



**NACEW**

**WOMEN IN  
INNOVATION  
SUMMIT**

Enabling & Empowering  
through the Tech Sector

APPENDIX ONE

SUMMARY OF  
**SUMMIT DISCUSSIONS**

Opportunities, Barriers and Recommendations to  
Increase Women's Participation in the  
Digital Technology Sector

# OVERVIEW

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This report documents the discussions held at two Women in Innovation Summits hosted by the National Advisory Council on the Employment of Women (NACEW) in Auckland on 10 June and Wellington on 18 June 2014. NACEW gratefully acknowledges the excellent contributions made by participants at both the Summits, including the six speakers whose thoughts and challenges stimulated the discussion. Speakers at the Auckland Summit were Frances Valentine, Helen Robinson and Victoria Crone. Speakers at the Wellington Summit were Melissa Clark-Reynolds, Rod Drury and Professor Shaun Hendy. We also acknowledge the Minister of Women's Affairs, Hon Jo Goodhew who attended both Summits.

# SUMMARY

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## **Summit participants identified many opportunities for girls and women in technology:**

- women have power as consumers of technology and as mothers
- women offer a unique perspective and different skills sets that make them valuable as employees and business leaders
- there is a national and global skill shortage in IT
- there are already women working in tech who are passionate, agile and willing to share their knowledge and support other women and girls in the tech sector
- cloud-based learning is likely to revolutionise the education system and the way children learn.

## **Participants identified the following barriers:**

- the rapid pace of change and advancements in technology
- misconceptions and low awareness about employment opportunities in the technology sector
- the education system
- unconscious bias
- employment practices.

## **Participants made a large number of recommendations for change which cluster into six themes:**

- increase the visibility of women in technology
- influence the influencers – educate mums and parents
- improve the education system
- improve employment practices
- encourage innovation
- co-ordinate action and collaborate.

# OPPORTUNITIES

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Participants at the Summits were asked to identify the opportunities for girls and women in technology.

Girls and women are high users and buyers of technology. With women making 80% of household purchases, we have power as consumers of technology and as mothers.

*80 percent of the world's purchasing decisions are made by women ... we have an innate advantage because we are the dominant consumer in society. So the fact that businesses don't embrace us and bring us in means that they are missing out on a whole aspect of purchasing behaviour.*

- Victoria Crone

Women offer a unique perspective (eg. in assessing risk) and different skill sets (eg. flexible, intuitive, future focused) that are valuable as employees and business leaders.

*One of the greatest opportunities we have as women is to not accept the status quo. We can do lots of things. We are highly flexible, we are highly motivated, we are highly nimble, we think on our feet. We are really strategic when we think about what is right. I also think we have a great responsibility to each other and to look out for each other. We have a great responsibility to keep driving forward.*

- Helen Robinson

*How do you overcome the challenges of being a senior woman in business? Persistence. Having a really thick skin. Building your networks. Prioritise. Set your boundaries. Keep up with the trends. Use the technology. Be authentic in who you are. And plan like hell.*

- Victoria Crone

There is a national and global skill shortage in IT. Young women can be supported to meet this demand. New Zealand's geographical isolation is not a barrier. Technology is required across all sectors and occupations.

*Do you understand what tomorrow might look like? Do you understand that your children might be involved with 3D printing and robotics and neuroscience and programming or computer science?*

- Frances Valintine

***We are about to hit a third revolution – the industrial internet revolution – which is about getting the internet into every piece of industry that we have. We haven't really started on this journey of change. The changes that we're going to see through that are going to be more phenomenal than anything we've seen so far.***

**- Victoria Crone**

The sector can leverage off technology to do good things, building a social good network. It is easy to develop virtual communities of interest to enable support and collaboration.

***Technology is all about how you make people's lives better.***

**- Victoria Crone**

There are already women working in tech businesses and start-ups who are passionate, visionary, agile and willing to share their knowledge and support other women and girls in the tech sector. Showcase these role models and empower young women. In turn, this could start a process of establishing new societal values and norms.

Cloud-based learning is likely to revolutionise the education system and the way children and young people learn (eg. integrating learning across subjects, flip classrooms, MOOCs). Technology can make what children are interested in really fly. There are mutual benefits to industry and schools linking together (eg. outsourcing tech teaching).

***My prediction is that in six years the majority of people... [will be] online learning globally... and suddenly our bricks and mortar universities that we have spent huge amounts of money on locally will seem very expensive by comparison.***

**- Frances Valentine**

# BARRIERS

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**Five main issues were identified as creating barriers to girls and women participating in the technology sector:**

- the rapid pace of change and advancements in technology
- misconceptions and low awareness about employment opportunities in the technology sector
- the education system
- unconscious bias
- employment practices.

## RAPID TECHNOLOGICAL CHANGE

Rapid change has been brought about by the 'technological revolution'. Participants identified that a societal and generational divide is emerging between people who embrace technology and those who are resistant or lag behind. Participants especially commented on mothers' fearful response to technology. If mothers are fearful of technology, they can gatekeep and limit their children's access to tech.

*Parents have a mismatch between what they know and the future for their kids.*

***The biggest challenge we have is actually the mums... we hear time and time again mothers saying [technology] is not for my daughter, it's not for my son.***

**- Frances Valintine**

*Is the prolific tech use among kids broadening their aspirations or are their elders still restricting their options?*

***[Need to] help people embrace the positive changes of technology on society and reduce the fear of change.***

***A weakness of women is that we are so fearful for our kids for the future that we hold them back.***

**- Victoria Crone**

## MISCONCEPTIONS AND LOW AWARENESS ABOUT EMPLOYMENT OPPORTUNITIES IN THE TECHNOLOGY SECTOR

Participants identified that misconceptions about the type of work and people involved in technology (“geeks and freaks”, “lots of smelly boys”) give this sector a distorted and poor image. Participants noted that this image problem means girls and their parents do not always aspire to follow a career in technology.

*How do we up the cool-factor for girls in tech?*

*[Need to] change the way NZ families and society portray science and technology to children*

***We don't have enough role models. We don't have enough people out there that we can say “we want our kids to be like this person.***

**- Frances Valentine**

There can also be a lack of awareness of the opportunities the technology sector offers.

*Technology is not tangible. What job does it lead to? How to communicate the possibilities.*

*Everybody thinks technology is just coding.*

*What does a career as a programmer look like?  
What are our girls seeing?*

***In New Zealand 15 percent of angel and venture capital money goes to companies that have a woman founder. In the US it is 0.97 percent.***

**- Melissa Clark-Reynolds**

## THE EDUCATION SYSTEM

There were many comments about the education system failing to respond quickly enough to the changes and opportunities brought about by advances in technology. Technology presents an opportunity to seamlessly integrate learning across subjects, yet in most cases schools are still teaching subjects in “silos”.

There was also discussion by participants about the education system limiting technology classes to learning how to use a device, rather than using technology to facilitate learning. Many participants were of the view that technology was being introduced and taught to children too late at school.

*At school there is less acceptance of technology but there is total acceptance in the workforce.*

*Change the focus of our primary education system from disseminating "knowledge" to one of encouraging "learning for life".*

*Science is compulsory :-) Tech is optional :-)*

***The most important things are not what we do in secondary schools and not what we do at universities. But where we are in preschool and where we are in primary... We have to be getting our young children into these ideas right from the beginning.***

**- Melissa Clark-Reynolds**

Many participants were of the view that many teachers need more training and support to incorporate technology into their teaching practice.

*Teachers [should be] supported in terms of relevant and resourced PLD (professional learning and development) and given more non-contact time for preparation, collaboration and innovation.*

*Primary teachers need confidence in science and maths.*

***The teachers are only doing what they were trained to do.***

**- Frances Valintine**

***We need to be putting more money into professional development for primary school teachers. A lot of them are not technologically capable... the people who are day-to-day, in-and-out with [children] are not able to role model and that's where we have to change, the role models. We have to make it that it's absolutely compulsory in Teacher's College.***

**- Melissa Clark-Reynolds**

Some participants commented that the advice given to girls by school careers advisors is “pigeon holing that replicates” assumptions about what girls should do. Participants noted that careers advisors had the challenge of “how to describe the future jobs”.

***The good news is that the choices [for girls at school] have changed quite a lot. The down side is that we are still pigeon-holing our girls.***  
**- Melissa Clark-Reynolds**

Low numbers of women graduating with tertiary qualifications in computer science and information technology was identified as a problem for recruiting women and meeting the demand for skilled technology professionals.

Some participants thought that better information could be provided at school about careers in technology.

*Change the perception schools encourage of career paths, particularly around tech and industries which change rapidly.*

## **UNCONSCIOUS BIAS**

Unconscious bias influences what people think is acceptable for girls and women to do. Unconscious bias is based on stereotypes and generally limits opportunities for women. People are sometimes unaware that their values and belief systems are biased.

*[There are] assumptions about technology and innovation and what girls can do/should do.*

At both Summits, participants noted that girls and their parents sometimes had a narrow view of suitable career opportunities and could exclude technology as a viable option. Parents are key influencers and can encourage their children to embrace the opportunities technology presents even if technology is unfamiliar to them.

*Encourage young mothers to introduce their daughters into technology. Today has pointed out to me that it is perceived as a ‘boy thing’.*

***Of the children who come to The Mind Lab, 80 percent are boys. How is that possible? From a very young age we are already predetermining what’s an appropriate skill set by gender, but also what is an appropriate skill set for the future.***

**- Frances Valentine**

Participants said that girls should be encouraged to develop an interest in a range of subjects, including technology, from a young age.

*[We need] teaching for primary school aged children which goes against the gender and racial normative approaches and shows anyone can be anything they like.*

Participants at both Summits said that confidence remains a barrier for many women in terms of choosing, advancing and talking about their careers.

*Women go for a job if they have 80% [of the experience or competencies specified]. Men go for a job if they have 60%.*

***The biggest barrier to women in technology is the level of confidence, especially in the early to mid-stages of their careers.***

**- Helen Robinson**

Some participants commented that New Zealand society perpetuates limiting stereotypes about women.

*NZ culture prides itself on being egalitarian. I would shine a light (through data, media, education etc) on the unconscious biases we all have. I think bias is like driving skills in that we tend to underestimate our vulnerabilities/weaknesses.*

*To make things equal across all areas of life from business life to family life. No expectations on who you are and what you do. Equality across gender, race, culture and age.*

## **EMPLOYMENT PRACTICES**

Participants at both Summits said employment practices (eg recruitment and interviewing processes) posed barriers to women's employment in technology. These practices resulted in unequal gendered pay, a lack of diversity in workplaces and the under-representation of women in senior leadership positions in companies.

*Dude-centric business.*

*So often we are 'programmed' [to make employment decisions] rather than looking at the skill base/person in front of us.*

*The tech industry believes it is a meritocracy and doesn't see any problems and that other factors have influenced choices and opportunities.*

Rod Drury, speaking at the Wellington Summit, observed that the gender balance of employees in companies does not always reflect their customer base. Given women's purchasing power, it makes good business sense to employ women in your company.

***If you really are a customer-led company, your board should match the demographics of your customer.***

**- Rod Drury**

Participants at the Wellington Summit noted the impact childrearing has on women's employment, for example, exiting and re-entering the workforce and the availability of paid parental leave. They noted that the "attitude" a business has about investing in women who are of childbearing age makes a significant difference for women.

*[It is about] maintaining your competence and confidence around when to have kids and career breaks (men and women).*

# RECOMMENDATIONS

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In response to the identified barriers and opportunities, participants at the Summits generated a range of recommendations, focused on increasing female participation in technology.

## Participants' recommendations for change cluster into six themes:

- increase the visibility of women in technology
- influence the influencers – educate mums and parents
- improve the education system
- improve employment practices
- encourage innovation
- co-ordinate action and collaborate

## INCREASE THE VISIBILITY OF WOMEN IN TECHNOLOGY

### RECOMMENDATION ONE:

**Show students and New Zealand what a career in tech looks like and what the opportunities are**

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*Send role models/industry leaders into primary schools to ensure the very young people in this country get a broad overview of life paths before making curriculum choices.*

*[It's about] pitching the opportunity differently.*

*They just haven't seen the types of jobs before. If we can get young females 15 to 17 years old coming through and seeing that we've got great female technical leadership inside [Xero] we think that's kind of cool.*

**- Rod Drury**

*Reframe the message for those who aren't getting it yet.*

### RECOMMENDATION TWO:

**Develop a mentorship/buddy programme for women in technology**

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### **RECOMMENDATION THREE:**

#### **Showcase more stories of amazing women in technology**

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*Show them how fun and interesting it is to be an engineer! Being in the IT field for over 10 years, I can say computer science is anything but boring.*

*I will fund and develop a series of “this is how I got here” videos aimed at school children from a diverse group of people, with the plan of attracting them to more innovative roles.*

***We could create a website called ‘Girl Jobs’ or something and have all the companies submit jobs that people haven’t seen and do some 90 second interviews which would be a really cost effective way for younger girls to see that there are really cool jobs in tech.***

**- Rod Drury**

*Give kids a real taste of what it means to be a woman in technology. I will write up a blog post for my school’s year 10 blog about technology and women’s opportunities in careers that involve or rely on technology.*

*Normalise the idea of women in high power roles, particularly in innovation and tech. Create public conversations and profiles/role models and take it right down to every classroom from primary age up.*

*Open NZs eyes to the positive impact and opportunities (women and) technology can drive. Change the conversation – from fear of unknown to excitement and hope of possibilities; from geeks and freaks to NZ heroes, role models and challengers.*

***We need to ignite a desire in women that it is cool, that it is fun to work in technology, that you can do amazing things and change things.***

**- Victoria Crone**

## **INFLUENCE THE INFLUENCERS – EDUCATE MUMS AND PARENTS**

### **RECOMMENDATION FOUR:**

**Run workshops with mums to address their fears and increase their tech ability**

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*Educating mothers to appreciate how important IT will be to the success of their child*

### **RECOMMENDATION FIVE:**

**Teach young parents how to be tech savvy and how to introduce their daughters to technology**

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### **RECOMMENDATION SIX:**

**Teach tech with students, parents and teachers all together**

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*I will help my daughter with her maths homework (not leave it all to her dad!).*

*Family technology Sundays – educate myself and kids on tech.*

*Introduce my 7 year old son to Code Avengers – and then some! Yes, that's right, time to buckle up and put on my big girl panties and let me go for it!*

*Show parents and teachers what a "tech kid" looks like at every different age – ad campaign to inform.*

## **IMPROVE OUR EDUCATION SYSTEM**

### **RECOMMENDATION SEVEN:**

**Introduce technology at preschool and primary school, and teach girls code at a young age**

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*Manaiakalani is a fantastic programme and we need to be extending that out across all schools, particularly all low decile schools.*

**- Melissa Clark-Reynolds**

**RECOMMENDATION EIGHT:**

**Improve the way tech is taught and used in school, including consideration of outsourcing tech education**

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*Technology can be a vehicle to do exciting, innovative and meaningful work.*

*Encourage innovation in schools. Rather than just teaching knowledge, also encourage real life projects that empower women (and men) and encourage creativity eg coming up with real business ideas, community events using technology. If we spark creativity and innovations in early years, these might be our successful entrepreneurs of the future.*

*In the classroom – how can we use tech to make what you're interested in even better?*

**RECOMMENDATION NINE:**

**Support teachers to teach tech with relevant, regular and collaborative professional learning and development (PLD) opportunities**

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**RECOMMENDATION TEN:**

**Support teachers to teach tech with relevant, regular and collaborative PLD opportunities**

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**RECOMMENDATION ELEVEN:**

**Consider whether adequate funding is provided to schools for digital technology**

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**RECOMMENDATION TWELVE:**

**Make technology education relevant to career choices, and link schools and tertiary institutions with the tech industry**

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*Find a way to incentivise business to share industry experience and careers... bring more 'real people' with technology careers into the classroom. Make the role model stories into reality.*

**RECOMMENDATION THIRTEEN:**

**Actively recruit and support secondary school girls into tertiary study in computer science and information technology**

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*Continue to help university students develop professionally and aid them to have confidence to take a role in the technology industry. This means trying to actively involve younger high-school age women who will replenish this generation.*

*We really slip on financial literacy for our girls. It is incredibly difficult for women to raise money if they have never talked about money, if they're uncomfortable talking about money.*

**- Melissa Clark-Reynolds**

**IMPROVE EMPLOYMENT PRACTICES**

**RECOMMENDATION FOURTEEN:**

**Encourage employment appointments based on merit and raise awareness of unconscious bias in recruitment and interview practices**

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**RECOMMENDATION FIFTEEN:**

**Increase diversity in the workplace (gender, ethnicity, age)**

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*Diversity increases innovation. Part of that is gender diversity.*

**- Prof Shaun Hendy**

**RECOMMENDATION SIXTEEN:**

**Ensure men are more aware of issues around women's employment and workplace diversity**

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*Women talking about women can only go so far – we also need men to take action.*

**RECOMMENDATION SEVENTEEN:  
Support men to take advantage of flexible work options**

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*Create workplace cultures that encourage and support men to work flexibly/care for children, which would then create more opportunities for women in leadership.*

**RECOMMENDATION EIGHTEEN:  
Support women managers to continue to advance in their career**

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**RECOMMENDATION NINETEEN:  
Legislate for pay equity**

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**RECOMMENDATION TWENTY:  
Offer 'Restart' grants for women re-entering the workforce after caring for children**

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**ENCOURAGE INNOVATION**

**RECOMMENDATION TWENTY-ONE:  
Find ways to build innovation into businesses through structure and process, so that a focus on innovation becomes the norm**

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*It is about having a network of people who think differently, who bring different skills to the table and work in different ways that creates innovation.*

- Prof Shaun Hendy

**RECOMMENDATION TWENTY-TWO:  
Encourage a lifelong learning philosophy in our schools**

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*Tell the real story of NZ and the workplace. This might/should be industry partnership. It should happen at a young age – not [for young people] to make a decision, but to get an understanding or perspective. [It] might not be a question of training in a career but growing children's' capabilities.*

## CO-ORDINATE ACTION AND COLLABORATE

### RECOMMENDATION TWENTY-THREE:

#### Find sector champions and listen

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*Take a bold 'non-government' approach to activating progress and facilitating change – no codes of conduct, no government driven initiatives. Find sector champions and listen.*

*[New Zealand has] no technology plan... We need a Chief Technology Officer of New Zealand... someone who reports to Cabinet every two or three months who says these are the four or five things we need to do.*

- Rod Drury

### RECOMMENDATION TWENTY-FOUR:

#### Find out what's already going on and collaborate

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*We need to get better at working together/collaboration/interdisciplinarity.*

*It's scary what people in this room don't know about what's already happening!*

*Make sure we don't reinvent the wheel by finding out what's already going on in this space and combining resources – collaborate.*

*Sharing ideas creates new ideas... openness is a key thing.*

- Prof Shaun Hendy

*One of the key skills that people need now is collaboration.*

- Melissa Clark-Reynolds

### RECOMMENDATION TWENTY-FIVE:

#### Build a community of interest and momentum for change

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Many participants and some of the speakers have indicated they are keen to continue to work together with NACEW and each other to achieve the aim of increasing women's participation in technology.

## CONTACT US

**Angela Davis**

Work Programme Manager  
for NACEW

[nacew@mwa.govt.nz](mailto:nacew@mwa.govt.nz)

Tel 04 916 5823

**Ministry of Women's Affairs**

Level 2

48 Mulgrave Street

PO Box 10049

Wellington 6143

[www.nacew.govt.nz](http://www.nacew.govt.nz)

[www.mwa.govt.nz](http://www.mwa.govt.nz)



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