

The GEP is an initiative of the Centre for Ethical Leadership (CEL) at Melbourne Business School, which is responsible for the management of the research and development program. All GEP members are invited to participate in six monthly workshops for the sharing and discussion of latest research findings, global best practices, case examples and other relevant information.

The GEP commenced with a Planning Workshop held in April 2011, attended by industry partners, researchers and associate partners, as well as a keynote address by Sex Discrimination Commissioner, Liz Broderick, with the purpose of identifying the core research projects to be undertaken by the GEP. There are four initial core programs of relevance to all industry partners:

- Unconscious Bias
- Resilience
- Targets and Quotas
- Flexible work practices

These core research programs will be supplemented by projects targeted at specific issues and needs within each industry partner organisation.

The Centre's Diversity Leadership Skills Training Programs (DLSTP) is the primary training vehicle into understanding unconscious bias, how it impacts from an individual and organisational perspective, and what behaviours support or detract from gender equality in the workplace.

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#### **EXECUTIVE SUMMARY**

Women who aspire to leadership and other male dominated occupations carry a heavy and hidden handicap due to unconscious bias. Compared to their male peers, women are rated down irrespective of whether they behave in a stereotypically masculine or stereotypically feminine way. These evaluation penalties include being assessed as:

- · less likeable and less agentic than male peers who display the same behaviour
- less competent for work than their male peers who perform at the same level
- less desirable as leaders, less hireable and less likely to succeed in their careers than men behaving the same way
- less likeable, less hireable and having less potential to succeed in their careers, regardless of being judged equally competent as men, when both men and women behave in a stereotypically masculine way
- these negative evaluations of women relative to men are more pronounced in male dominated occupations.

The findings and recommendations in this report are the product of a meta-analysis of 117 studies that provide rigorous experimental comparisons of men and women who are matched on all dimensions except gender or the particular personal factor being studied. Comparisons were made for male dominated roles (e.g. finance), versus female dominated roles (e.g. teaching) and for leadership versus non-leadership roles.

Unconscious processing and the resulting bias are pervasive and hard to overturn. Unconscious bias affects more judgements and decision than those related solely to gender and diversity. Tackling the diversity challenge provides an opportunity to build a more adaptive learning organizational culture that could enhance performance across many task domains. Four levels of intervention are recommended to help minimize the effects of unconscious bias:

- raising awareness
- providing strategies and tools for effective slower, conscious thinking in bias hot spots
- audit and redesign of systems and processes
- targeted culture change.

#### INTRODUCTION

Unconscious bias is one of many factors that contribute to continued discrimination against qualified and capable women and minority groups in organisations. Compared to more conscious prejudice and discrimination, the effects of unconscious bias are more subtle, more pervasive and more difficult to change. They are more subtle because they are unconscious, meaning that people are often not aware of their own bias. They are also more difficult to detect because the effects are often not recognisable amongst the milieu of factors that can influence human judgements and decisions. They are more pervasive because they are embedded in cultural norms that shape interactions between people across a wide range of settings and are often institutionalised in the systems and processes of groups, organisations and societies. They are difficult to change because of their subtle and pervasive effects and because the unconscious knowledge that leads to bias is often tied into a rich network of other knowledge that includes identities, beliefs and schema that govern human function.

Tackling unconscious bias is the new frontier in organisational efforts to improve diversity and inclusiveness and collect the benefits that they have been shown to produce across many different domains of business performance.<sup>1</sup> However, understanding unconscious bias and the introduction of interventions to minimise its presence and effects can produce many more benefits beyond those due to greater diversity and inclusions. These include:

- more effective and more adaptive decision-making
- greater trust
- a better learning organisation.

Biased judgements and decisions are more likely to be suboptimal and less adaptive to the demands and circumstances of the particular problem that they relate to (Einhorn, 1982).

This applies to all sorts of problem solving, not just to gender. Minimising unconscious bias can thus pave the way for more effective and adaptive decision making.

Another benefit of minimising bias is greater trust. Unbiased decisions that are the product of systematic and transparent processes are more likely to be perceived as fair, which in turn leads to greater trust in those who make the decisions, the systems used and the organisation (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Moorman, 1991). Individuals who do not like the outcomes of decisions, such as those who miss out on a promotion or reward, are less likely to perceive it as unfair if the process used was demonstrably unbiased.

The widespread use of judgement, decision-making and problem solving tools to support more systematic thinking and information processing can also result in more efficient and more effective learning by individuals and teams. Individuals and teams that are systematic in their judgement, decision-making and problem solving processes tend to organise, synthesise and accumulate information more efficiently and more effectively than those who are unsystematic in their endeavours.

#### What is unconscious bias?

Unconscious bias is the product of unconscious knowledge and unconscious processes, typically operating together to produce biased responses, which, because they do not take account of all relevant information for a judgement or decision, have a greater risk of being suboptimal. This is quite a mouthful of jargon. However, the collapsing of the components into the simple label "unconscious bias" masks how we come to make biased judgements and decisions and can be misleading about the solutions that are likely to diminish the presence and effects of bias. We will unpack and simplify the ideas starting with the terms "unconscious" and "bias".

#### "Unconscious"

The term "unconscious" applies to thinking processes and knowledge that can influence a person's responses towards a target object without the person being aware of it. Cognitive processes are described as unconscious or automatic if they are: (a) outside a person's awareness, (b) not directly associated with intention, (c) require little mental effort, and (d) are difficult to prevent or stop (Bargh, 1994).

<sup>1</sup> We will not present the evidence for the performance benefits of diversity in this paper but readers are referred to the Centre for Ethical Leadership document "Why having more women makes good business sense", which can be downloaded from http://www.mbs.edu/gep

#### INTRODUCTION

Humans acquire both conscious and unconscious knowledge from experience, some of which will be stored in memory as associations. These associations are the product of either intense or repeated exposure to people, objects, settings and events in a way that they become related to each other in the knowledge base stored in memory. In the case of unconscious knowledge, these associations can develop without people being consciously aware:

- that they are learning that two concepts are linked
- of the nature of the association
- of the effect the associations have on their response to a situation (Bodenhausen, Macrae, & Hugenberg, 2003; Wilson, Lindsey, & Schooler, 2000).

For instance, people might have a strong association between men and leadership without being aware of it. They might have no idea that their life experience created that association, and they might not know how that association affects their responses toward male and female leaders.

Unconscious processes rely heavily on unconscious knowledge. Responses that are the product of unconscious processes and unconscious knowledge (hereafter unconscious processing) have two significant advantages over more conscious processing efforts: speed and efficiency. Unconscious processing and related responses happen automatically, hence it is sometimes described as fast thinking. Conscious processing requires sequential attention to data and deliberate processing, hence it is sometimes described as *slow* thinking (Bodenhausen et al., 2003; Kahneman, 2012). Fast thinking enables efficient processing of information but this efficiency comes at a cost when the resulting responses are biased. Descriptions of these processes and the biases they produce in responses are shown in Appendix A.

#### "Bias"

Bias refers to instances in which a person consistently responds in a particular way towards a target object and does not properly take into account information that would otherwise change their response.

Responses that are shaped by unconscious processing include judgements, decisions, intentions and behaviours. The two types of biased responses that are examined in this report, evaluation bias and backlash, are focused on different types of judgements, including evaluations of competencies and predictions about likely future success and hireability.

#### Unconscious Bias in Context: The Case of Gender Evaluation Bias and Backlash

Most frequently studied in terms of gender differences, evaluation bias refers simply to a consistent or systematic devaluing of a social group. Experimental studies of evaluation bias create hypothetical individuals for subjects to evaluate, whose characteristics are all held constant except for gender. This research paradigm originated from the work of Philip Goldberg in 1968 when he had his students evaluate identical essays that varied only by the gender of the author. Goldberg found that female authors received lower evaluations unless the topic was distinctly feminine. Forty-four years, 800 Google Scholar citations and 3 meta-analyses later, the results tell much the same story (Eagly & Carli, 2007). Female applicants receive poorer hiring recommendations (Olian, Schwab & Haberfeld, 1988), particularly when being considered for male sex-type jobs (Davison & Burke, 2000) or leadership (Eagly, Makhijani & Klonsky, 1992).

Role Congruity Theory is the dominant model for explaining these effects. That these effects are most common in leadership and other male-dominated jobs suggests a mismatch between characteristics we assume are more common in women and attributes we assume are required for jobs traditionally and commonly occupied by men (Heilman, 1983; Eagly & Karau, 2002). This mismatch can produce more negative perceptions about the abilities of aspiring female applicants as well as more negative evaluations of the behaviour of women currently occupying these roles. If the association between stereotypical male attributes and stereotypical male roles drives evaluation bias, then as more women enter and occupy male roles these evaluation biases should decrease. Indeed, there is evidence of a weakening association between leadership and stereotypical masculinity (Koenig, Eagly, Mitchell & Ristikari, 2011). However, as women enter these roles and take on masculine attributes they risk a new form of evaluative bias: backlash.

Gender backlash is a form of stereotype bias in which women (or men) who behave counter-stereotypically receive negative social or economic reprisals (Rudman, 1998). The male stereotype includes both positive and negative traits that are typically expected of men such as being ambitious, assertive, decisive and self-reliant, all aspects of the social psychological concept 'agency'. As discussed above, these attributes are also typically associated with competent leaders.

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The traits of the female stereotype include being warm, sensitive, friendly or communal and less competent in male-dominated roles. While these behaviours and attributes are typically valued, they are deemed less important for most leadership roles than the male stereotype behaviours (Prentice & Carranza, 2002).

Gender backlash occurs when we encounter men who display more feminine stereotype behaviours or women who display more male stereotype behaviours - what is called a 'mismatched stereotype condition'. Generally speaking, information about men and women in matched stereotype conditions is easier for people to process as it conforms to their expectations for how a person will behave. When a mismatched stereotype condition is encountered, it contradicts the observer's unconscious expectations, creating dissonance. This dissonance can be resolved in one of two ways. The observer might consciously process the information to reach a deliberate assessment that takes account of the potential effects of being influenced by the violation of his or her stereotype-based expectations. Alternatively, the observer might process the information unconsciously through the stereotype filter and make assessments that are consistent with the stereotype. This might occur, for example, by rating women higher than men on unpopular male characteristics such as dominance, even though their behaviour is the same, and rating women lower on positive female characteristics, such as likeability.

Gender backlash is a significant issue for women who feel they need to challenge their gender stereotype to show competence. In doing so, they risk backlash in other perceptions and outcomes. For example, a successful, self-promoting woman will be recognised as being as competent as a similarly behaving man but will be seen as comparatively less likeable (Rudman, 1998), less likely to be hired (Rudman & Glick, 2001) and less likely to be promoted (Heilman, 2001). In some cases backlash can be in the form of sabotage from peers and colleagues (Rudman & Fairchild, 2004). This effect can also be explained by Role Congruity Theory, according to which the mismatch is present between the target's behaviour and the prescribed gender role.

#### **Issues researched in this meta-analysis**

This report presents a meta-analysis in two parts. The first analysis examines evaluation bias; specifically, is there a difference in how men and women are evaluated? We also consider if this effect is influenced by a leadership role, or a male-dominated field. The second analysis focuses on two comparisons related to backlash. Here we were interested in how a woman's stereotypical or counter-stereotypical behaviour might impact on these evaluations when compared to a stereotypical man.

#### METHOD

#### Search for studies

The aim of this meta-analysis was to review research about two forms of unconscious bias in occupational contexts, namely gender evaluation bias and gender backlash. Considering this, computer-based information searches were conducted in the following databases: Education Resources Information Center (ERIC), PsycINFO, SocINDEX, CINAHL, Business Source Complete, PubMed and ProQuest Digital Dissertations. In these searches the key words gender, sex, women, men, female, male were combined with leadership style, agentic, agency, communal, counterstereotyp\*, leader, leadership, and prescriptive. A citation search was also conducted on authors who are influential in this area of research, specifically Rudman, Heilman, Eagly, Prentice and Burgess. These searches gave back 58,434 papers and dissertations. Additional manual searches were conducted by reading the reference lists of published literature reviews and previous meta-analyses in this area of research.

#### Inclusion and exclusion criteria

The meta-analysed studies were required to satisfy several criteria. The titles and abstracts of the found papers were reviewed to identify those that were not relevant to the area of gender evaluation bias and gender backlash in occupational contexts. Then, the following inclusion criteria were used:

- only experimental studies conducted in non-clinical samples were used; correlational studies and studies with patients were excluded
- 2. participants in those experiments were presented with descriptions or scenarios of one or more targets whose gender was clearly specified
- 3. the participants were required to rate the targets on evaluative dimensions such as competence, social skills, worthiness of rewards, etc.
- 4. any characteristic of the target other than their sex was represented identically for both males and females
- 5. in the case of the gender backlash meta-analysis, one independent variable needed to be the description of attributes, behaviours or roles of the targets that were either stereotypically masculine or stereotypically feminine
- 6. the studies were either published in peer-reviewed journals or in PhD dissertations
- 7. the studies reported statistics (e.g. mean, standard deviation and sample size, t, Cohen's d,) that could be converted into an effect size.

#### METHOD

#### **Studies included**

After applying all the inclusion and exclusion criteria 84 papers were retained containing 117 independent studies dating from 1977 to 2012. The references for all the studies meta-analysed are provided in Appendix B. Table 1 shows the disaggregation of the 117 independent samples by country. More than half of the studies were conducted with participants from the United States of America, followed by German samples.

#### Table 1

Number of independent samples meta-analysed by country

Country	K
Australia	3
Canada	3
France	1
Germany	20
Mexico	1
The Netherlands	2
Romania	1
Spain	1
United States of America	85
Total independent samples	117

#### Data organisation

In these 117 independent studies around 100 relevant experimental manipulations and more than 200 indicators of evaluative dimensions or outcomes were found. The experimental manipulations and evaluative dimensions were organised into higher-level categories based on their classifications in previous studies (Cuddy, Fiske, & Glick, 2008; Eagly et al., 1992; Rudman & Fairchild, 2004). The categorisation process, which was conducted by two independent researchers in further consultation with others, yielded one category of experimental manipulation for evaluation bias (i.e. male target versus female target), four categories of experimental manipulations for backlash (i.e. dominant versus submissive, agentic versus communal, masculine versus feminine, and successful versus unsuccessful), and nine categories of evaluative dimensions (i.e. dominance, agency, likeability, task competence, social competence, desirable leader, reward recommendation,

future career success, and hireability). The definitions and examples of manipulations for each of the categories of the experimental manipulations are provided in Table C1 in Appendix C. Definitions and example measures of the evaluative dimensions are presented in Table C2 in Appendix C. Brief descriptions of both are presented in the Results section of this report.

In some of these studies the only independent variable manipulated was the gender of the target (i.e. male versus female) whereas in others not only the gender of the targets was manipulated but also attributes of the targets (e.g. agentic versus communal, masculine versus feminine), the occupational context (i.e. maledominated, female-dominated, neutral), the status of the job (i.e. leader versus non-leader) and other dimensions not relevant to the current meta-analysis (e.g. gender of the evaluator, male versus female, level of attractiveness of the target, presence or absence of children of the target). Considering this, the studies were divided into independent groups (i.e. different groups of individuals exposed to different levels of the independent variables manipulated). The groups were then organised into units of analysis based on the different comparisons that were necessary to test evaluation bias, backlash and the moderating impact of occupational context and status of the job. With this disaggregation, the units of analysis based on the comparison of the different groups inside each study are independent of each other and were treated as independent studies in all the analyses conducted.

#### Studies and units per evaluative dimension

The number of studies and the number of units of analysis that were extracted from the studies are organised by each evaluative dimension found. Table 2 shows that 797 units were analysed across all the evaluative dimensions. Task competence, social competence and hireability were the evaluative dimensions with the greater numbers of studies and units analysed.

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#### Table 2

*Count of studies and units analysed for each evaluative dimension* 

Evaluative dimension	K studies	K units
Dominance	20	56
Agency	19	50
Likeability	17	33
Task competence	62	210
Social competence	38	131
Desirable leader	18	68
Reward recommendation	15	38
Future career success	16	69
Hireability	30	142
Total	117	797

The way this information was organised for the evaluation bias and for the backlash meta-analyses is described next.

#### Organisation of information for evaluation bias

The meta-analysis on gender evaluation bias required the use of studies that included an experimental manipulation of the gender of the target being evaluated (i.e. male versus female) keeping all other variables constant (e.g. behaviour and attributes of the target, occupational context, status of the job). That way any difference in the ratings of men and women in the evaluative dimensions (e.g. task competence, social competence, hireability, etc.) could only be attributed to differences in the gender of the target.

#### Organisation of information for backlash

For the meta-analysis on gender backlash it was necessary to search for papers that included an experimental manipulation of the behaviours or personal attributes of the targets. In these studies a factorial design was typically used so that one of the independent variables was the gender of the target (i.e. male versus female) and the other variable was the behaviours or attributes of the targets (i.e. stereotypically masculine versus stereotypically feminine). Of all the units of analysis which could have been formed, based on the data extracted from the studies, two were considered to be of particular relevance:

- 1. the comparison of *counter-stereotypical women versus stereotypical men*, that is, the type of evaluation that takes place when both women and men are described as equally dominant, agentic, masculine or successful in a male-dominated job
- 2. the comparison of *stereotypical women versus stereotypical men*, that is, the kind of evaluation that happens when women are submissive, communal, feminine and non-successful in a male-dominated occupation versus men who were described as dominant, agentic, masculine and successful in maledominated occupations, respectively.

The specific numbers of units and participants that were analysed in each of these combinations are reported in the result tables in Appendixes D and E.

#### Data analysis

#### **Calculating summary effect sizes**

In the calculation of the individual effect sizes for both the evaluation bias and backlash meta-analyses, the data was organised so that when an effect size was positive it would indicate that female targets were perceived more favourably than male targets in the specific evaluative dimensions. If the effect size was negative it would indicate that female targets were perceived less favourably than their male counterparts.

All the data available from each unit (e.g. mean, standard deviation, sample size, t test, and F test) was transformed into the effect size format Hedges' q. Then, for each category of relevant experimental manipulation and each evaluative dimension, summary sample sizes and weighted mean effect sizes were computed using random models. The level of significance was set to .10. O and 95% confidence intervals were calculated for each mean effect size, both used as indices of the variability of the effect sizes (Borenstein, Hedges, Higgins, & Rothstein, 2009). *Q* is an index of variability of the effect sizes that could point out the presence of a moderator of the studied association. The magnitudes of significant effects reported in figures in the Results section are based on Cohen's (1988) categorisations: small effect sizes are *g* < .49, medium effect sizes are .50 < *g* < .79, and large effect sizes are q > .80. Tables detailing the specific results for evaluation bias are provided in Appendix D. Those detailing the results for backlash are provided in Appendix E.

The final sample of independent effect sizes included 797 data points. In the cases where there were multiple measures for an evaluative dimension within a study,

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effect sizes were averaged and included as a single independent effect size in the final sample to prevent double counting. All the variables were coded so that a higher number reflected more of the variable as defined by a category, meaning that in some cases effect size signs were reversed to make them consistent with the other evaluative dimensions in the same category. The whole dimension of dominance was reversed so that higher scores would mean less dominance. Only summary effects based on at least two independent units coming from at least two independent studies are reported (i.e. summary effect sizes based exclusively on units coming from the same study are not included in this report).

#### **Moderation analysis**

Two relevant moderators of evaluation bias and backlash were considered. First, the *occupational context* described to the participants in the experiments was evaluated. In some studies the type of occupational context was described as stereotypically feminine (e.g. day-care worker, nurse, secretary, social worker), stereotypically masculine (e.g. computer scientist, lawyer, manager in financial services area, police officer), or neutral because either there is not a strong representation of either gender in that occupation or because the information was framed to be neutral or deliberately vague (e.g. university professor for English, journalist, description of job tailored to be gender neutral).

Second, the *status of the job* the target person was evaluated against. In some studies the job described required the target person to lead others (e.g. coach of a team, president of a country, CEO, middle manager), whereas in other cases the job did not require leading or supervising other people (e.g. athlete, salesperson, librarian, engineering technician). Most studies have independent data for more than one occupational context and more than one status of the job. The specific numbers of units and participants used in these analyses is reported with each specific result provided in Appendixes D and E.

The moderation analysis required the calculation of *Q*-tests based on analysis of variance (Borenstein et al., 2009) to identify differences between the effect sizes across the levels of the two moderators. In the specific case of occupational context, when there was data for male, female and neutral occupational contexts an overall test was run first. If a significant difference was observed, post-hoc pair wise Q-tests were calculated. Only when there were at least 3 independent units inside each one of the categories of the moderators were these analyses conducted, hence in many cases it was not possible to evaluate the impact of the moderators due to a lack of sufficient units.

#### RESULTS

#### **Classification of experimental manipulations**

Four categories or themes of behaviour were identified across the manipulations included in the analyses and are presented in Figure 1. Each category relates to a different behavioural style or manner that is more commonly associated with stereotypical masculinity and might therefore create backlash if displayed by a woman.

In the first contrasting category, agency versus communality, agency relates to a set of traits and behaviours that are frequently associated with competence in the workplace and especially leadership. These included, on a personal level, a self-advocating attitude, task-orientation and a direct and confident manner, as well as a leadership style that was directive and independent. Communality included more democratic, team-oriented leadership styles as well as social and modest approaches to work, where targets are more willing to share the credit. Both these dimensions can be seen as positive attributes to have in an employee, some more so in certain contexts.

The second contrasting category, dominant versus submissive, addresses more extreme or negative sides of agency and communality, respectively. Dominance refers to behaviours that exert power over another and lack social sensitivity, while submissive behaviours are socially sensitive at the expense of effective communication.

The third category, masculinity versus femininity, referred to attributes normally unrelated to the workplace such as typically masculine or feminine appearance, scent, interests and hobbies.

The final category, success versus non-success, relates to a target displaying competence or successful completion of performance goals in a male-dominated area or role compared to an absence of this success.

Stereotypical Male			
AGENCY	DOMINANCE	MASCULINITY	SUCCESS
High status, achievement orientated and assertive traits	Confrontational, overt expressions of status or power	Traditionally and stereotypically male appearance, interests and hobbies	Shows competence and accomplishment in a typical male role

#### **Stereotypical Female**



*Figure 1:* Categorisation of the experimental manipulations according to male and female stereotyped behaviours and traits. For additional details see Appendix C, Table C1

#### **Classification of evaluative dimensions**

Across the literature, three levels of evaluation and judgement emerged. These were assumptions about personality characteristics, evaluations of competence and predictive outcomes such as hiring and reward decisions (see Figure 2). The first level of personal characteristics addressed in this report covered assessments of dominance, agency and likeability. The category of dominance relates to negative judgements or views of targets such as arrogant, domineering, cocky and manipulative. Agency includes perceived traits such as confidence, ambition and competitiveness. Likeability is a generalised favourable or unfavourable assessment of the target.

The next level of evaluation addresses social and task competence. Task competence incorporated questions of an individual's capabilities in the workplace on a specific task or in a particular role such as leadership. Social competence refers to an individual being supportive, helpful, friendly and a good listener. The final level, outcomes, refers specifically to workplace decisions and predictions for the target. Reward recommendation is a decision for specific investment in an individual's career such as a promotion, salary increase or allocation of higher-profile projects. Desirable leader is an affective reaction to the target leader, regarding the extent to which assessors would want to be led by the target. The remaining two judgements, hireability and future career success, are more predictive assessments of potential for future performance. Hireability is a specific judgement about whether the individual would be a good choice to hire for a role. Future career success is an expectation about an individual's ongoing success throughout their career.

	Personal Characteristics
Dominance	<ul> <li>Power over others</li> <li>Intimidating, arrogant, controlling and ruthless</li> </ul>
Agency	<ul> <li>Asserts self</li> <li>Independent, decisive, active and ambitious</li> </ul>
Likeability	• Popular at work • Personally appealing

Competencies				
Task Competence	<ul> <li>Performance evaluation: Did they effectively complete the task?</li> <li>How well did they perform the task?</li> </ul>			
Social Competence	<ul> <li>Interpersonally sensitive</li> <li>Friendly, warm and helpful</li> </ul>			

Outcomes			
Desirable Leader	• Would you want to work for them?		
Reward Recommendatior	• Allocation of bonus pay, promotion, high profile projects, getting put on the 'fast track'		
Future Career Success	• Likelihood of success across their career		
Hireability	• Hiring decision: Would you hire them?		

*Figure 2:* Categorisation of evaluative dimensions according to personal characteristics, competencies and outcomes. For additional details see Appendix C, Table C2

#### **Evaluation bias**

The first analysis conducted compared the evaluations of women versus men who were matched in terms of role, behaviour, performance and all other characteristics relative to the judgement being made. The questions being addressed were "All other factors being equal, are men and women evaluated differently?" and "Are differences in the evaluations of men and women more or less likely in different roles and contexts, particularly when the role or context is masculine or feminine?" The question of how evaluations are affected by whether the women or men being assessed behave in stereotypical or counter-stereotypical ways is addressed in the next section on backlash, which is a special case of evaluation bias.

The results of the analyses for evaluation bias displayed in ratings of personal characteristics, competencies and recommendations are shown in Figure 3. In summary, across a diverse range of contexts, roles and samples, women are rated less favourably for all of the personal characteristics, competencies and recommendations that have been studied, except dominance, social competence and reward recommendations when compared to men who display the same behaviours and achieve the same levels of performance. Overall, the only favourable ratings for women occurred in female-dominated work environments, while equal to unfavourable ratings for women occurred overall and across all roles and contexts. Outcomes of future career success, hireability and likeability had the greatest frequency of unfavourable ratings and dominance was the only evaluative dimension with equal ratings throughout.

In assessments of personal characteristics, women are rated more harshly than men on personal agency and likeability, even if they have displayed the same behaviour and achieved the same levels of performance as their male counterparts, particularly in maledominated occupations. Women are also rated lower than men on personal agency characteristics that are typically associated with leadership effectiveness, such as self-determination and exercising control, with the bias more pronounced in male-type occupations and leadership roles. At the sociability end of the scale underlying personal characteristics, women are rated as less likeable particularly when they occupy traditional male roles and regardless of whether the position they occupy is a leadership or non-leadership role. The overall ratings of dominance and social competence did not show systematic differences between men and women.



*Figure 3:* Direction and effect size for evaluations of men and women. Effect sizes are categorised according to small, medium and large effects

Ratings of task competence and expected future career success also reveal an evaluation bias against women. As was reported for agency and likeability, women are rated as less task competent than the men who perform at the same level, particularly when the comparisons are for male-dominated occupations and leadership roles. When ratings are focused on potential rather than task competence based on actual past performance, women again fare poorly relative to their male counterparts. Irrespective of the roles occupied by the men and women being compared, women are systematically judged as having less potential for future career success. Together, these evaluation biases against women in rating of both task competence and potential can exert a subtle but persistent pressure for them to be located toward the lower quadrants of the Nine Box Performance and Potential Matrix used to identify staff as "High potentials" and to select "Talent Pools" in many organisations (see Figure 4).



*Figure 4:* Nine Box Performance and Potential Matrix Matrix (McCarthy, 2008)

The evaluation biases against women in ratings of personal characteristics, competence and potential carry through into judgements and recommendations about hiring, rewards and their perceived suitability for leadership roles. Women are less likely to be recommended for hiring compared to men with equivalent experience, skills and other job related factors. The one exception is when the role being considered is for a female-dominated occupation, such as teacher or nurse. When matched sets of men and women are being considered for a leadership role, the evaluation bias against women and in favour of men is evident. As could be expected from the pattern of results, the bias against women being considered suitable for leadership roles in male-dominated occupations, such as engineering or finance, is even more pronounced.

Women are not only less likely to win higher paying leadership roles, but if they work in male-dominated occupations they are less likely to be rewarded for equivalent levels of performance to their male counterparts. The presence of unconscious bias against women when making recommendations for rewards is likely to have greater effects when these rewards have large discretionary elements such as performance bonuses, which are more prevalent in male-dominated occupations like finance than in female-dominated occupations like teaching and nursing. The combined effects of unconscious biases against recommending women for higher paying leadership roles and performance-based rewards will have significant long term effects on the earnings of men and women of equivalent abilities.

#### <u>Backlash</u>

### When men are men and women behave like men (matched men vs. mismatched women)

Across a range of experimental studies, people were asked to assess men and women who displayed equal levels of male stereotypical behaviours and traits including dominance, responsibility for their own success (i.e. agentic), masculinity and success in male-dominated jobs. When people were confronted by women whose behaviour and traits were mismatched to the female stereotype, compared to a man whose behaviour and traits were matched to the male stereotype, their assessments appear to be a combination of conscious judgments based on the evidence and unconscious biases against women for acting out of stereotype.

#### • Dominance

When men and women display equal levels of dominating behaviours, the women are seen as being more dominating and less likeable than the men (see Figure 5). When a woman displays dominant behaviours, she violates the female stereotype of submissiveness

which, because it is unexpected, is weighted much more heavily in assessments than the equivalent behaviour for a man, for whom it is expected. Further, because the female stereotype links submissiveness with likeability, a woman who displays dominance is rated as less likeable than a man who behaves in the same fashion.

In what should be good news for women who adopt a dominant position on certain tasks, they are rated as more task competent than their male counterparts who act in a similar dominant fashion. But despite their task competence being inflated, they are less likely to be recommended for hiring than their male counterpart. This outcome is consistent with the finding that women, particularly those who work in male-dominated roles, tended to be rated as either likeable or task competent but not both, while a man can be seen as both likeable and task competent (Okimoto & Brescoll, 2010; Heilman, Wallen, Fuchs & Tamkins, 2004). Over time, a woman can come to be judged as both task competent and likeable, but this will take longer and require more evidence than it does for a man.



*Figure 5:* Evaluations of men and women who display highly dominant behaviour

#### • Agency

When men and women display equal levels of agentic behaviour in the form of taking responsibility for their actions, the outcomes they produce and self-reliance, they are rated as equal in their levels of agency, dominance, task competence and social competence (see Figure 6). They are also equally likely to be recommended for rewards for the performance outcomes resulting for their responsible actions. These evaluations of the men and women being equal seem to be the product of conscious use of the evidence provided. However, despite the perception of being equally socially and task competent for the job, women are seen as less likeable when they display agency. Also, when we turn to judgements of potential and recommendations that take into account likely future performance, the unconscious bias against women creeps back in. They are less likely to be hired, they are considered less suitable for a leadership role in male-dominated occupations, and judged to be less likely to succeed in their careers. The one exception to these biased assessments of female potential is that they are considered more suitable for a leadership role in female-dominated occupations than their male equivalents.



*Figure 6:* Evaluation of men and women who both have high agency

#### • Masculinity

Perhaps the most pervasive stereotypes of men and women are those describing masculinity and femininity, respectively. The traits associated with masculinity include many of the personal features and interests associated with agency, dominance and leadership. When women display masculinity through selection of male gender type interests, masculine physical appearance and a more assertive communication style they are judged in general as more socially competent and in particular as more technically competent in male-dominated jobs and leadership roles than men who display equal levels of masculinity (see Figure 7). However, as was the case for women who act with agency rather than communally, equally competent, masculine women are seen as having less potential to succeed in their careers. Also, despite being recognised as being at least equally task competent to their male peers, masculine women are less likely to be recommended for rewards such as bonuses.



*Figure 7:* Evaluations of men and women who have stereotypically masculine

#### Success

Finally, what happens when the evidence shows that men and women have performed equally successfully or displayed equal competence on a task in a typical male role such as financial controller or engineering manager? When the evidence is incontrovertible, conscious processing of the information leads to equality in assessments of the male and female on male leadership competencies such as dominance and potential for future career success (see Figure 8). However, the unconscious bias against women is evident in ratings of their personal agency in achieving the observed performance. Women are attributed less responsibility for their achievements than the men who perform at the same level.



*Figure 8:* Evaluations of men and women who both are highly successful in a male role

In summary, when women behave in ways that are more consistent with the male stereotype and therefore are mismatched to the female stereotype, the assessments of them, their performance and their potential, and decisions about their rewards and hiring are a mixture of conscious processing of the data provided and unconscious biases. When a man who is behaving like a man is expected to behave is compared to a woman behaving in the same manner, the woman is judged as displaying more extreme levels of negative behaviours such as dominance, and as having less career potential. When she is equally or more competent, she is less likeable. When the evidence that a man and woman have performed equally well and are equally competent is incontrovertible, she is seen as less responsible for producing the outcomes.

### When men are men and women are women (matched men vs. matched women)

Among the many possible comparisons between men and women, the other that we considered of most interest is the one where a woman who conforms to the female stereotype is compared to a man who conforms to the male stereotype. These include comparisons of women who are communal, feminine, submissive, and not succeeding in male-dominated occupations with men who are agentic, masculine, dominant and successful. In this case the bias could be explained not based on the lack of congruency between the expected and actual behaviours of women, but because of the lack of consistency between the behaviour of women and the expected behaviour in occupational settings. As with the previous set of comparisons, observers assess men and women on a range of traits and potentials and make recommendations about their rewards, hiring and appointment. The information about the men and women being assessed is the same except that each behaves according to their stereotype for the selected factor, starting with dominance and submissiveness, respectively.

#### • Submissiveness

When men display dominating behaviour and women submissiveness, women are assessed as being less dominating, which is exactly what would be expected from an unbiased, conscious processing of the information provided. However, they are also seen as less task competent (see Figure 9). Interestingly, a submissive woman and dominating man are considered equally likeable, which is in agreement with our earlier comparison in which a woman who displays the same level of dominating behaviour as a man is considered less likeable. When men dominate a team or situation, they can be likeable. Women who do the same are unlikeable and less likely to be accepted by their peers or staff. To achieve acceptance, women need to act in a more submissive manner, but that does not equate to leadership in the minds of those who judge them.



*Figure 9:* Evaluations of dominant men compared to submissive women

#### • Communality

When women displaying communal behaviour by engaging their staff and sharing responsibility for outcomes are compared to men who adopt a more agentic approach and assume responsibility onto themselves, women are evaluated more favourably on many factors but, again, are seen to have less potential for leadership roles, particularly in male-dominated contexts (see Figure 10). Compared to agentic men who take the role unto themselves, women who seek to include others and share responsibility are seen as less dominant, more socially competent and more likely to be an effective leader in a non-male occupation. They were also considered equally task competent and destined for future career success and as worthy of rewards as their stereotypical male counterpart. Less positively, women behaving in a communal fashion are less likely to be selected for or promoted into leadership roles in maledominated occupations.



*Figure 10:* Evaluations of agentic men compared with communal women

#### • Femininity

When women display femininity and men masculinity, women are assessed as less competent, both technically and socially, and less likely to succeed in their future careers (see Figure 11). They are also viewed as less suitable for recruitment. No differences were found in ratings of agency, indicating that they share equal responsibility for their positive and negative outcomes.



*Figure 11:* Evaluations of masculine men compared to feminine women

### Counter stereotypical versus stereotypical women (mismatched vs. matched women)

Until organisations make a concerted effort to reduce unconscious bias, most women who want to make it to senior leadership roles could be penalised for how they behave in many situations. While they get the benefit of the doubt in assessments of technical competence when the evidence that they are as competent as a male peer is incontrovertible, they are rated down on related skills and on decisions associated with potential and future performance. These include likelihood of career success and promotion or selection for a more senior role. This is not the case for men who are stereotypically male. By simply acting according to male expected behaviours they will be seen as technically competent and as possessing the traits that are associated with leadership for senior roles. Furthermore, they will be recommended for promotion to higher paying senior leadership positions.

There is an irony in these findings in that, over the past decade or so, the mix of behaviours described in the competency frameworks of many organisations has changed to include more female stereotypical behaviours such as teamwork, empathy, compassion, inclusiveness and flexibility. This shift has been in response to the growing body of evidence that these behaviours produce more effective performance (Eagly, Johannesen-Schmidt & van Engen, 2003). Part of the difficulty in achieving change in diversity levels is that while the espoused culture of many organisations is sympathetic to female stereotypical behaviours, the reality, driven by the unconscious knowledge of staff and leaders, is much more of a male command and control model that preferences dominance, individual agency and masculinity over submissiveness, communality and femininity.

In this section we summarise the findings from the two previous sections for women behaving according to male and female stereotypical traits. For a woman, the question to be addressed might be "what is my natural style and what does it cost me?" For an organisation, the question might be "How do we create the systems, processes and culture that are gender blind and able to recognise real talent?"

#### • Dominant versus Submissive

When men and women behave in an equally dominating way, women are seen as more dominant, less likeable but more task competent. Their perceived task competence notwithstanding, a dominant woman is less likely to be hired than her male equivalent. Women who behave in a manner consistent with the female stereotype and are more submissive get a mixed reaction. They are considered equally likeable but less dominant and less task competent than dominant men.

#### • Agentic versus Communal

Women who act in an agentic way by taking responsibility for their own achievements are judged as having similar capabilities to men but as having less potential to succeed in their careers and as being less hireable. This is in contrast to women who behave in a collaborative and participative fashion, consistent with the female stereotype of being communal, who are considered equally likely to succeed in their career and equally hireable to men who behave more autonomously.

#### • Masculine versus Feminine

Women who display masculine traits are perceived as equally task competent and equally hireable to men who also act in a masculine manner. However, when men and women conform to their masculine and feminine stereotypes, respectively, the women are judged to be less socially competent, less task competent and less hireable than the men. Regardless of whether they behave like a man or a woman, women are consistently judged to have less potential and be less hireable than men.

In summary, there are few advantages and many disadvantages for women who behave in ways that are considered stereotypically masculine. Women who dominate a conversation, assume responsibility or act autonomously when working on tasks, and display strength and confidence in their interactions with staff and peers, incur significant penalties relative to their male counterparts who behave in the same manner and other women who behave in more submissive, collaborative and feminine ways. The penalties for acting like a non-stereotypical woman are most evident in judgements of potential and are applied even when women are judged to be equally competent.

There are few benefits for women who choose to act in ways that are more consistent with a female stereotype by holding back or acting submissively in conversations, acting collaboratively and including others on tasks, and dressing and acting in a feminine manner. The only credits given are for women who act in a communal way and who practice a collaborative and inclusive style in their leadership and relationships with others.

Unconscious knowledge and fast thinking processes are necessary for human functioning (Kahneman, 2012). Problems occur when the unconscious knowledge is wrong (either because it was always wrong or circumstances have changed and invalidated what was once true) and when our unconscious knowledge biases our judgments and leads us into suboptimal choices and actions. Unconscious bias against women is a mixture of the two sources of error. First, many of the beliefs about women in general are based on out-ofdate and inaccurate stereotypes. Second, the inaccurate stereotypical beliefs affect our judgments and decisions about particular women, such as those who have been the subjects in the studies we have reviewed in this report.

The question of how to minimise unconscious bias can be approached at several levels. At a more individual level, people can be made aware of their unconscious biases and how these affect judgments and behaviour. Workers can also be encouraged to use various compensatory strategies and tools to slow down their thinking and minimise bias on selected decisions. Over time, the continual use of tools and procedures similar those employed by consulting firms can enhance decision-making across a wide range of tasks.

At a deeper level, organisations can audit and redesign systems and procedures to minimise bias and introduce strategies to deal with the root causes of the problem of too few women in leadership roles. For example, many organisations now conduct gender audits of pay to identify evidence of systematic bias against women. However, often these audits do not include bonuses and other discretionary rewards, which is where most of the unconscious bias against women is manifest. Other strategies include redesign of selection and promotion systems to minimise unconscious bias effects.

According to one train of thought, the problem is not that unconscious bias is denying women opportunities to be promoted to leadership; it is an inadequate supply of women who are job ready for leadership roles. Therefore, initiatives to improve opportunities for women by reducing bias are often supplemented by strategies to increase the supply of women who are job ready for leadership roles. These include push strategies to develop the supply of women, such as mentoring and networks, and pull strategies that encourage managers to discover local solutions such as targets and quotas. A risk of these strategies, if awareness and cultural change programs do not accompany them, discussed above and below respectively, is that unconscious bias may be manifest in cynicism, rejection of diversity and sabotage of female leaders.

A fourth and deeper level of change that will take longer to introduce than other interventions is to build a learning organisational culture with the capacity to continually adapt and change in response to new challenges (Senge, 1990). A learning organisation is one in which there is openness to new ideas and inputs and the desire to make full use of available resources. Diversity of people and experiences plus norms of inclusion in such organisations are seen as challenges to be adapted to and a key foundation of the culture.

Recognising the fact that developing a learning culture will contribute to diversity strategies, as well as innovation and adaptation to other challenges is just the first step in achieving that change. Developing a learning organisational culture that embraces diversity and the opportunities that it brings will require many deep level interventions, including changes in dominant male-oriented work identities, a willingness to constantly challenge (gender-based) assumptions and beliefs, and ongoing positive conversations about the benefits of diversity at all levels of the organisation. To be fully effective, cultural change must eventually place diversity into the work of strategies and roles so that it is recognised as much as a contributor to performance as individual skill and effort, and as a greater contributor to learning and development.

Cultural change of the magnitude being suggested has already occurred in other areas such as safety and quality, both of which were originally seen as outside the mainstream of productivity processes, but are now both integral to the work of strategies and roles at all levels of organisations. Both safety and quality are also key values and norms in the cultures of organisations.

#### Depth of change and related interventions

Figure 12 illustrates the four levels of interventions recommended to tackle unconscious bias in organisations. The four levels go from strategies directed to the bias of individual workers (i.e. awareness of own unconscious bias) to a more macro-organisational level (i.e. cultural change). A description of each of these levels follows.



*Figure 12:* Levels of change for effective diversity and inclusion

#### **Raising awareness**

Awareness of a bias is a useful first step in creating the motivation to change. Many people are unaware of how much their thinking, judgments and responses are influenced by unconscious knowledge and unconscious processes (Devine, 1989). Similarly, making individuals and teams aware of the unconscious beliefs they hold and how unconscious thinking can bias their judgments can lead to maladaptive reactions, such as defensiveness or the view that one cannot be responsible for unconscious thought processes. The aim of awareness raising interventions is to help individuals to challenge their assumptions, take responsibility for the impacts of their biased judgments and develop actions to minimise their own bias. Examples of awareness raising interventions include:

 measurement, reporting and discussion of unconscious knowledge and how it can lead to bias  training in why and how unconscious knowledge and processing is part of human judgment and decision making, how it impacts behaviour and how it can lead to bias at work and in people's personal lives. Topics covered would also include how bias can limit personal effectiveness and have negative effects on the targets of bias through stereotype threat and other consequences of stigmatisation.

#### Compensatory strategies for effective slower thinking

Strategies for effective slower thinking can also be included in training to help minimise the effects of unconscious bias which is typically the result of fast or automatic thinking processes. Unconscious bias is an unintended byproduct of the fact that the use of unconscious knowledge and unconscious processing of information lead to fast, efficient decision-making processes and often good judgments and decisions, which makes them highly functional in the everyday (Kahneman, 2012). By way of contrast, slowing down one's thinking process and consciously attending to all relevant data can be highly inefficient and, in complex situations, overwhelming to the point of frustration. If organisations and individuals can identify 'bias hot spots' where bias is likely to have negative and consequential effects on the outcomes of judgments and decisions, then they can adopt tools or compensatory strategies that reduce the likelihood of bias in these situations.

These bias hot spots may include:

- high impact decisions such as selection, salary and promotion decisions that are typically handled through structured and formalised processes. These formal decision processes can be targeted through the audit and redesign suggested next
- ad hoc, daily judgments and decisions for which each event has a lower impact but for which the cumulative negative effects, through processes such as stereotype threat and suboptimal allocation of work, can become significant
- ill-structured social interactions which may include daily conversations and meetings. Fast flowing, ill-structured social interactions often require fast thinking that relies heavily on unconscious knowledge, which as demonstrated can lead to bias.

Strategies for effective slower thinking in identified *bias hot spots* include:

- use decision-making and problem solving tools for identifying and organising criteria, options and other relevant data and for managing the discussions that guide judgments, decision-making and problem solving. A simple example of a tool for discussing options in an organised way is a decision matrix, such as the one shown in Appendix G
- use simple behavioural interventions when one person feels that they have been the target of unconscious bias. One example is the "no just joking" policy (Sojo & Wood, 2012) in which the target makes a non threatening statement, such as "That did not seem appropriate," and the person who has made the original comment provides a mild form of apology, such as "Sorry," rather than saying "I was just joking"
- structure participation in social interactions so that all people have equal opportunities to contribute. This can include setting time limits on contributions or asking each person in turn for their input
- keep records of simple decisions, such as the allocation of tasks, to ensure that development and other forms of opportunities are being shared equitably amongst different staff
- spend time at the end of meetings to consider whether there were any instances in which bias might have influenced judgment and decision processes and what could have been done differently.

#### Audit and redesign of systems and processes

Given that much bias is the product of unconscious knowledge and processes, people will be unaware of bias in their judgments and decisions unless they receive feedback on the cumulative outcomes of their decisions. This can force them to consciously consider that, over time, they may have been unconsciously biased. For example, a manager who routinely allocates periodic, ad hoc tasks with greater developmental opportunities to men and simpler, less challenging tasks to women or vice versa is probably unaware of any bias in the process. Furthermore, if both the men and women perform their assigned tasks well, then the unconscious bias of the manager will be reinforced. He or she will see it as optimising the allocation of people to tasks. But this may not be the case for a few reasons. First, we may not know how the men and women would perform if assigned the opposite task. Second, the group assigned the simpler, less challenging task do not develop their skills and the future capability of the organisation may be less than it could have been had developmental tasks been distributed more widely.

Providing feedback that indicates bias in decision processes after they have been made and, in some cases, implemented, rarely leads to a simple "now I see the light" reaction. A manager provided with evidence of personal bias will have many motivations to justify their judgments and decisions as rational and unbiased. First, to be biased might be seen as a challenge to one's general sense of competence, particularly in organisations that stress high performance and decisiveness. Second, the manager may feel that his or her vested interests are threatened by arguments of bias or discrimination against other groups. Third, a manager may recognise the problem but doubt their capacity to solve it and will, as a result, put it in the too hard basket with claims like, "this is the natural state of affairs".

On the other hand, it is not ideal for managers to feel incompetent in other parts of their role. Responses to unconscious bias should produce improved performance of teams, not just reductions in the presence and consequences of bias such as discrimination. Audits and redesign of systems and processes can both challenge and improve the judgment and decision processes of managers, but only if the culture of the organisation encourages the manager to respond adaptively to feedback bias. Cultural change is discussed later in this section.

Examples of audits and systems redesign that can be used to target high impact bias hot spots include:

- remuneration audits to identify and remove pay gaps, such as those that often occur between men and women. One of the lessons from the findings in this report is that remuneration audits should include bonuses and other forms of discretionary rewards rather than just fixed pay rates
- redesign of selection and promotion systems to minimise the awareness of gender. A popular example of how this was done is the case of symphonies, where auditions are conducted behind a gauze curtain so that members of the selection panel cannot know the gender of the player applicant. The introduction of this gender blind selection process contributed to a jump from 7% to 35% of female players in US symphonies over 25 years (Goldin & Rouse, 1997). In organisations, the strong preference for interviews, despite the fact that they have long been known to be one of the least valid of all selection methods (Schmidt & Hunter, 1998), makes it impossible to make selection panels blind to the gender of applicants. Some possible approaches to minimising the awareness of gender are:
  - follow best practice. Evaluate all candidates against an agreed set of criteria using defined measures such as rating scales, and record all data such as decisions on a common template. Such an approach

ensures that all candidates are consciously compared against the same criteria and standards. This will minimise the effects of unconscious shifting standards, bolstering other sources of bias that occur when discussions are unsystematic and candidates are evaluated sequentially. It may not remove the differential weighting of evidence for males and females unless the discussion deliberately considers that possibility

- evaluation, as above, and ranking of all candidates based on written records with gender removed. This can be done by an independent expert committee who then forward their evaluations and rankings of applicants to the selection panel or recruiting manager, who may interview the top candidates for cultural fit
- while the redesign of selection and promotion processes and procedures can be used to minimise unconscious bias in selection and promotion decisions, they cannot compensate for bias in the upstream recruitment processes. Several organisations are now auditing the processes of their recruitment firms and including staff of those firms in unconscious bias training. Other firms apply targets or quotas to the mix of males and females for shortlists. These are discussed next
- audits of competency frameworks to ensure they include behaviours that cover both male and female traits
- targets or quotas applied to the outputs of decision processes such as selection and promotions create a pressure to consider new strategies for the identification and development of people for roles. Without some strategic imagination, these strategies can result in backlash and further reinforce the unconscious beliefs that produce biased outcomes (Heilman, Battle, Keller & Lee, 1998; Whelan & Wood, 2012).

#### **Cultural change**

Cultural change is the most far-reaching and effective solution to the removal of unconscious bias. However, it is also potentially the most challenging to implement. Many of the strategies discussed above will, over time, impact on the culture of an organisation. At the same time, culture can act as either an inhibitor or enabler for the implementation of those strategies and their impact on levels of unconscious bias. As with many interventions, cultural change that targets the relevant beliefs, identities, language and behaviour can help ensure significant and sustained change.

Biased judgements and decisions are more likely to be suboptimal and less adaptive to the demands and

circumstances of the particular problem they relate to. This applies to all sorts of problem solving, not just to gender. As stated at the outset, understanding the drivers of unconscious bias and the introduction of interventions to minimise its presence and effects can produce many benefits beyond those due to greater diversity and inclusion. These include more effective and more adaptive decision-making, greater trust and a better learning organisation.

In order to capture these broader benefits of more effective problem solving, learning and adaptation, we believe that cultural change needs a broader framing than to simply reduce the incidence and impacts of unconscious bias in relation to gender. The outcome of culture change in relation to unconscious bias should have individuals and teams embracing diversity of experience and striving for open-minded, evidencebased judgments and decision making in all facets of their work, not just in relation to gender. Gender diversity can provide the entry point or exemplar for building a culture that will increase the organisation's capability to adapt to future challenges.

The key targets for a diversity cultural change program to build on and support changes in awareness, slower thinking, and systems and processes should include conscious beliefs, norms, and leadership. Examples for each include:

- gender essentialist beliefs. The belief that men and women have different brain structures such that men are inherently more analytical and decisive while women are more empathetic and caring is not supported by research evidence (Fine, 2010). Despite this, it influences many other beliefs that may limit the effectiveness of diversity strategies. The stronger the gender essentialism beliefs, the more likely a person is to believe that the current system is fair and that the unequal distributions of men and women in roles is a natural state of affairs (Keller, 2005). Gender essentialism beliefs also reinforce the unconscious knowledge that links leadership with typical male traits of agency and masculinity and leads to evaluation bias and backlash against women
- developing norms for meetings that include challenging stereotypes and complimenting counter stereotypical behaviour will keep people aware of unconscious bias
- leaders who create and communicate a strong narrative around the many different benefits of diversity and inclusive work practices can modify the language of their organisation, which might be a factor priming the unconscious knowledge that leads to bias.

#### CONCLUSIONS

Unconscious processing and the resulting bias are pervasive and hard to overturn. The results of the reported meta analysis show that in evaluations of men and women for organisational roles there is strong bias against women in the form of lower evaluations of characteristics associated with leadership and backlash against them when they display those characteristics. These effects are more pronounced when women occupy male stereotypical roles, which include most of the technical and leadership roles in organisations. Furthermore, even when women match men in performance, they are rated down on potential and are less likely to be recommended for hiring.

In daily discourse, people believe themselves to be convinced by conscious arguments and typically do not consider that their judgements are influenced by unconscious knowledge and processes, and may be biased. Discussion about why there are fewer women in leadership roles are no different and will often focus on questions of supply, maternity leave and other factors that are known to limit the numbers of women in leadership roles. These conscious arguments are not necessarily wrong, but neither are they the whole explanations. They are often given greater weight because they are consistent with both conscious beliefs such as gender essentialism, and unconscious beliefs such as "think leader think male". Breaking down this network of beliefs and minimising the effects of unconscious bias will require many levels of intervention.

Effective action will require leaders who recognise the opportunity presented by the challenge of increasing diversity and inclusion as one in which they can build a more adaptive, learning organisation.

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#### **APPENDIX A: TYPES OF BIASES**

A heuristic is an implicit strategy of judgement that transforms a complex inferential problem to a much simpler mental assessment (Risen & Gilovich, 2007). Humans use heuristics because they might help solving problems more efficiently, usually leading to a correct answer. When heuristics are stretched too far they could lead to informal logical fallacies or biases. An informal logical fallacy is a misconception that is the product of faulty reasoning when humans fail to apply appropriate standards to establish the reasonableness of conclusions / plausibility of an idea, from the search for pertinent evidence to the inferences they draw from the evidence (Risen & Gilovich, 2007; Tversky & Kahneman, 1974).

#### Table A1

#### Definitions and examples of types of bias

Stage	Туре	Definition / Subtypes	Example
Bias in evidence search and interpretation	Confirmation bias	Inclination to search for and give weight to information that is consistent with our existing ideas or views of a given situation, as opposed to search for inconsistent evidence that could falsify our views (Bassok & Trope, 1984)	Thinking that women are not as committed to their careers as men and looking for examples of women who left the organisation where you work to dedicate their lives to their families, while being unable to think about all the women who have been with your organisation for a long time having an outstanding performance
	Assimilation bias	Inclination to interpret ambiguous information in a way that is consistent with previously held beliefs (Lord, Ross, & Lepper, 1979).	Interpreting an employer change in a male candidate's CV as a move to progress in his career, whereas an employer change in a female candidate is seen as a lack of organisational commitment
	Belief perseverance	Keeping held beliefs after evidence on which they were based has been found to be false. This could be a consequence of a tendency to ignore or filter out evidence that disconfirm our beliefs (Risen & Gilovich, 2007).	Thinking that differences in the sizes of men's and women's brains explains differences in their analytical skills when the scientific research does not support that idea.
	Naïve realism	The conviction that one perceives objects and events as they are, instead of thinking that perceptions are the product of interpretations of situations that are tainted by our prior knowledge and expectations (Ross & Ward, 1996).	Having a conversation with a colleague where a team leader has been described as being dominant and lacking social skills during a meeting and forming an image of the person being described without considering that it is just a point of view about the situation and that we were not present when the incident took place.
Bias in inferences: Drawing conclusions that do not follow from the evidence provided	Zero-sum or fixed pie bias	Tendency to understand social situations as a zero-sum game where for one side to gain something the other side has to lose (Bazerman, 1998).	Holding the view that supporting equal opportunities for women to attain leadership positions will mean automatically that more men are going to be left out.

#### **APPENDIX A: TYPES OF BIASES**

Stage	Туре	Definition / Subtypes	Example
Bias in inferences: Drawing conclusions that do not follow from the evidence provided	Invalid disjunction	Tendency to assume that something ought to be one extreme or the other, not something in between.	Believing that women are only biologically prepared to take care of children and other family members whereas men are biologically prepared to provide food and shelter.
	Argument from authority and Arguments against the person	The belief that an idea posited by a likeable source is true and that an idea argued by an unlikeable source is invalid, respectively.	Thinking that women should stay at home and take care of the children because a beloved political leader said so.
	Naturalistic bias	Arguing that something must be good because it is natural.	The idea that because women are the only ones biologically prepared for childbirth then their natural role is to care for the children.
	Argument from novelty	Arguing that something is good because it is new.	Thinking that the latest released version of a mobile application must be better than the previous because it is new.
	Argument from antiquity	Arguing that something is right because that is the way it has always been done.	Thinking that the place of women is at home because that is how things have been since prehistory.
	Argument from antiquity	Arguing that something is right because that is the way it has always been done.	Thinking that the place of women is at home because that is how things have been since prehistory.
	Bandwagon bias	A tendency to assume that the opinion of the majority is the valid opinion. Even though there are many situations where the majority is right, the fluctuation in the opinions of majorities over time indicates that a logically valid conclusion cannot be based exclusively on the majority.	Thinking that because more people than not have the view that men are better able to lead, that kind of position should only be given to men.
	Argument from ignorance	Either thinking that (a) because something has not been proven false, then it must be true or (b) thinking that if something has not been proven true, then it must be false. Individuals might fail to notice that the lack of evidence against and for something does not prove or disprove anything.	Thinking that the lack of evidence for the existence of Gods is enough to disprove their existence.
	Fallacy of composition vs. Fallacy of division	The view that the properties of the whole are the same as properties of its parts.	Thinking that since all the members of a group are individually competent, any outcome of a group decision made by them will also demonstrate competence, disregarding that in group decisions there are many more factors in play than the competence of the individual group members (Kerr, MacCoun, & Kramer, 1996).

#### **APPENDIX A: TYPES OF BIASES**

Stage	Туре	Definition / Subtypes	Example
	Correspondence bias (fundamental attribution error)	The tendency to explain others' behaviours overemphasizing their personal dispositions and downplaying the relevance of the situation (Messervey, Ji, & Uchida, 2004).	Thinking that when other people break the law it is because of their criminal personality, disregarding the situational factors that could have had an impact on their behaviour.
Bias in frequency estimation: Errors in the estimation of the likelihood of events and sizes of different categories	Availability heuristics	An assessment of the probability of an event or the size of a category based on how easy it is to remember relevant examples of the category. Since examples of bigger categories or more likely events are easier to retrieve from one's memory, people assume that instances that more easily come to mind must be more likely or belong to bigger categories.	Arguing that smoking cigarettes is not harmful for your health because your grandfather used to smoke a pack of cigarettes a day and enjoyed good health until he died at 98 years old. This argument is based solely on the available information of an example in the memory of the person without considering the rest of the evidence around the issue.
	Representativeness heuristics: An estimation of the frequency or probability of a particular event based exclusively on the generalisation of a previous similar event.	<i>Gambler's Fallacy</i> : The belief that if a given outcome has not occurred for a while then it is due to take place (Tversky & Kahneman, 1974).	Thinking that after flipping a coin 5 times obtaining always heads then the next time it should be tails, based on the misconception that chance is self-correcting instead of truly random (Risen & Gilovich, 2007).
		<i>Misconceptions of regression:</i> The tendency to be blind to examples of regression to the mean, creating unnecessary explanation for regression effects (Gilovich, 1991).	When a father is really tall, people might have the expectation that his son will also be tall. When this does not happen they feel the need to find an explanation for that, disregarding that when two variables are imperfectly correlated (e.g. parents and children's height) extreme values of one of the variables are followed by less extreme values in the other.
		<i>Conjunction fallacy:</i> Thinking that the conjuction of two events is more probable than either of the constituent elements (Risen & Gilovich, 2007).	Thinking that older men are more likely to be both a father and a worker than being either of them, simply because we are able to remember old working men who also have children, disregarding that it is more likely that an old man will have children or will have a job than meeting both conditions.
		<i>The law of similarity:</i> The tendency to think that causes resemble the effects (Gilovich & Savitsky, 2002).	Thinking that economic events could only have economic causes, disregarding the complexity and multivariate nature of economic phenomena, or thinking that small political demonstrations cannot have big impacts in society.

#### **APPENDIX A TYPES OF BIASES**

Stage	Туре	Definition / Subtypes	Example
	Inference from samples	Being overconfident in the inferences that can be drawn from a small sample. It might also happen that people draw conclusions based on a single example or event (Risen & Gilovich, 2007).	Describing all the members of a social group in a specific way (e.g. men are more competitive), based on our experience with a small set of men (e.g. competitive male family members and work colleagues).
	Correlation and causality	The tendency to mistake correlation for causality disregarding that causality implies correlation but not the other way around. This might also take place by neglecting a common cause, disregarding that the association between two events could be due to the impact of a third event on both of them (Risen & Gilovich, 2007).	Thinking that the association between eating chocolate and having acne is because the fat in the chocolate is causing the skin condition. It is possible that both eating more chocolate and the skin condition are a consequence of stress and anxiety.
	Tunnel vision: being unable to recognise the possibility or reasonableness of alternative conclusions once an initial conclusion has been generated.	Hindsight bias: The tendency to exaggerate the probability that one could have predicted the obtained conclusion in advance. This kind of bias makes people pay more attention to a specific chain of events that lead to the outcome disregarding alternative paths that could also have led to different ones (Risen & Gilovich, 2007).	After the 9/11 terrorist attack in NYC people would argue that a terrorist attack in the USA was bound to happen based on the way they evaluate the evidence they had once the event had taken place (Risen & Gilovich, 2007).
		Sunk-cost fallacy: continuing to spend resources on reaching a goal simply because one has already spent resources on it. People might fail to consider that historical cost is irrelevant and that only future costs and benefits should be considered when deciding to keep pursuing a goal (Risen & Gilovich, 2007).	Continuing to invest in a business because we have already put too much money into it as opposed to considering the potential for success of the business as the key factor in making the decision.

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### CATEGORIES, VARIABLES AND DESCRIPTIONS OF EXPERIMENTAL MANIPULATIONS AND EVALUATIVE DIMENSIONS USED IN META-ANALYSED STUDIES

Table C1

Categories, types and descriptions of experimental manipulations of behaviours of the targets

1. Agency vs. Communality			
Category	Туре	Description	
Leadership styles	Autocratic vs. democratic	Leaders either behave democratically by allowing subordinates to participate in decision-making, or behave autocratically through discouraging subordinates from such participation (Eagly & Carli, 2003).	
	Transactional vs. transformational	Transactional leaders manage by contract and reward, providing incentives for good performance and focusing on rules and procedures over vision or relationships. Transformational leaders are more visionary and appeal to their employees' need to feel valued and worthwhile in the organisation (Braun, Peus, & Frey, 2012). A meta-analysis by Eagly, Johannesen-Schmidt and van Engen (2003) found that female leaders are perceived as more transformational in their approach to leadership.	
Interview style	Self-promoting vs. self-effacing	During a job interview scenario, self-promoting targets took credit for past successes in addition to emphasising their skills and abilities. Self- effacing targets demonstrated a more modest approach, attributing credit to their team and de-emphasising personal skills (Rudman, 1998).	
	Task-oriented vs. relationship-oriented	In an interview scenario the agentic target responded in a direct, self- confident manner – providing examples of accomplishments that cast them in a favourable light. Communal targets spoke more modestly of their skills and accomplishments; they endorsed an interdependent orientation, valuing connection with others (Hoyt, Simon & Reid, 2009).	
	High-task vs. social non-verbal styles	Targets with a social non-verbal style communicated friendliness and affiliation through a relaxed, forward-leaning body, a smiling face, non- intrusive gestures, and moderately high but not constant eye contact. A high-task or competent styled target had a rapid rate of speech, upright posture, moderately high eye contact while speaking, few vocal hesitations or stumbles, and calm restrained hand gestures (Carli, LaFleur & Loeber, 1995).	
	Agentic vs. communal responses and manners	Targets with an agentic response style demonstrated a direct and confident manner with which they displayed hierarchical orientation, self-interest, technical competence, and leadership skills. Communal response styled targets were modest in manner and demonstrated interdependent orientation and social skills (Phelan, Moss-Racusin, & Rudman, 2008).	
2. Masculinity vs. Feminini	ty		
Appearance/scent	Typically feminine vs. masculine features	Masculine targets displayed features such as short hair, strong facial features and a large nose. Feminine targets had long hair, fine facial features and a small nose (Sczesny & Kuhnen, 2004).	
Individuating information	Typically feminine vs. masculine hobbies	Male gender type hobbies and knowledge included soccer, work experience such as a summer job in sport retail, campus maintenance or varsity captain. Feminine hobbies and knowledge included interior decoration and previous work in jewellery retail, as an aerobics instructor or captain of the pep squad (Glick, Zion & Nelson, 1988; Reinhard, Schindler, Stahlberg, Messner & Mucha, 2011).	

### CATEGORIES, VARIABLES AND DESCRIPTIONS OF EXPERIMENTAL MANIPULATIONS AND EVALUATIVE DIMENSIONS USED IN META-ANALYSED STUDIES

3. Success or competence in	a male-dominated area	
Category	Туре	Description
Non-verbal style of communication	High vs. low volubility	The features of a target's speech, such as comparative frequency of speech and frequency offering opinions. High volubility is a more masculine style of speech, associated with asserting power in a communication dyad (Brescoll, 2011).
Successful season	High vs. low win rate	High or low performance status as indicated by win-rate, for example: 18-2 or 17-3 wins for a season compared 2-18 or 3-17 (Parkhouse & Williams, 1996).
Competence	High score on test	High or low performance status as indicated by win-rate, for example: 18-2 or 17-3 wins for a season compared 2-18 or 3-17 (Parkhouse & Williams, 1996).
Failure	Presence or absence of failure	The target's most recent evaluation indicated whether or not they had failed to meet their previous performance goal (Hmurovic, 2011).
4. Dominant vs. Submissive	2	
Overly agentic or communal	Brutally honest vs. overly polite	Targets that were overly agentic were described as having been brutally honest, damming and merciless. Overly communal targets were said to be overly polite, friendly and diplomatic (Rudman et al., 2012).
Communication style	Dominant vs. submissive nonverbal style	Dominant nonverbal style is characterised by a complex of behaviours including intrusive hand gestures (i.e. pointing), a loud angry voice, maintaining constant eye contact while speaking, a tense posture, a backward body lean, and a tense facial expression with lowered brows. The submissive style includes nervous hand gestures (i.e. alternatively clasped and shaking), a soft tremulous voice, little eye contact, a slumped posture, and verbal stumbles or hesitations (Ridgeway, 1987).

### CATEGORIES, VARIABLES AND DESCRIPTIONS OF EXPERIMENTAL MANIPULATIONS AND EVALUATIVE DIMENSIONS USED IN META-ANALYSED STUDIES

Table C2

Categories, types and descriptions of evaluative dimensions on which the targets were evaluated

1. Personal Characteristics		
Variable	Description	Examples of Measures Used
Dominance	Traditionally masculine characteristic aligned with high status. Includes traits such as intimidation, arrogance, ruthlessness, control, coldness toward others and cynicism.	Targets were evaluated against twelve words associated with demandingness, rated on a 7-point scale (1 = not at all, 7 = perfectly). The words were: arrogant, cocky, demanding, dominating, obnoxious, overbearing, over-confident, presumptuous, pushy, self-centred, ungrateful and unreasonable (Bowles, Babcock, & Lai, 2007).
Agency	Traditionally masculine characteristic associated with high status and achievement orientation. Includes traits such as independence, assertiveness, decisiveness, competitiveness, activeness, a tendency to work hard and ambition.	A target was evaluated on a number of task dimensions representing agentic characteristics including confidence, skilfulness, competitiveness, power, and capability. These 5 items were measured on a 7-point Likert- type scale (1 = strongly disagree and 7 = strongly agree) (Rosette, & Plunkett, 2010).
Likeability	A characteristic which is linked with being popular, amiable and easy to get along with; how well liked an individual is.	The likeability index averaged ratings of targets' similarity to the self, participants' willingness to befriend them, and their desire for future interaction on a 6-point scale (1 = strongly disagree to 6 = strongly agree) (Rudman, & Fairchild, 2004).
2. Competence		
Task competence	Traditionally masculine characteristic associated with task orientation and consistent high performance, as well as the ability to act both decisively and effectively.	Targets were rated on an 8-point scale across 5 items. The items consisted of the participants' ratings of the target's competence, intelligence and estimates of how well the target would perform (a) under pressure, (b) in a competitive situation, and (c) on a computer game (Rudman, 1998).
Social competence	Traditionally feminine traits related to social competency which includes interpersonal sensitivity, the ability to communicate effectively, and being personable.	Applicants were rated on a 5-point scale (1 = not at all to 5 = extremely) across 10 characteristics: kindness, supportiveness, warmth, sincerity, helpfulness, likeability, friendliness, popularity, effective listening, sensitivity to the needs of others. These were combined with an assessment of the applicant's social sensitivity using the same scale - "How likely is it that the applicant is willing to listen to and support others in this job?" (Rudman, & Glick, 1999).

### CATEGORIES, VARIABLES AND DESCRIPTIONS OF EXPERIMENTAL MANIPULATIONS AND EVALUATIVE DIMENSIONS USED IN META-ANALYSED STUDIES

3. Outcomes		
Variable	Description	Examples of Measures Used
Desirable leader	How well liked an individual is as a leader and the extent to which their subordinates wish to continue to work with them.	Applicants were rated over 5 items on a 7-point scale (1 = strongly disagree to 7 = strongly agree): the employees are probably satisfied working under this manager, this manager is someone you could work for, this manager is a likeable individual, this manager is a warm person, this manager is probably a flexible leader (Rodriguez, 1988).
Reward recommendation	The extent to which an individual is recommended for promotion, an increased salary or high profile projects.	Participants rated the extent to which they would recommend the leader for five organisational rewards on a 7-point scale (1 = would strongly not recommend, to 7 = would strongly recommend): salary increase, promotion, high-profile assignment, public recognition, and opportunities for professional development (Hmurovic, 2011).
Future career success	An individual's perceived potential for continued advancement or promotion.	8 items on a 9-point scale (1 = absolutely disagree, 9 = absolutely agree). The target will: acquire a leading position, get ahead in his or her occupation, achieve a high income, attain a high occupational status, be occupationally successful, acquire a leading position in an engineering firm, acquire a leading position as a bank manager, be occupationally successful in the scientific world (Reinhard, Stahlberg, & Messner, 2008).
Hireability	Perceived suitability of an individual for a position and the level of certainty that they will be selected.	3 hireability judgments which were made on a 5-point scale (1 = very improbable to 5 = very probable) (e.g. "how likely would it be for you to hire the applicant?") (Steffens, Schult, & Ebert, 2009).

#### **APPENDIX D: TABLES OF RESULTS FOR EVALUATION BIAS**

The tables of results for evaluation bias are organised by each evaluative dimension. In each table there are results for the overall effect of gender of the target on the evaluative dimension and then results for each category of the two moderator variables, that is *occupational context* (i.e. male-dominated, female-dominated and neutral work environments) and *different status of the job* (i.e. leader and non-leader jobs). For each one of these levels of analysis the K (i.e. number of studies), N (i.e. total sample size), effect size g, the probability associated to the effect size, 95% Confidence Interval for the effect size, and Q (i.e. a measure of the variability of the individual effect sizes. Asterisks were used to indicate that this statistics was significant) are summarised. *Q* tests were also calculated to evaluate significant differences between the levels of the categories in each moderator, when enough data was available (i.e. at least 3 independent observations per category). When there were significant differences between a pair of categories (e.g. significant differences between male and femaledominated contexts) letters were used to identify the specific groups between which there was a difference.

#### Table D1

*Effect of gender of the target on evaluation of Personal Characteristics (Dominance, Agency and Likeability) overall and by moderators* 

						95	% CI	
Dominance	K	M/F/N	N	g	р	Lower	Upper	Q
Overall	47	18/0/29	3443	.038	.676	141	.218	56.1
Context								
Male	18		1121	041	.778	327	.245	40.5**
Female	-		-	-	-	-	-	-
Neutral	29		2322	.089	.445	139	.316	16.0
Status								
Leader	36		2955	.076	.455	123	.274	48.9*
Non-Leader	11		488	110	.587	505	.286	7.7
gency								
Overall	45	19/6/20	2833	121	.095	262	.021	49.9
Context								
Male	19		1193	273	.009	478	069	26.5*
Female	6		236	111	.572	498	.275	9.4*
Neutral	20		1404	.032	.758	171	.235	14.0
Status								
Leader	19		1430	224	.033	429	019	25.4
Non-Leader	26		1403	027	.783	222	.168	22.8
ikeability								
Overall	29	17/0/12	3212	311	.000	481	140	32.4
Context								
Male	17		896.0	442	.000	670	214	19.1
Female	-		-	-	-	-	-	-
Neutral	12		2316.0	163	.178	400	.074	12.9
Status								
Leader	21		2661.0	199	.036	385	013	24.1
Neplandar	0			(20	000	040	207	<u> </u>

a = Significant difference between the two categories at the .05 level

#### Table D2

*Effect of gender of the target on evaluations of Competence (Task competence and Social competence) overall and by moderators* 

					95	% CI				
К	M/F/N	N	g	p	Lower	Upper	Q			
171	65/22/81	11459	109	.005	185	032	235.6**			
								_		
65		3967	310	.001	431	189	177.3**	a		
22		790	.022	.844	199	.244	7.4	-		
81		5801	.018	.746	090	.125	44.3	a		
								-		
120		9238	143	.002	234	052	211.9**	-		
51		2221	028	.699	168	.113	22.5	-		
106	35/19/52	6607	.012	.807	084	.108	122.0			
								-		
35		2023.0	054	.533	225	.116	60.3**	_		
19		634.0	026	.836	271	.219	11.5	-		
52		3949.8	.064	.350	070	.197	48.3	-		
								-		
75		4867.8	.076	.181	036	.189	100.6**	a		
31		1739.0	164	.083	349	.022	17.4	a		
	K 171 65 22 81 120 51 106 106 35 19 52 19 52 75 31	K     M/F/N       171     65/22/81       65     -       65     -       22     -       81     -       120     -       51     -       120     -       51     -       106     35/19/52       35     -       19     -       52     -       75     -       31     -	K       M/F/N       N         171       65/22/81       11459         65       3967         22       790         81       5801         120       9238         51       2221         106       35/19/52       6607         1106       35/19/52       6607         19       634.0       52         75       4867.8       31	K         M/F/N         N         g           171         65/22/81         11459        109           65         3967        310           22         790         .022           81         5801         .018           120         9238        143           51         2221        028           106         35/19/52         6607         .012           106         35/19/52         6607         .012           106         35/19/52         6607         .012           106         35/19/52         6607         .012           105         2023.0        054           19         634.0        026           52         3949.8         .064           75         4867.8         .076           31         1739.0        164	K         M/F/N         N         g         p           171         65/22/81         11459        109         .005           65         3967        310         .001           22         790         .022         .844           81         5801         .018         .746           120         9238        143         .002           51         2221        028         .699           106         35/19/52         6607         .012         .807           106         35/19/52         6607         .012         .807           106         35/19/52         6607         .012         .807           105         2023.0        054         .533           19         634.0        026         .836           52         3949.8         .064         .350           75         4867.8         .076         .181           31         1739.0        164         .083	K         M/F/N         N         g         p         Lower           171         65/22/81         11459        109         .005        185           65         3967        310         .001        431           22         790         .022         .844        199           81         5801         .018         .746        090           120         9238        143         .002        234           51         2221        028         .699        168           106         35/19/52         6607         .012         .807        084           1106         35/19/52         6607         .012         .807        084           106         35/19/52         6607         .012         .807        084           106         35/19/52         6607         .012         .807        084           1106         35/19/52         6607         .012         .807        084           1106         35/19/52         6607         .012         .807        025           1106         35/19/52         3949.8         .064         .350        070	K         M/F/N         N         g         p         Lower         Upper           171         65/22/81         11459        109         .005        185        032           171         65/22/81         11459        109         .001        185        032           65         3967        310         .001        431        189           22         790         .022         .844        199         .244           81         5801         .018         .746        090         .125           120         9238        143         .002        234        052           51         2221        028         .699        168         .113           106         35/19/52         6607         .012         .807        084         .108           1106         35/19/52         6607         .012         .807        084         .108           1106         35/19/52         6607         .012         .807        025         .116           19         634.0        054         .533        225         .116           19         634.0        026	KM/F/NNgpLowerUpperQ171 $65/22/81$ $11459$ $109$ $.005$ $185$ $032$ $235.6^{**}$ 65 $3967$ $310$ $.001$ $431$ $189$ $177.3^{**}$ 22790 $.022$ $.844$ $199$ $.244$ $7.4$ 815801 $.018$ $.746$ $090$ $.125$ $44.3$ 1209238 $143$ $.002$ $234$ $052$ $211.9^{**}$ 512221 $028$ $.699$ $168$ $.113$ $22.5$ 106 $35/19/52$ $6607$ $.012$ $.807$ $084$ $.108$ $122.0$ 105 $35/19/52$ $6607$ $.012$ $.807$ $084$ $.108$ $122.0$ 106 $35/19/52$ $6607$ $.012$ $.807$ $084$ $.108$ $122.0$ 107 $.948.3$ $.064$ $.350$ $070$ $.197$ $48.3$ 108 $.776$ $.181$ $036$ $.189$ $100.6^{**}$ 31 $.739.0$ $.164$ $.083$ $349$ $.022$ $17.4$		

a = Significant difference between the two categories at the .05 level

#### Table D3

*Effect of gender of the target on evaluations of Outcomes (Desirable leader, Reward recommendation, Future career success and Hireability) overall and by moderators* 

						95	% CI		
Desirable leader	K	M/F/N	N	g	р	Lower	Upper	Q	
Overall	58	41/1/16	4174	149	.075	314	.015	74.9*	
Context									_
Male	41		1886.5	211	.035	406	015	63.1**	_
Female	1		74.0	1.060	.082	134	2.255	.0	_
Neutral	16		2213.0	080	.605	383	.223	9.1	_
Reward recommend									
Overall	34	11/0/23	1876	010	.898	163	.143	38.9	
Context									_
Male	11		465	245	.072	512	.021	4.0	a
Female	-		-	-	-	-	-	-	_
Neutral	23		1411	.095	.293	082	.272	33.2*	a
Status									_
Leader	24		1444	.062	.495	116	.240	24.0	_
Non-Leader	10		432	193	.184	479	.092	13.6	_
Future career success									
Overall	38	28/10/0	1513	-0.416	.001	632	201	47.1	
Context									_
Male	28		1293	370	.003	617	122	36.0	
Female	10		220	576	.013	-1.032	120	9.8	_
Neutral	-		-	-	-	-	-	-	_
Status									
Leader	17		833	533	.002	868	198	24.2*	
Non-Leader	21		680	308	.071	642	.026	15.2	_
Hireability									
Overall	122	44/28/45	5646	082	.104	181	.017	130.6	
Context									
Male	45		1852	241	.001	.037	.398	39.2	а
Female	31		1202	.217	.018	389	094	42.5*	a, b
Neutral	46		2592	125	.098	273	.023	57.3	b
Status									_
Leader	72		3063	196	.002	321	071	52.8	С
Non-Leader	50		2583	.070	.343	075	.215	82.1**	c

a, b, c = Significant difference at the .05 level between the groups

The tables of results are organised by units analysed (i.e. Unit A = Counter-stereotypical women versus Stereotypical men and Unit B = Stereotypical women versus Stereotypical men) and then by each evaluative dimension. Where sufficient independent observations were available to present an analysis, each table provides results for the:

- overall effect of the characteristics of the target (i.e. dominant vs. submissive, agentic vs. communal, masculine vs. feminine, success vs. no success) evaluative dimension
- results for each category of the two moderator variables, that is *occupational context* (i.e. male-dominated, female-dominated and neutral work environments) and different *status of the job* (i.e. leader and non-leader jobs).

For each one of these levels of analysis the K (i.e. number of studies), N (i.e. total sample size), effect size g, the probability associated with the effect size, 95% Confidence Interval for the effect size, and Q (i.e. a measure of the variability of the individual effect sizes. Asterisks were used to indicate that this statistics was significant) are presented.

*Q* tests were also calculated to evaluate significant differences between the levels of the categories in each moderator, when enough data was available (i.e. at least 3 independent observations per category). When there were significant differences between a pair of categories (e.g. significant differences between male and femaledominated contexts) letters were used to identify the specific groups between which there was a difference.

#### Results for Unit A: Counter-stereotypical Women versus Stereotypical Men

#### Table E1

*Effect of gender of the target on evaluations of Outcomes (Desirable leader, Reward recommendation, Future career success and Hireability) overall and by moderators* 

						95% CI					
Dominance	K	M/F/N	N	g	p	Lower	Upper	Q			
Dominant vs. Submissive	4	0/0/4	270	.462	.003	.157	.768	3.2			
Agentic vs. Communal	8	1/0/7	458	.083	.662	290	.457	10.1			
Masculine vs. Feminine	4	3/0/1	213	.847	.299	752	2.446	2.8			
Success vs. No success	2	2/0/0	96	336	.685	-1.955	1.284	1.0			
Agency											
Agentic vs. Communal	6	4/2/0	369	024	.861	288	.241	4.8			
Masculine vs. Feminine	4	0/0/4	72	017	.971	900	.866	3.2			
Success vs. No success	4	3/1/0	152	558	.024	-1.044	073	2.7			
Likeability											
Dominant vs. Submissive	4	3/0/1	310	844	.000	-1.074	613	.9			
Agentic vs. Communal	4	1/0/3	797	377	.043	743	011	3.0			

#### Results for Unit A: Counter-stereotypical Women versus Stereotypical Men

#### Table E2

*Effect of Counter-stereotypical Women versus Stereotypical Men on evaluation of Competence (Task competence and Social Competence) overall and by moderators* 

Q	
.1	_
4.0**	
	-
5.0	-
0.6	-
6.2	-
	-
9.9	a
0.9	_ a
.2	_
1.8	
	_
2.2**	_
.5	_
9.7	_
	_
6.5*	_
.8	_
0.2	_
	_
.4	а
.6	а
	_
.4	а
.6	_ a
	.2 1.8 2.2** .5 9.7 6.5* .8 0.2 .4 .6 .4 .6

a = Significant difference at the .05 level between the groups

#### Results for Unit A: Counter-stereotypical Women versus Stereotypical Men

#### Table E3

*Effect of Counter-stereotypical Women versus Stereotypical Men on evaluations of Outcomes (Desirable leader, Reward recommendation, Future career success and Hireability) overall and by moderators* 

						95	% CI			
Desirable leader	K	M/F/N	N	g	р	Lower	Upper	Q		
Agentic vs. Communal	15	8/1/6	1099	191	.215	494	.111	24.0**		
Context									_	
Male	8		418	380	.053	765	.006	19.3**		
Female	1		74	1.060	.037	.064	2.057	.0	_	
Neutral	6		607	175	.400	582	.232	2.5		
Reward recommendation										
Agentic vs. Communal	3	0/0/3	142	.338	.293	292	.969	1.8		
Masculine vs. Feminine	5	1/0/4	210	615	.035	-1.188	042	3.9		
Success vs. No success	8	5/3/0	213	012	.931	274	.251	6.6		
Context									_	
Male	5		139	037	.829	377	.302	3.4	_	
Female	3		74	.039	.869	424	.502	2.6		
Hireability										
Dominant vs. Submissive	2	0/0/2	230	862	.000	-1.130	593	.6	_	
Agentic vs. Communal	33	14/11/8	1536	283	.003	470	097	37.4		
Overall	29	17/0/12	3212	311	.000	481	140	32.4	_	
Context									_	
Male	14		449	063	.670	353	.227	11.9	a	
Female	11		293	270	.116	606	.066	5.7	_	
Neutral	8		794	596	.000	930	263	15.4**	a	
Status									_	
Leader	25		943	106	.321	317	.104	21.0	a	
Non-Leader	8		707	733	.000	-1.059	408	9.8	_ a	
Masculine vs. Feminine	10	2/2/6	243	270	.194	679	.138	8.1		

a = Significant difference at the .05 level between the groups

#### Results for Unit B: Stereotypical Women versus Stereotypical Men

#### Table E4

*Effect of Stereotypical Women versus Stereotypical Men on evaluation of Personal Characteristics (Dominance, Agency and Likeability) overall and by moderators* 

					95% CI					
Dominance	K	M/F/N	N	g	р	Lower	Upper	Q		
Dominant vs. Submissive	3	1/0/2	128	-2.927	.004	-4.926	927	1.8		
Agentic vs. Communal	8	1/0/7	458	.083	.662	290	.457	10.1		
Agency										
Masculine vs. Feminine	4	0/0/4	72	766	.120	-1.731	.199	3.4		
Likeability										
Dominant vs. Submissive	3	3/0/0	168	021	.923	437	.396	1.8		

#### **Results for Unit B: Stereotypical Women versus Stereotypical Men**

#### Table E5

*Effect of Stereotypical Women versus Stereotypical Men on evaluation of Personal Characteristics (Dominance, Agency and Likeability) overall and by moderators* 

						95	% CI	
Social competence	K	M/F/N	N	g	p	Lower	Upper	Q
Agentic vs. Communal	22	9/9/4	866	1.385	.000	.890	1.880	21.0
Context								
Male	9		236	1.468	.001	.621	2.314	13.0
Female	9		236	1.304	.003	.453	2.155	17.2**
Neutral	4		394	1.436	.019	.233	2.638	1.8
Status								
Leader	10		524	2.261	.000	1.503	3.019	11.6
Non-Leader	12		342	.690	.046	.012	1.368	15.1
Masculine vs. Feminine	2	2/0/0	124	-1.457	.000	-1.875	-1.039	.5
Task competence								
Dominant vs. Submissive	3		128	-1.461	.084	-3.119	.196	1.7
Agentic vs. Communal			1746	.203	.253	145	.551	49.5**
Context								
Male	11		538	.263	.371	313	.839	25.2**
Female	3		83	875	.127	-1.997	.247	6.3**
Neutral	12		1034	.386	.166	160	.932	11.0
Status								
Leader	45		2386	020	.743	142	.102	56.5*
Non leader	7		242	209	.208	535	.116	3.8
Masculine vs. Feminine	8		324	-1.154	.035	-2.225	082	6.8

#### **Results for Unit B: Stereotypical Women versus Stereotypical Men**

#### Table E6

*Effect of Stereotypical Women versus Stereotypical Men on evaluations of Outcomes (Desirable leader, Reward recommendation, Future career success and Hireability) overall and by moderators* 

						95	% CI		
Desirable leader	K	M/F/N	N	g	р	Lower	Upper	Q	
Agentic vs. Communal	15	8/1/6	1099	191	.215	494	.111	24.0**	
Context									_
Male	8		352	-1.114	.000	-1.724	504	16.1**	a
Neutral	4		187	1.769	.000	.915	2.624	3.8	а
Reward recommendation									
Agentic vs. Communal	3	0/0/3	141	.239	.369	282	.760	2.1	
Future career success									
Agentic vs. Communal	4	2/0/2	242	318	.270	882	.246	3.5	_
Masculine vs. Feminine	5	3/2/0	150	-1.194	.013	-2.141	247	3.4	_
Success vs. No success	8	5/3/0	214	845	.000	-1.319	371	7.4	_
Context									_
Male	5		140	-1.245	.000	-1.642	847	4.5	а
Female	3		74	195	.444	694	.304	1.4	а
Hireability									
Agentic vs. Communal	10	4/4/2	467	.008	.984	737	.752	9.3	_
Context									_
Male	4		115	254	.667	-1.411	.903	4.6	_
Female	4		115	.701	.234	452	1.854	1.5	_
Neutral	2		237	802	.317	-2.372	.767	1.2	_
Masculine vs. Feminine	9	2/1/6	172	624	.028	-1.181	067	8.7	_

a = Significant difference at the .05 level between the groups

#### **APPENDIX F: EFFECT SIZE GROUPINGS**

All significant (p<.1) effect sizes were grouped as small, medium or large according to the following parameters:

Effect size (g-value)	Size of the Effect	
< .49	Small	
.5 <g .79<="" <="" td=""><td>Medium</td></g>	Medium	
g > .8	Large	

Source: Cohen, J. (1988). Statistical power analysis for the behavioural sciences. Hillsdale, N.J. : L. Erlbaum Associates.

#### **APPENDIX G: DECISION MATRIX**

The decision matrix is a simple and effective tool for evaluating options, developing strategies and implementing solutions. For example, if we wanted to increase gender equality, the tool could be used to minimise the impact of bias in the workplace, maximise potential opportunities for individuals and increase returns for the organisation. The key to using the tool is to clearly identify the criteria against which each potential solution will be assessed, as well as clearly articulating what each weighting score represents.



#### Approach for using the Decision Matrix Tool<sup>1</sup>

Using the decision matrix involves the following six steps:

#### Step 1 – Set Up

- List all variable options for solving the problem.
- Draw up a table with evaluation criteria down the left side and options across the top.

#### Step 2 – Identify Decision/Selection Criteria

- Brainstorm key criteria.
- Ensure all team members have a clear and common understanding of what each criterion means.
- Ensure the criteria are written so that a high score for each represents a favourable result and a low score represents an unfavourable result.
- List the criteria down the left side of the matrix.

#### Step 3 – Assign Weights

• Review and agree on appropriate weights for each criterion based on their level of importance, (e.g. 1, 2, 3).

#### Step 4 – Design Scoring System

- Before rating each alternative, agree on a scoring system.
- Determine the scoring range (e.g. 1 to 5).
- Ensure all team members have a common understanding of what high, medium and low scores represent.

#### Step 5 – Rate the Alternatives

• For each alternative, assign a consensus rating for each decision criterion.

#### Step 6 – Total the Scores

- Multiply the score for each decision criterion by its weighting.
- Total the scores for each alternative and analyse results.

<sup>1</sup> Adapted from Wood, R.E., Cogin, J., Beckmann, J. Managerial Problem Solving, Decision Matrix – A few simple steps, McGraw-Hill Australia Pty Limited, North Ryde, 2009.

#### **APPENDIX G: DECISION MATRIX**

#### Decision Matrix – Worked Example<sup>2</sup>

Criteria	Weight	Alternative A	Alternative B	Alternative C
		Diversity Targets	Targeted Development	Do Nothing
Time to implement	1	5 (x1) = 5	2 (x1) = 2	5 (x1) = 5
Cost of implementation	3	3 (x3) = 9	1 (x3) = 3	5 (x3) = 15
Acceptance by senior leaders	3	3 (x3) = 9	3 (x3) = 9	3 (x3) = 9
Impact on work culture	5	1 (x5) = 5	5 (x5) = 25	1 (x5) = 5
Impact on performance	5	3 (x5) = 15	5 (x5) = 25	3 (x5) = 15
Total Unweighted Score		15	16	17
Total Weighted Score		42	64	49

Weighting of criteria:

5 = Most important 5 = High 3 = Lower importance 3 = Medium 1 = Lowest importance

1 = Low

**Scoring of options:** 5 = High 3 = Medium (Score positive impacts on criteria as higher and negative impacts on criteria as lower)

<sup>2</sup> Adapted from Wood, R.E., Cogin, J., Beckmann, J. Managerial Problem Solving, Decision Matrix – A few simple steps, McGraw-Hill Australia Pty Limited, North Ryde, 2009.



#### Anna Genat BA (Melb), PhD Candidate

Anna is a recent PhD student at Melbourne Business School. Anna's research interests include perceptions of social groups, identity, gender, and sexuality. In 2010, Anna completed her honours thesis in psychology at the University of Melbourne on sexual objectification, dehumanization, and female backlash, for which she received first class honours. Before joining the Melbourne Business School, Anna was a member of the research team at the Australian Research Centre of Sex, Health and Society and LaTrobe University's *Work, Love, Play* project, examining resilience in gay parents.

As part of her PhD research, Anna is currently undertaking a meta-analysis of Unconscious Gender Bias, with a particular focus on the Backlash Effect. Anna is a recipient the competitive scholarship, the Australian Postgraduate Award.



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Robert Wood is Professor of Management at Melbourne Business School. Prior appointments include Deputy Vice Chancellor at the University of Western Australia and visiting Professor at the Kellogg School, Northwestern University. He completed his PhD in organizational behaviour at the University of Washington (Seattle) and did post-doctoral studies at Stanford University Psychology Department. He is Editor of Applied Psychology an International Review. He was awarded the AGSM Alumni Outstanding Teacher Award (1998) and the inaugural AGSM Award for Excellence in Research (2002). He is a Fellow of the Academy of Social Sciences - Australia; the Australian and New Zealand Academy

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Robert has designed, developed and delivered programs for senior managers and provided advice in many Australian and overseas corporations, including Saudi Aramco, Dow Chemical, Telstra, P&O Ports, Dubai Ports World and the Hong Kong Government.

Robert has served on the Boards of Royal Perth Hospital, the Australian Graduate School of Management and the Australian and New Zealand Academy of Management and the University of Western Australia Senate. He currently sits on the Executive Boards of the Academy of Social Sciences Australia and the International Association of Applied Psychology.



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He has completed his PhD in Psychology at the University of Melbourne, working in human resilience to stress, positive emotions and health. He did his Master of Science in Health Psychology (thesis marked as outstanding) at the Simon Bolivar University, in Venezuela, and his Bachelor of Science in Industrial / Organisational Psychology (Magna Cum Laude) at the Central University of Venezuela.

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