TECH’S WOMAN PROBLEM:
MORE THAN JUST A PIPELINE ISSUE
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“There’s no question that tech has a ‘woman problem’. Comprehensively addressing the under-representation of women in IT must be part of any plan to develop a diverse and sustainable IT workforce for the future. A workforce development strategy that goes beyond simply increasing the supply of female IT graduates - that includes increasing the participation and retention of women at the workplace level - has to be part of any effective long-term plan to ensure a strong IT capability into the future. If we don’t address the factors that contribute to women’s attrition from the IT workforce as part of a broader plan, any chance of increasing participation rates over the long-term, closing the IT gender pay gap, providing genuine equal opportunity in the workplace and addressing women’s differential retirement savings will be lost and we’ll be looking back in another ten years still wondering why we haven’t managed to do what’s needed to ensure employers have access to the broadest pool of high-quality tech talent. Rachel Thomas put it succinctly when she said: ‘If you think women in tech is just a pipeline problem, you haven’t been paying attention .. Because of the high attrition rate for women working in tech, teaching more girls and women to code is not enough to solve this problem.’
While ensuring a strong supply of work-ready IT graduates from universities is critical and many of the science, technology, engineering and maths (STEM) interventions and funding initiatives currently in place focus on this end of the pipeline, Professionals Australia sees the issue of removing the obstacles, barriers and biases which create disadvantage and operate as disincentives for women to remain in the IT workforce at the enterprise level as equally important.

Our view is that numerical equality will always only be part of the solution to increasing and sustaining women’s participation in IT – the vital second part of the equation is addressing the issues that lead to women leaving the tech workforce. We see the focus on issues in the workplace and addressing the reasons professional women leave the IT workforce as a critical part of progress toward gender equity in IT without which all the effort and investment in working towards numerical equality will be wasted. We need to ensure not only that women’s IT education translates into workforce participation but into retention in the IT workforce over the longer term.

Put simply, there’s no question that tech has a ‘woman problem’. Comprehensively addressing the under-representation of women in IT must be part of any plan to develop a diverse and sustainable IT workforce for the future. A workforce development strategy that goes beyond simply increasing the supply of female IT graduates - that includes increasing the participation and retention of women at the workplace level - has to be part of any effective long-term plan to ensure a strong IT capability into the future. If we don’t address the factors that contribute to women’s attrition from the IT workforce, any chance of increasing participation rates over the long-term, closing the IT gender pay gap, providing genuine equal opportunity in the workplace and addressing women in IT’s differential retirement savings will be lost and we’ll be looking back in another ten years still wondering why we haven’t managed to do what’s needed to ensure employers have access to the broadest pool of high-quality tech talent.

Rachel Thomas put it succinctly when she said: “If you think women in tech is just a pipeline problem, you haven’t been paying attention .. Because of the high attrition rate for women working in tech, teaching more girls and women to code is not enough to solve this problem.”

INTRODUCTION

Chris Walton
CEO, Professionals Australia
SUMMARY OF KEY POINTS

• Gender diversity in IT is a mainstream workforce development issue. Skills shortages in emerging areas are likely to result if we don’t broaden the talent pool.

• The gender pay gap is not explained by women working part-time because the gap persists for those in full-time roles.

• You won’t “fix” differential retirement savings until you “fix” the full range of factors that contribute to the gender pay gap.

• The gender pay gap can’t be closed by simply paying males and females in like-for-like roles the same - occupational segregation in the form of women’s overrepresentation in less senior lower paid roles or fields and underrepresentation at senior, management and executive levels is a major factor contributing to the gender pay gap.

• Numerical equality is not a solution in itself - the second half of the equation is addressing the factors that contribute to the attrition of women from the STEM workforce once they get there.

• IT Professionals Australia 2018 survey figures confirm not only a high rate of gender-based discrimination in STEM but also intersectionality as an important factor in discrimination, that is gender as a factor in other forms of discrimination such as age or race-based discrimination.

• Women leave STEM because they can’t advance their careers.

• Women leave STEM for the same reasons, whether or not they have children.

• Bias in access to career-building activities is a key obstacle to career advancement.

• Working part-time can lead to significant career penalties.

• Support for reskilling as part of a broader return to work strategy is critical because of the rapid pace of change in IT.

• Unconscious gender bias in workplace culture, recruitment and decision-making is widespread in STEM.

• Women love the work but don’t like the work environment. Developing diversity policies and implementing management accountability for delivering them is a useful strategy for closing the gap between diversity policy and practice in the workplace.

• Existing policies should be reviewed for potential indirect discrimination.

• Employers should provide mandatory training for all staff on preventing sexual harassment, an effective complaints mechanism, information to assist with prevention, clear policies on prevention and prohibition of sexual harassment and sexual harassment to be treated as a workplace health and safety issue.

• Gender stereotyping negatively impacts women’s opportunities for advancement in STEM fields.
THE CURRENT STATE OF PLAY

UNDER-REPRESENTATION

Women continue to be seriously underrepresented in the IT workforce. Females account for only 25 per cent of those with post-secondary IT qualifications in Australia. Female participation in the IT labour force is also lower than across other occupations with a participation rate of only 28 per cent of IT workers compared to 45 per cent across all professional industries.

INCREASING DEMAND

According to recent data from Deloitte, the number of IT professionals in Australia has risen to a record 663,100 in 2017, up from 640,846 in 2016. This figure is forecast to swell to 721,886 by 2022, reflecting the increasingly integral role of IT in business transformation. Demand is likely to increase by 100,000 in the period to 2020. According to the Deloitte Report, around one-third of this growth will be in ICT management and operations roles (projected to increase by 31,300 workers) while a further 27 per cent will be in ICT technical and professional roles (26,200 workers).

WOMEN IN CYBERSECURITY

Cybersecurity is a good example of an emerging area in the IT sector that requires a greater pool of IT talent to draw on to meet Australia’s future needs. Cybersecurity Ventures estimates that with cybercrime likely to triple over the next five years, around 3.5 million job openings will be created by 2021. Their research shows that women represent only 20 percent of the global cybersecurity workforce in 2018.

If Australia is to remain competitive in this period of rapid change and fill the demand for IT skills in emerging areas, we need to build a skilled, adaptable, vibrant and diverse local IT workforce - that means not only attracting the next generation of women to IT but also addressing the factors that contribute to them leaving the workforce and specific measures at the enterprise level to help address the obstacles and barriers they may face.

Only then will we be fully and effectively utilising our IT talent base as a means of meeting projected increases in demand.

GENDER PAY GAP

The latest WGEA Gender Equality data shows a gender pay gap of 22.6 per cent in the Professional, Scientific and Technical Services industry, and 19.1 per cent in the Information Media and Telecommunications industry. Deloitte figures show that average earnings continue to be lower for women in the ICT workforce than for men, with an average pay gap of around 20.0 per cent.

Female ICT graduates in full-time roles at both the Bachelor and Doctorate level are less likely to earn an income in the highest wage bracket ($104,00 and over). At the Bachelor level, only 17 per cent of females reported earnings in the top pay bracket compared to 29 per cent of males, and at the Doctorate level, 31 per cent of females reported earning in the top pay bracket compared to 42 per cent of males.

The 2018 Professionals Australia ICT Professionals Employment and Remuneration Survey Report confirmed a pay gap with full-time male respondents’ base salaries averaging $98,927 while full-time female respondents’ base salaries averaged $86,407, indicating a pay differential of 12.7 per cent.

The gender pay gap is not explained by women working part-time because the gap persists for those in full-time roles.

Gender diversity in IT is a mainstream workforce development issue. Skills shortages in emerging areas are likely to result if we don’t broaden the talent pool.
DIFFERENTIAL RETIREMENT SAVINGS LEVEL FOR WOMEN IN IT

The factors that result in lower retirement savings for women in general include:

- their higher rates of participation in part-time and casual work;
- their over-representation in roles of lower responsibility and lower pay;
- their under-representation in more senior roles on higher pay;
- lack of superannuation during career breaks for child rearing and caring for aging parents;
- lack of payment of super while on parental leave; and
- wage "scarring" for women who take a career break for child rearing with women often missing out on annual pay rises in the lead up to parental leave, while on parental leave and in the year they return to work.

Each of these factors apply to women in the IT workforce. While many of the barriers that face professional women in IT are not unique to IT, they can be exacerbated by:

- the historical stereotyping of IT professionals as predominantly male or masculine;
- workplace cultures and unconscious bias in IT which directly or indirectly create disadvantage for women; and
- the rapid pace of deskilling and the subsequent significant impact of taking a career break for child-rearing.

You won’t “fix” differential retirement savings until you “fix” the full range of factors that contribute to the gender pay gap.
OCCUPATIONAL SEGREGATION

Occupational segregation refers to both the industries in which women work compared with men as well as the nature and responsibility levels of the roles in which women work within an industry.

International research suggests that women can be concentrated in “execution” rather than “creator” roles in the IT sector, and both Australian and international research shows that women are underrepresented in leadership and management roles.

In Australia, the latest WGEA data showed that women account for only 38.4 per cent of managers and 16.5 per cent of CEOs and these trends are likely to be reflected in the male-dominated IT sector. International research has found that only 5 per cent of leadership positions in Silicon Valley are women.

Workplace Gender Equality Agency Director Libby Lyons says that data shows that only 6 per cent of managerial roles are worked part-time and with women working part-time at three times the rate of men, this is clearly a key issue. Research confirms that less technical roles with a greater emphasis on soft skills are over-represented in part-time IT work roles.

Part-time work for programmers is in the single digits accounting for 4.4 per cent in males and 3 per cent in females. Sub-specialties classified as IT which enter double digits for part-time work include ICT Trainers, ICT Sales Assistants, Media Equipment Operators, Telecommunication Trade Workers (10.2% M, 0.5% F), Telemarketers (12.2% M, 32.1% F), Telephone Operators (2.3% M, 44.8% F), Technicians (Gallery, Library, Museum, 4.9% M, 56.5% F).

The gender pay gap can’t be closed by simply paying males and females in like-for-like roles the same - occupational segregation in the form of women’s overrepresentation in less senior lower paid roles or fields and underrepresentation at senior, management and executive levels is a major factor contributing to the gender pay gap.
HIGH TURNOVER OF FEMALES IN IT WORKFORCE

Encouraging greater numbers of women and girls to take on STEM subjects at school and driving greater participation is absolutely critical to developing a sustainable STEM workforce and building capacity for the future, but numerical equality is not a solution in itself - the second half of the equation is addressing the attrition of women from the STEM workforce once they get there.

Due to a combination of factors including lack of pay parity, a culture of reward for working long hours, deskilling after a career break, lack of industry commitment to training and retraining, fewer female colleagues, fewer female mentors, persistent stereotypes of IT professionals as male and bias in advancement and development, the ICT workforce loses female employees at much higher rates than it loses their male counterparts.

International research confirms that women leave tech at higher rates than their male counterparts (an attrition rate in the high tech industry of 41 per cent for women compared to 17 per cent for men) driven out by hostile work environments, isolation, extreme work pressures and a lack of clarity surrounding career paths. Women generally leave at the mid-career stage - 10 to 20 years into their careers.

Numerical equality is not a solution in itself - the second half of the equation is addressing the factors that contribute to the attrition of women from the STEM workforce once they get there.

DISCRIMINATION

71.4 per cent of female respondents to the 2018 IT Professionals Australia Employment and Remuneration Survey Report said they had experienced bias or discrimination on the basis of gender in the previous three years.

9.9 per cent of respondents had experienced discrimination on the basis of age - 14.3 per cent of female respondents and 9.5 per cent of male respondents. 9.9 per cent of respondents reported having experienced racial discrimination - 14.3 per cent of female respondents and 9.5 per cent of male respondents.

28.6 per cent of female respondents reported not having experienced discrimination in the workplace over the last three years compared with 78.4 per cent of males.

TABLE 1 - FORMS OF DISCRIMINATION EXPERIENCED IN THE WORKPLACE OVER THE LAST THREE YEARS

<table>
<thead>
<tr>
<th>Form of discrimination</th>
<th>Age</th>
<th>Gender</th>
<th>Race</th>
<th>Religion</th>
<th>Sexual identity</th>
<th>None of the above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>9.5%</td>
<td>0.0%</td>
<td>9.5%</td>
<td>1.4%</td>
<td>5.4%</td>
<td>78.4%</td>
</tr>
<tr>
<td>Female</td>
<td>14.3%</td>
<td>71.4%</td>
<td>14.3%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>28.6%</td>
</tr>
<tr>
<td>All respondents</td>
<td>9.9%</td>
<td>6.2%</td>
<td>9.9%</td>
<td>1.2%</td>
<td>4.9%</td>
<td>74.1%</td>
</tr>
</tbody>
</table>

These figures confirm not only a high rate of gender-based discrimination in STEM but also intersectionality as an important factor in discrimination, that is gender as a factor in other forms of discrimination such as age or race-based discrimination.
Gender inequality in IT is complex and multi-dimensional meaning solutions must necessarily also be complex, multi-faceted and targeted across the policy, structural and workplace levels. There will be no one-size-fits-all solution. The measures needed will depend on the particular barriers and obstacles that exist in particular contexts and the mix of factors that contribute to attrition in a particular workplace.

The following findings set out the range of factors that contribute more widely to attrition in STEM as found by Professionals Australia’s 2018 Women in STEM Survey\textsuperscript{17} that are likely to be factors contributing to the attrition of women from the tech sector.\textsuperscript{18}

**OVERVIEW OF REASONS FOR LEAVING**

Dissatisfaction and frustration with a range of workplace practices including lack of career advancement, pay and conditions, lack of professional recognition and lack of opportunity to gain experience or undertake increased challenges were factors contributing to women considering leaving their profession for those with and without children.

Of those who expected to leave their profession in the next five years, the top six reasons overall were:

- **lack of career advancement** - selected by 46.2 per cent of all respondents;
- **for better pay and conditions** - selected by 40.5 per cent of respondents;
- **for better work/life balance** - selected by 38.0 per cent of respondents;
- **for increased challenges** - selected by 32.8 per cent of respondents;
- **for a change or to gain experience** - selected by 31.7 per cent of respondents; and
- **for greater professional recognition or status** - selected by 26.0 per cent of respondents.\textsuperscript{19}

Women leave STEM because they can’t advance their careers.

**CAREGIVER RESPONSIBILITIES AS A FACTOR IN WOMEN LEAVING STEM**

Lack of career advancement was the main factor influencing respondents’ intention to leave STEM for women both with and without children. The top six factors contributing to women considering leaving their profession were the same for women with and without children though the extent to which they were a factor varied. Gaining a better work/life balance was the top factor contributing to women with children intending to leave the profession. Lack of career advancement was the top factor contributing to women without children intending to leave the profession. These findings are significant because quite clearly a range of factors including but not limited to a lack of work/life balance are contributing to women considering leaving the profession.
Women leave STEM for the same reasons, whether or not they have children.

**FIGURE 1 - FACTORS INFLUENCING EXPECTATION TO LEAVE PROFESSION FOR WOMEN WITH AND WITHOUT CHILDREN (%)**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Women with children</th>
<th>Women without children</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of career advancement</td>
<td>36.2</td>
<td>53.1</td>
<td>46.2</td>
</tr>
<tr>
<td>Better pay and conditions</td>
<td>46.0</td>
<td>46.0</td>
<td>46.0</td>
</tr>
<tr>
<td>Better work/life balance</td>
<td>40.6</td>
<td>44.0</td>
<td>42.6</td>
</tr>
<tr>
<td>Increased challenges</td>
<td>23.6</td>
<td>38.0</td>
<td>30.3</td>
</tr>
<tr>
<td>Change or gain experience</td>
<td>25.3</td>
<td>39.4</td>
<td>32.8</td>
</tr>
<tr>
<td>Greater professional recognition or status</td>
<td>31.7</td>
<td>31.7</td>
<td>31.7</td>
</tr>
</tbody>
</table>

**FACTORS CONTRIBUTING TO LACK OF CAREER ADVANCEMENT AND ATTRITION**

Figure 1 above sets out the broad reasons why female respondents to our survey were considering leaving STEM for all respondents and for women with and without children.

The following sections (1) to (8) set out in more detail some the factors that respondents told us contribute to them wanting to leave or result in them being engaged in less senior roles. We have included comments from respondents to help illustrate first-hand the career experiences of professional women in the STEM workforce.

(1) Bias in career-building activities

While research shows that women are no less committed to their careers than men, that women are just as likely to have a career plan as men and that women are just as eager to attain seniority as men, bias in career building activities was reported as widespread by survey respondents. Some of the systemic biases in career building activities were particularly blunt:

- My past employer developed a program to support women into management positions, I was a team leader and the only female in my group and the only female in a team leader role. I was very forthcoming in stating what my career aspirations were and how my manager could support me - but nothing ever happened, it was all lip service. I was knocked back on all my study requests whilst the boys were approved. Very frustrating.
- I have been told I would not be given management training while working part-time as part-time workers will not be given supervisory roles.
- I was literally told I was not allowed to attend a weekly networking lunch because I was female and [there were] “no girls allowed”.

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Of those who had been promoted in the previous 12 months, only half were actively encouraged by their manager to apply for promotion.

**FIGURE 2 - PERCENTAGE OF RESPONDENTS ENCOURAGED/NOT ENCOURAGED TO APPLY FOR PROMOTION BY MANAGER (%)**

![Bar chart showing the percentage of respondents encouraged or not encouraged to apply for promotion by their manager.](chart)

16.5 per cent of survey respondents said their employer was rarely or never proactive in ensuring that men and women had equal opportunity to career advancement.

**FIGURE 3 - HOW OFTEN EMPLOYER IS PROACTIVE IN ENSURING EQUAL OPPORTUNITIES FOR PROGRESS (%)**

![Bar chart showing how often employers are proactive in ensuring equal opportunities for progress.](chart)

12.5 per cent of survey respondents said their employer rarely or never ensured that career-building opportunities were allocated based on merit.

**FIGURE 4 - HOW OFTEN CAREER-BUILDING OPPORTUNITIES WERE ALLOCATED BASED ON MERIT (%)**

![Bar chart showing how often career-building opportunities were allocated based on merit.](chart)
(i) Lack of access to professional development

Survey respondents noted that a lack of access to professional development had impacted their career progression.

23.5 per cent said they were unnecessarily prevented from undertaking training and professional development due to working part-time.

61.5 per cent said the impact on personal or family time prevented them from commencing or completing professional development.

COMMENTS

• Being a mother does not mean I am any less competent at my role than the fathers in the workplace. But I seem to be not given a go at learning new skills and offered opportunities less skilled and qualified male colleagues take on. I feel my contribution to the workplace is not valued and is seen as less important than my male counterparts.

• I was told I was not allowed to supervise staff because I was part-time.

• I never get given any interesting work or any challenging tasks that will help me to progress. I have been prevented from attending training, even when it falls on my working days, on the basis that other people will have more opportunity to use the outcomes of the training as they work more hours.

• I will be skipped over for training or simply not told if I don’t happen to be at work that day.

• I’ve been allocated menial work/leftover work because I am part-time. This means I miss out on important projects which affects my resume, and I then miss out on further opportunities.

• With a lack of females in senior professional engineering roles, career advancement and role models predominantly depend on male mentors.

• My manager was threatened by my performance and even intentionally excluded me from being involved in networking and career development opportunities.

• I have ended up doing a variety of small jobs to fit around family responsibilities and thus I now have no depth on any one field - that is what they promote on. The organisation does tend to groom people for promotion but I am not on the list.
(ii) Lack of access to role models

Survey respondents noted that a lack of role models and the lack of women both in the workplace and in senior roles were issues that impacted them. Respondents also noted that women in senior roles were not necessarily always positive role models and that in male-dominated workplaces and professions, career support and advancement for women could often depend on positive male role models.

56.0 per cent said a lack of role models was a significant or moderate obstacle to their career advancement.

41.2 per cent said a lack of other women in the workplace was an obstacle to their career advancement.

57.6 per cent said a lack of women in senior roles was an obstacle to their career advancement.

COMMENTS ON ROLE MODELS

- You are often the only woman in a room of 20 to 30 people in meetings and there is a lack of females in senior roles to provide mentoring or even just inspiration.

- There are few women in very senior positions and quite a few of those have been terrible examples.

- I recently realised that because I have lacked female role models in management positions I sub-consciously believed that I couldn’t have those management roles. If I was in a bigger centre or a non-STEM field maybe I would have had a different experience and therefore felt differently.

- I think more needs to be done in schools to attract girls into STEM professions. A lot of young women do not have role models that they can look up to within the STEM area and I think it is a matter of ‘you can’t be what you can’t see’ so many capable young girls do not even consider STEM lines of work. If more young women are attracted to the professions, the percentage of women undertaking the roles will increase and therefore the perception and culture will change over time.

- With a lack of females in senior professional engineering roles, career advancement and role models predominantly depend on male mentors.

- I have been fortunate to have very supportive senior male role models and was encouraged to take on new opportunities.

- I have only had one female manager in my working life and she did nothing to demonstrate good leadership. I often find that women in management positions in this industry behave like the men to get ahead.

- I see the lack of women in senior roles as the biggest issue as there are no role models and no women to pull up more women.

- There is a lack of female role models in more senior roles which makes it more difficult to see myself in a more senior role and also to find someone to ask for advice.

- The lack of women role models and lack of women in senior roles have definitely had an effect on my career advancement. It is important to have a role model and a network to communicate with, to consult and seek advice occasionally.

- On one occasion another woman ostracised me because there was only room for one woman in the group.

- Women in positions of power not supporting other women has been an issue for me.
(iii) Lack of access to mentoring

Many survey respondents noted that both male and female mentors could provide valuable career support. Some observed that mentoring could be used by mentors to either replicate or challenge embedded practices and culture but this did not necessarily hold across gender lines - that is, female mentors did not necessarily challenge negative or gendered workplace practices, and conversely, male mentors could be very supportive of women’s career advancement. Others noted the professional isolation that STEM women can feel working in what can be male-dominated fields, industries and workplaces and the important role mentors can play in helping overcome this isolation.

15.7 per cent said they had engaged in formal mentoring activities in the previous 12 months.

38.2 per cent said they had engaged in informal mentoring activities in the previous 12 months.

61.1 per cent said mentoring would assist in maintaining or progressing their career over the next five years.

24.5 per cent said mentoring in their workplace was informal and often after hours making it less accessible for them.

COMMENTS ON MENTORING

• For me the biggest impact is the sense of isolation/exclusion due to being female and not being part of the dominant (male) group. [It] causes lack of networking, mentoring, sponsorship, coaching opportunities that others access based on who they know and their contacts. It means also that there are fewer role models or examples of career options and different styles that can be emulated or learned from - I only see male managers and how they operate.

• Often there is no clear roadmap for how to progress and often the rationale for promotion was not evident. Without any clear role models or mentors the support network within an organisation is limited.

• With the right kind of mentoring or training I believe I will be able to achieve so much more and enjoy my work more.

• Having a senior female professional mentorship e.g. assuring me that I have done enough and encouraging me to apply for new roles- is vital.

• Discrimination has been less direct. I have directly approached my managers, HR and other mentors within the business to address the issues and seek advice. These have been informal conversations.

• I was one of the first female engineers in my organisation, so there were no women in senior roles at that time. However, I have never felt I needed specifically female mentors or examples. I had strong male mentors and carved a career path through strong performance.

• With a lack of females in senior professional engineering roles, career advancement and role models predominantly depend on male mentors.

• The white male founder of the other company would take the young white, urban Australian men (at least three I was aware of over about 18 months), mentor them, give them more opportunities and favour them for the best projects and professional development opportunities over women or minorities when they weren’t necessarily the best person in the pool of candidates for this.

• Problem is workplace is a mates and boys club so informal networking and mentoring wasn’t available to me. And I hate rugby and golf.

Bias in access to career-building activities is a key obstacle to career advancement.
(2) Career penalty attached to working part-time

After equal pay, flexible work arrangements and work/life balance were nominated by Women in STEM Survey respondents as the most important issues facing professional women.

While gaining access to part-time work and flexible work arrangements can help women balance their work and family responsibilities, the arrangements can also be a means of entrenching discriminatory work practices and structural bias against those who have primary caregiver responsibilities. The survey confirmed that utilising flexible or part-time working hours could result in a narrowing of choice, limiting of opportunities and the reinforcement of discriminatory historic work patterns such as the concentration of women in roles and occupations with less responsibility and seniority. Survey responses showed that women may also self-select out of senior, management or leadership roles because flexible work arrangements are not available at senior levels. The survey found that even where positive workplace policies around flexible work arrangements existed, cultural issues within workplaces meant that accessing these provisions could be difficult. A number of respondents also commented that they had a full-time workload in spite of being paid for part-time hours.

61.5 per cent said balancing work/life responsibilities was a significant or moderate barrier to their career advancement.

48.0 per cent said they believed working part-time had negatively impacted their career.

30.3 per cent said they were unnecessarily prevented from undertaking certain types of work because they worked part-time.

22.3 per cent said they had been sidelined for promotion because they worked part-time.

28.5 per cent said their employer did not currently provide flexible working hours.

34.6 per cent said lack of access to flexible work arrangements was a significant or moderate obstacle to career advancement.

37.6 per cent said they had not approached their manager regarding working fewer hours for fear of being treated adversely.

72.2 per cent agreed or strongly agreed promotions in their workplace were generally drawn from those working full-time.

24.5 per cent said they were seen as not pulling their weight because they used flexible work arrangements.

20.4 per cent of respondents said that management in their workplace thinks that work/life balance is only relevant for women with children.
COMMENTS

• My employer has allowed me to work on part-time work arrangements but this is frowned upon and makes me feel like I have been given a special privilege.

• One company I worked for claimed to support part-time work, yet the projects I was given were below my capabilities and I was told that they didn’t believe I could service my previous style of project on a four-day week.

• The employer’s attitude makes all the difference. A lot will say they support part-time work, but don’t follow through with actions that represent what they are saying.

• The impression of workers when you work part-time is that you’re not putting in as much as others in the workplace.

• Generally, working part-time does not mean part-time workload.

• Managers expect 0.8FTE employees to complete a full workload then you’re marked down in performance reviews when full-time workload is not achieved.

• I don’t see good work/life balance or flexibility with higher levels so don’t apply for them as it’s too stressful to manage the work with family commitments - it’s not worth it.

• Flexibility to manage family and work commitments is a primary barrier as you are not seen as committed or serious if you request flexibility.

• I’ve been told I am not allowed to work on certain projects because the client wants engineers available 40 hours per week minimum. I’ve been allocated menial/leftover work because I am part time - this means I’m missing out on important projects and further opportunities and this affects my resume.

• I felt like I was being judged as unprofessional because I was part-time

**Working part-time can lead to significant career penalties.**
(3) Career disruption and return to work

Research confirms that traditional approaches to career advancement which value a full-time uninterrupted career trajectory can disadvantage women because they are more likely to work part-time and take career breaks to accommodate carer responsibilities. This is particularly the case in the IT sector with a career break likely to create a need for reskilling or skills updating due to the rapid pace of change.

The survey confirmed these findings with respondents reporting that career breaks can have a significant negative impact on advancement opportunities. The complexity and seniority of the projects women were allocated on return to work after a career break was often significantly less/lower than the type of work they were undertaking prior to the break and the project work they were offered was often more menial and did not provide opportunities for development. Very often flexible work arrangements were only available in roles with less seniority, and some women self-selected out of senior roles as a way of balancing their work/life responsibilities. Respondents reported the widely held misconceptions that women don’t want senior, management and leadership roles and that women with children don’t want a career. Comments also suggested that the career penalty attached to having a family for females did not work in reverse with males becoming a parent often rewarded with promotion and greater job opportunities.

68.5 per cent of survey respondents said taking maternity leave had been detrimental to their career.

23.4 per cent said they had been sidelined for promotion because they had taken a career break.

Only 12.4 per cent said their employer currently provided support for reintegration into the workplace after a career break.

COMMENTS

• There is a difference between flexible working arrangements being available, and flexible working arrangements being accessible/realistic.

• Since coming back to work after mat leave (going from full-time to part-time) there has been a big shift in the type of work I am given. Previously I used to run substantial, complex projects and now I’m given small tasks.

• My career path was hindered by maternity leave and by me becoming primary carer and working part-time. My momentum slowed, I became less competitive and opportunities were lost.

• I see the senior leaders in our business roles filling all the senior roles with who they know. I’ve seen plenty of people devalue a woman’s contribution after they have had children, they rarely get positions of responsibility after having maternity leave, nor are they allowed to find flexible work arrangements that would allow them to contribute in a valuable way. It’s like they suddenly have lost all their skills when they take maternity leave.

• I felt out of touch and went backwards in my career.

• I was getting overlooked for interesting and technical projects.

• I am a working female STEM professional. I have been negatively impacted for taking a career break and being the primary carer for my children. I currently work part-time and have flexible working arrangements. I am working at a level lower with much lower pay than I did before I had children and have no potential for advancement in my current workplace. I am finding it extremely difficult to return to a management position in industry, i.e. the position I held prior to having children. I am not challenging myself or working to my full potential - the trade-off is flexible working arrangements.
Lack of job opportunities has been the major issue to advancing my career as a part-time female engineer. The main concern is that I repeatedly miss out on working on the good projects and regularly get assigned menial work.

While the flexible work arrangements exist, they are not widely accepted or used.

I had a manager that after promoting all my contemporaries off the entry-level rung denied me a promotion after seven years at the bottom. The only thing my colleagues and I could work out was that my friends got their promotions within a month of their wife having a baby.

Becoming a parent for me was seen as being able to spend less time at work. The opposite reaction was observed in the same situation with my husband with him being seen as more responsible and given more professional responsibility and promotions after becoming a parent.

Comments also suggested that professional isolation was an issue for respondents on maternity leave.

There were no keep-in-touch arrangements. I was not able to access work emails or communications unless colleagues forwarded information to my personal email account.

I felt out of touch, went backwards in my career and felt out of place.

Out of sight, out of mind. People forget about you when you’re away.

In addition to providing project work that offered the opportunity to develop rather than less responsible less challenging work, and options such as flexible work arrangements at senior levels, respondents suggested that keep in touch arrangements, not deactivating email accounts, providing a handover period, notification of team and organisational changes, an email letting people know of an individual’s return to work, their work days, and their role scope as well as time to get back up-to-speed on return to work were practical ways to support reintegration back into the workforce.

Support for reskilling as part of a broader return to work strategy is critical because of the rapid pace of change in IT.
(4) Conscious and unconscious bias in decision-making and recruitment

The most widely experienced form of unconscious bias reported by respondents was in-group bias (which causes individuals to be more comfortable with and favour people like themselves).

46.0 per cent said unconscious bias was embedded in their organisation’s workplace culture.

43.1 per cent said unconscious bias was embedded in their organisation’s decision-making processes.

45.2 per cent said unconscious bias was embedded in their organisation’s recruitment practices.

59.0 per cent agreed or strongly agreed that in their occupation, women have to prove themselves where men are assumed to be capable.

40.4 per cent disagreed or strongly disagreed that clients respected the professional opinion or advice of men and women equally.

26.7 per cent of respondents said they had negotiated their own salaries. Only 30.9 per cent were confident doing so.

COMMENTS

• My manager prefers to hire men that suit his personality type and culture rather than others. This was highlighted when the technical person on the interview panel said that the interviewee knew nothing due to their answer but my manager still shortlisted them and brought them in. The technical person has been left off the next interview panel for our new roles even though they are for senior technical jobs.

• I once went to a meeting of my boss’s level of people and his boss. There were two newcomers and both were called Robert. The big boss said in jest that that he was planning to have all new Chief Engineers being called Robert. I said quickly that I was changing my name. I then had a couple of people try to defend him that it was just a joke and not prejudice but it was obvious that he was appointing people like himself.

• My current manager unconsciously excludes the women in the team and colleagues show that they think the women can only do administrative tasks.

• Women leaving work to deal with children issues is stigmatised but men seem to be able to come and go with impunity.

• Mostly I’ve experienced anchoring bias - completely illogical assumptions about women.

• I was told that the head office would never put a woman in as another company director because they had done it once before and it didn’t work out very well.

• When I first started I was told that I was the first female engineer and that they had had a female apprentice who had not worked out

Unconscious gender bias in workplace culture, recruitment and decision-making is widespread in STEM.
(5) Diversity policy and strategy

2018 ICT Professionals Employment and Remuneration Survey respondents reported 66.7 per cent of employers had formal policies in place to promote diversity and 66.7 per cent had policies to deal with discrimination. 25.0 per cent of respondents said their employer did not have strategies in place to actually implement policies relating to diversity and discrimination. Clearly the gap between policy and practice is a major obstacle to gender equity in IT.

Women love the work but don’t like the work environment. Developing diversity policies and implementing management accountability for delivering them is a useful strategy for closing the gap between diversity policy and practice in the workplace.

(6) Indirect policy discrimination

While the survey found that implementation of anti-discrimination and diversity policies was a key issue for many respondents (see item 5 above), the survey also found that a failure to review existing policies for potential indirect discrimination was also a significant obstacle to gender equity in STEM workplaces.

Most of the examples of indirect discrimination provided by respondents in relation to obstacles to career advancement and equal pay related to policies around performance pay and training for part-timers.

COMMENTS

- At the beginning of my career, I applied to work on a project with more responsibility and requiring more technical involvement overseas and was told “to leave this task for the boys.”

- My annual performance review result was downgraded from the highest level to a lower level as it is policy that no-one in a part-time role is to receive above a “meets expectations” result. This has directly impacted my earning potential because the performance review result is used to determine pay rise and bonus payments.

- My pay bonus was decreased as I was working part-time. I was informed that because I worked part-time I could not achieve a top tier work output. I challenged this and the Manager changed his basis for my lower ranked work output. No further pay bonus was offered.

- The organisation offers scholarships for further training, but this is not offered to anyone working less than 0.5FTE.

Existing policies should be reviewed for potential indirect discrimination.
26.8 per cent of STEM respondents reported that they had been sexually harassed in the course of their employment.

Of those that reported they had experienced sexual harassment, only 15.0 per cent of respondents had sought advice on dealing with the matter. A disturbing 12.7 per cent left their workplace and 46.7 per cent took no action at all.

Of those that had been sexually harassed at work, 79.1 per cent said they experienced the harassment in the early stage of their career; 42.9 per cent said they experienced sexual harassment in the mid-stage of their career and 8.0 per cent said they experienced sexual harassment at the established senior professional level.

**FIGURE 5 - RESPONSES TO SEXUAL HARASSMENT (%)**

<table>
<thead>
<tr>
<th>Response</th>
<th>% Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not take any action</td>
<td>46.7</td>
</tr>
<tr>
<td>Dealt with the matter informally</td>
<td>35.9</td>
</tr>
<tr>
<td>Sought advice</td>
<td>15.0</td>
</tr>
<tr>
<td>Used a complaints process</td>
<td>18.2</td>
</tr>
<tr>
<td>Left workplace</td>
<td>12.7</td>
</tr>
<tr>
<td>Other</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Note: Respondents could select multiple responses.

**COMMENT**

- The pattern was always to move the complaining female on, not deal with the offending male, but they had nowhere else to put a female engineer. My training and promotion prospects dried up.

- Current practice where a male in a leadership role is found to be sexually harassing/bullying/discriminating against a team member is to move the team member away from the leader to prevent further detrimental behaviour. The problem is never addressed, the boys just look after their friends.

- We had a senior manager who was well-known for his sexual discrimination and bullying against female professionals. I don’t think he ever physically assaulted anyone, but his bullying caused many female staff (including me) to leave over the years. He was finally removed from his post for “other” reasons.

- During my early years, the other engineers and men of senior positions from conferences would comment on how attractive I was for an engineer. One of the men who was in a senior position commented on my physical attributes such as my eyes, lips, hair and asked my ethnicity because I was too attractive. I left the conference as quickly as I could. He made me feel very uncomfortable and I felt helpless since he was well known in the industry.

- Was it worth making an official complaint? No, that would just be another long drawn out painful stressful process which I had seen others go through in that organisation.

- The culture against women in my workplace has resulted complaints not being taken seriously and being used against women down the track when we apply for promotions or new jobs.

- Complaining has not been effective. Also it’s risky.

**Employers should provide mandatory training for all staff on preventing sexual harassment, an effective complaints mechanism, information to assist with prevention, clear policies on prevention and prohibition of sexual harassment and sexual harassment to be treated as a workplace health and safety issue.**
Gender stereotypes that undermine respect and recognition

Respondents reported widespread gender stereotyping that negatively impacted their opportunities for advancement, undermined their credibility in the workplace and, contrary to research that has found otherwise, suggested they were less professional, less committed, less capable of handling complex projects and less serious about their careers than male STEM professionals.

39.6 per cent said that in their workplace, advice or information of a technical nature was less likely to be listened to if provided by a woman than a man.

18.8 per cent highlighted the historical stereotyping of STEM roles as better suited to males as one of their top three issues that needed to be addressed.

37.1 per cent of respondents said they felt like they had to “become one of the boys” if they wanted to “fit into” their workplace.

Only 33.3 per cent agreed or strongly agreed that clients respect the professional opinion or advice of men and women equally; 40.4 per cent disagreed.

While there is no evidence that women are less committed to their careers once they have carer responsibilities, respondents reported assumptions being made about their commitment when they returned to the workforce after a career break to have a child.

COMMENTS ON WORK ALLOCATED TO WOMEN WITH CAREGIVER RESPONSIBILITIES

- I was treated like my brain fell out after I had my child.
- I’m often treated differently to my male colleague - simpler projects, less fieldwork, lengthier explanations - all of which has eroded my confidence.
- Since coming back to work after maternity leave (going from full time to part time) there has been a big shift in the type of work I am given. Previously I used to run substantial, complex projects, now I’m given small tasks.
- My employer changed the type of project work I was working on without consulting me because they didn’t think I could service my job working four days a week.
- Returning to work on a part-time basis was difficult, as I was the only person in the team on such an arrangement, and I had to really push to be given interesting work. It was as if returning from maternity leave you wouldn’t be as serious about your job.
- Flexibility to manage family and work commitments is a primary barrier to career advancement as you are not seen as committed or serious if you request flexibility.
It should also be noted that not all the stereotyping issues reported arose from women’s responsibilities as primary caregivers but from assumptions about gender roles.

**COMMENTS ON GENDER STEREOTYPING IN STEM**

- It wasn’t serious discrimination though people in my research lab tend to patronise me or not take my suggestions seriously because they consider me to be inexperienced. The number of times my suggestions have been later successfully implemented suggests that I know what I’m talking about but I often have to fight for the credit.

- There are still men out there who think that we don’t know what we are doing or are less qualified to make technical decisions because we are female.

- As a young female it is always expected that I will take minutes in meetings even when a male with equivalent (or less) experience than me is also in the meeting. I also get asked to do the admin tasks that no other engineer in my team (all others are male) would ever be asked to do.

- I have witnessed people very much assuming I am a secretary rather than the project manager just because I am a woman.

- There have been many instances of staff members asking opinions of others before undertaking direction from me and people not taking advice unless confirmed by other male team members.

- I’m often treated differently to my male colleague - simpler projects, less fieldwork and lengthier explanations.

*Gender stereotyping negatively impacts women’s opportunities for advancement in STEM fields.*
FURTHER READING

- Professionals Australia (2018). Stemming the Tide: Practical strategies for addressing the attrition of women from the STEM workforce.
- Professionals Australia (2018). All Talk: Gap between policy and practice a key obstacle to gender equity in STEM. (Women in STEM Survey Report).

ENDNOTES

1. Thomas, R. If you think women in tech is just a pipeline problem, you haven’t been paying attention. Retrieved from https://medium.com/tech-diversity/files/if-you-think-women-in-tech-is-just-a-pipeline-problem-you-have-its-been-paying-attention-ch7a2073b95d
5. ibid., p.21.
16. ibid.
18. Computing/IT professionals comprised 3.6 per cent of the total survey sample of 1,953 STEM professionals.
19. Respondents could select more than one response.