

# Women in Engineering

## Action Plan for Mitigating Gender Bias





Gender diversity (and inclusivity) are a particular challenge for the engineering profession. Too few young women graduate with an engineering degree, and the retention of women in engineering careers is very poor. Yet research shows that women are twice as likely as men to have both high maths and verbal skills, compared to high numeracy only, a combination of which is highly desirable for successful engineering leaders.

During 2015 I have held discussions with the CEOs and leaders of major engineering firms throughout Australia. Nearly all of them expressed a great need to increase gender diversity in their companies.

This series of Blueprints is a terrific asset to these leaders as they seek to achieve this goal.

David Cruickshanks-Boyd  
Engineers Australia National President 2015,  
Parsons Brinckerhoff's Regional Director,  
South Australia and National Director, Sustainability



With the increased awareness of the need for diversity to contribute to effective organisations there have been positive actions to this aspirational goal. Women in Engineering National Committee have worked with industry partners to further assist in understanding how diversity can be incorporated into organisations. A series of industry blueprint workshops have been conducted, firstly to introduce women engineering groups within organisations (2013), then assist in providing effective workplaces to retain women in engineering (2014) and this year unlocking bias.

This is something that is within every individual. In recognising biases actions can be implemented to assist in overcoming these biases. This is in the hopes that one day in the near future there is a culture shift such that women in engineering is the norm.

I am excited to present this Action Plan for Mitigating Gender Bias and thank all those involved in Women in Engineering for their tireless and at times thankless efforts to Attract, Retain, Support and Celebrate women in engineering.

Nee Nee Ong (Ms)  
Chair EA Women in Engineering National Committee 2015  
EA Congress Member 2015  
EA Electrical College Board Member 2015  
Principle Electrical Engineer, GHD Pty Ltd

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## Introduction

Due to popular demand, in March 2015, Engineers Australia's Women in Engineering National Committee (WIENC) led another Industry roundtable workshop, this time with the focus of investigating organisational bias and developing mitigation strategies to address these biases.

The aim of this blueprint is to increase industry awareness of gender bias and to provide industry with strategies to mitigate organisational bias, such that no employees suffer undue bias due to gender.

### **This Industry Blueprint Part 3 outlines:**

- The benefits of addressing bias.
- How to identify whether biases are present in the workplace.
- Strategies to assist organisations mitigate against bias.
- Further references.

### **The roundtable sought to address the following:**

- **Is your company's performance being impacted by unconscious bias?**
- **How do you find out?**
- **Have you tried unconscious bias training, but to no avail?**

# Benefits

Gender Bias is the collective name given to any type of bias affecting judgments or decisions about situations involving gender. The key benefit of addressing bias is to facilitate participation of women in the workforce leading to social and economic growth.

“Companies with women on their boards deliver a significantly higher Return on Equity (ROE) than those without women on boards.” A 10.7% difference was noted in 2011 between companies with and without women on their boards.<sup>1</sup>

“Accepting equality and rejecting gender stereotypes would help end discrimination against men seeking jobs typically done by women, increase their participation in family life, and ease the economic burden of supporting their families as more women enter the workforce”<sup>3</sup>

“Equality in the engineering industry, whether in terms of personality types, ethnicities, or in terms of gender, needs to be talked about.”<sup>6</sup>

“Dismantling the cultural and structural barriers that limit women’s ability to engage in employment and then progress to leadership roles is central to achieving gender equality.”<sup>2</sup>

“Gender equality benefits blokes too”<sup>4</sup>

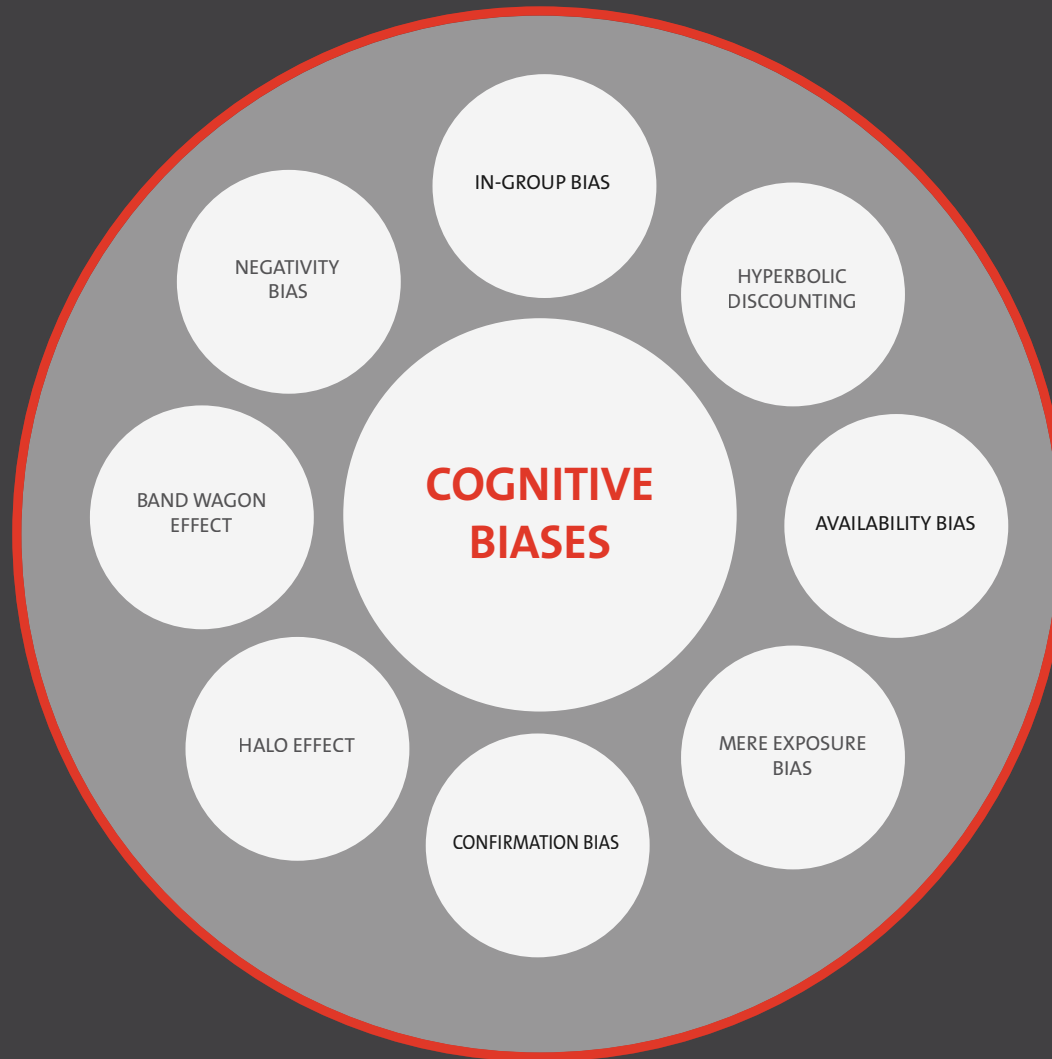
“Companies with a higher proportion of women in their top management have better financial performance. This is not to say that women are the only driver for success, but that firms which value diversity and inclusiveness are better performers.”<sup>5</sup>



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## Definition - What is cognitive bias?

Cognitive bias is a form of both conscious and unconscious bias, where a decision is made against the facts. Often we don't recognise that we have made an interpretation based on a short cut decision. There are many biases, however here are 8 biases commonly found in the workplace:



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<b>In-Group Bias</b>	Tendency to think “their” group is better, and outsiders are inferior.
<b>Hyperbolic Discounting</b>	Tendency to choose the reward arriving sooner than later.
<b>Availability Bias</b>	Tendency to take a mental shortcut and rely on immediate information that comes to mind when making a decision.
<b>Mere Exposure Bias</b>	Tendency to like things because we are familiar with them.
<b>Confirmation Bias</b>	Tendency to favour information that supports our preconceptions.
<b>Halo Effect</b>	A false belief that if a person excels in one area they will excel in something unrelated.
<b>Band Wagon Effect</b>	Tendency to go along with other members of the group.
<b>Negativity Bias</b>	Tendency to give more weight to negative (rather than positive) experience and information.

## Some facts about bias

There are at least 150 different cognitive biases. Humans need cognitive bias to live comfortably but we are very biased!

**Example of real life bias when a famous US orchestra mitigates the issue by holding blind auditions:**

[The Guardian - How Blind Auditions Help Orchestras Eliminate Gender Bias<sup>1</sup>](http://www.theguardian.com/women-in-leadership/2013/oct/14/blind-auditions-orchestras-gender-bias)

## Action Plan

**Bias Awareness**

**Mitigation Strategy**

**Implementation**

### Step 1

Understand the causes and types of cognitive bias.

The organisation should develop an awareness of bias and then attempt to identify the biases that exist within their culture.

### Step 2

Develop mitigation strategies.

### Step 3

Implementation of mitigation strategies should encompass culture, processes, policies and enablers.



## Careful!

Unconscious bias training is currently very popular in industry and academia but there is little evidence it reduces bias. Identifying a bias is only step one. Awareness is a good start, but in itself does not fix the problem.<sup>1</sup>

**“Being a blonde, blue-eyed female DOESN'T HELP when interviewing in a manufacturing/plant setting.**

**Still getting asked if I can handle being in a mostly male work environment in interviews in 2009 - I've been an engineer for 9 years, obviously I can.**

**I know when I'm asked that question, I HAVE NO CHANCE AT THE JOB. It is nice they brought me in for equal opportunity survey points but don't waste my time if you don't take females seriously”<sup>2</sup>**

## Step 1 - Awareness

### Identification

Participate in a questionnaire focusing on bias. Discuss your experiences with your colleagues.

#### Individuals:

- Take the Implicit Association Test (IAT) online from Harvard:

<https://implicit.harvard.edu/implicit/takeatest.html>

- Learn how to bring awareness to individuals and companies.

[Lean In 'Learn How to spot gender bias – and hear successful women's strategies for navigating it'.<sup>3</sup>](#)

#### Companies

- Use benchmarks such as WGEA and external market surveys to assess your organisation's performance.<sup>4</sup>

### Acceptance

Accept that everyone is different and be aware of specific biases that can affect others. Accept that change is needed.

Refer to :

[Getting from Losses to Commitments: The Change Acceptance Cycle.<sup>5</sup>](#)

1. <http://www.ugmconsulting.com/ls-unconscious-bias-training-making-things-worse.html>

2. Studyofwork, Stemming the Tide: Why Women Leave Engineering, [http://www.studyofwork.com/files/2011/03/NSF\\_Women-Full-Report-0314.pdf](http://www.studyofwork.com/files/2011/03/NSF_Women-Full-Report-0314.pdf)

3. <http://leanin.org/education/introduction-to-what-works-for-women-at-work/> 4. <https://www.wgea.gov.au/lead/benchmarks>

5. <http://www.smartdraw.com/solutions/acceptance-cycle.htm>

## Steps 2 and 3 - Mitigation Strategies and Implementation

### Bias A

Ingroup bias- No women applied for an internal job promotion or new hire.<sup>1</sup>

### Mitigation A

Actively seek female candidates and encourage women to apply.

### Process:

- Take names off CVs (assess merit).
- Internally driven quotas (not pushed by WGEA or external organisation).

### Culture:

- Mix of gender in mentoring programs
- Workshops e.g. gender and position role playing, what changes are required to have a female supervisor
- Raise awareness of bias via questionnaires
- Encourage flexible workplace arrangements

### Enablers:

- Have females on the interview panel.

### Policy:

- Establish and enforce Equal Employment Opportunity.

<p><b>Bias B</b></p> <p>Perceived separation between the office and work site environments, including differences in culture and behaviour.</p>	<p><b>Mitigation B</b></p> <p>Drive all workplace environments to encompass the same standard of behaviour.</p>	<p><b>Process:</b></p> <ul style="list-style-type: none"> <li>• Introduce a health scorecard for each work site and then reward improvements.</li> </ul> <p><b>Culture:</b></p> <ul style="list-style-type: none"> <li>• Introduce male Champions of Change.</li> <li>• Question and challenge incorrect behaviour.</li> <li>• Ensure open lines of communication.</li> </ul>
<p><b>Bias C</b></p> <p>Politeness versus Interrupting. Or assertiveness and dominance versus subservient and polite. Women in meetings/ on boards often find themselves saying “I just said that” and “please don’t interrupt”<sup>2</sup></p>	<p><b>Mitigation C</b></p> <p>Allow everyone to have their say.</p>	<p><b>Culture:</b></p> <ul style="list-style-type: none"> <li>• Set expected politeness level norms.</li> </ul> <p><b>Process:</b></p> <ul style="list-style-type: none"> <li>• Establish a set of meeting rules where interrupting is not acceptable</li> <li>• Give every individual in the meeting the opportunity to speak</li> </ul> <p><b>Enablers:</b></p> <ul style="list-style-type: none"> <li>• Chairs to balance the speech dominance</li> </ul>
<p><b>Bias D</b></p> <p>Perceived bias on flexible workplaces.</p>	<p><b>Mitigation D</b></p> <p>Break the stereotype that only mums need a flexible workplace.</p>	<p><b>Culture:</b></p> <ul style="list-style-type: none"> <li>• Reinforce examples with Champions of Change and publish flexible work arrangement case studies.<sup>1,2</sup></li> </ul> <p><b>Policy:</b></p> <ul style="list-style-type: none"> <li>• Establish and encourage flexible workplace arrangements.<sup>3</sup></li> </ul>

1. <http://equilibriumchallenge.com.au/> 2. <http://www.consultaustralia.com.au/Home/Advocacy/WorkforceDiversity>  
3. [http://www.engineersaustralia.org.au/sites/default/files/shado/Learned%20Groups/Interest%20Groups/Women%20in%20Engineering/wie\\_industry\\_blueprint\\_web\\_2015.pdf](http://www.engineersaustralia.org.au/sites/default/files/shado/Learned%20Groups/Interest%20Groups/Women%20in%20Engineering/wie_industry_blueprint_web_2015.pdf)

## Creating an inclusive and balanced team - Case Study



**Photo:** At the back left to right:  
Rod Paynter, Guy Wilkinson.  
Around the table left to right:  
John Aldred, Ross Campbell, Kate Borg

### **Kate Borg**

WSP Parsons Brinckerhoff

As part of the Succession Planning work for the Civil Infrastructure business team at WSP Parsons Brinckerhoff Melbourne, a sponsorship plan has been developed for all staff to participate within the team.

The plan provides the opportunity for senior employees to be leaders in their field and for junior or mid level employees to elect which area or areas they are interested in with the view to developing their skills in these areas.

The team is divided into key areas such as; Civil Engineering, Structural Engineering, Project Management and CADD systems.

Each area has a leader nominated who is the 'champion' of this group. Junior and Mid-level team members are then consulted on as to which area they would like to be part of or get to know more about for the development of their longer term careers.

The advantage of this plan is that it provides the opportunity for leaders to acknowledge where there are staff members willing to learn and become part of the succession plan for this area.

It also identifies to the junior staff members who the key leaders are within the business for each area. Team members can formalise their career development discussion depending on the area they are interested in or have developed a strength.





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- **WGEA, A strategy for inclusiveness, well-being and diversity in engineering workplaces:**  
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<http://www.defence.gov.au/pathwaytochange/>

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<https://www.wgea.gov.au/lead/employer-choice-gender-equality>
- **Gender Equality Principles, Building a 21<sup>st</sup> Century Workplace:**  
<http://www.genderprinciples.org/>
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Industry Partners:

