

Australia's cyber security sector: Where are the women?

The problem: Where are the women?

At the same time that Australia's security sector is growing in importance, it is widely observed that it suffers from a skill crisis and difficulty finding a sufficient number of suitably qualified people to fill available roles. Australia will need around 7000 additional practitioners in the security sector by 2024, according to AustCyber.

Moreover, the cybersecurity sector, and the security sector more broadly, suffers from a distinct lack of diversity, particularly when it comes to women's participation. Women's under-representation can reflect inequitable biases and barriers that are impeding women's career opportunities and advancement in the sector. Given the growing awareness about the gains of diversity for organisational performance, decision-making and responsiveness to real world challenges, the under-representation of women in the cybersecurity sector also implies that the sector, as a whole, is not operating as optimally as it could.

These issues point towards a need to better understand the factors contributing to women's low representation within the cyber security sector, both as a matter of gender equality and in response to the prospective skills shortage facing the industry.

Available estimates suggest that women comprise somewhere between 11% and 24% of the cybersecurity workforce (Reed et al., 2017; ISC2, 2018). This means that women currently constitute a stark minority. However currently there is no robust measure of the gender composition of Australia's security industry, or a clear picture of the types of jobs that women are undertaking and the skills they possess.

RMIT Centre for Cyber Security Research & Innovation (CCSRI) in partnership with the Australian Women in Security Network (AWSN) are undertaking a research project to address this knowledge void by providing new statistics on the gender composition of the security sector in Australia, including a focus on cybersecurity. These fresh insights are drawn from official labour market statistics, collected by the Australian Bureau of Statistics, and a tailored survey of members of the security sector workforce in Australia.

Why should the cybersecurity sector care about gender equality?

Available data suggests that technology workers, such as cyber security skilled talent, are approached with a new job offer once a week (Smith, 2018). But about 45% of organisations are harshly lacking in this specific talent area. There are signs that this skills crisis is worsening, given that discussion about the skills shortage in cyber

security talent “has been going on for over ten years” and that “there has been no significant progress toward a solution to this problem” (Oltsik, and Lundell, 2021: 4).

This skills crisis has negatively impacted several organisations by increasing workload of their existing employees, leaving open job requisitions unfilled, and causing high burnout among employees (Oltsik, and Lundell, 2021). Therefore, pressures and expectations placed on the cyber security sector intensify the value of attracting new talent and diversifying the current composition of the cyber security workforce.

A barrier to diversity can come in the form of inequitable opportunities and gender-patterned biases that persist, sometimes in intangible ways. Our insights are growing into the influence of implicit biases and barriers that are imposed on women in many vocational and professional settings, often due to the persistence of traditional practices and gender-patterned stereotypes (Gergis and Kachala, 2021). One solution to the professional skills shortage of talent in the cybersecurity industry could lie in better understanding the reasons for the sector’s gender imbalance (Maraj et al., 2021).

This research will provide a deeper understanding of the barriers and enablers to women’s careers in the security sector. The insights generated by the research project will be valuable for expanding the sector’s talent pool and equipping it for the growing challenges and demands it faces in the future.

While existing research suggest general ways to expand the sector’s talent pool, there is little focus on gender inequalities and the factors that explain women’s low representation in the sector. This project provides insights to better understand the factors that can either support or deter women from pursuing, and flourishing in, a career in the security sector.

Taking an industry-wide and economy-wide perspective, this research project will also investigate the ways that the industry is falling short of achieving its optimal performance, and fully meeting the needs of the client base it is responsible for servicing. If the cyber security industry is not operating with a gender balanced composition, it is failing to attract, nurture and retain the full breadth of talent, skills and the innovative capacity that is potentially available within the workforce.

The solution

Women’s under-representation in the security sector can be considered akin to a leaky pipeline. This is an analogy that has been commonly applied to other industries experiencing gender imbalance (SAGE, 2015).

Firstly, there is a need to attract women to the sector, a process that begins throughout their educational pathway and in the process of navigating their career and vocational choices relative to other fields and opportunities. Of the women who join the sector, next there is a need to support women’s progression throughout these careers. This entails understanding the range of factors that cause women’s careers to stagnate and lag behind that of their male peers or cause women to drop out of the sector completely. If women step out of the workforce to have children or for other caring

responsibilities, then there is a need to support women's return and re-entry to the workforce.

If women drop out throughout their careers, the sector ends up with a smaller fraction of women at senior and leadership levels, having repercussions for the sector's workforce culture and its capacity to attract the next generation of women.

This study will identify the factors that are contributing to leaky pipeline, and the policies and changes that are needed to foster the greater representation, inclusion and input of women.

The research

Through data analysis and a survey with workers currently involved in the security workforce, this research project offers:

- A more definitive understanding of the number of women working in security and the gender composition of the sector, with a focus on cybersecurity.
- Understanding which areas of security women are participating in, including a focus on cyber security roles.
- Understanding how the Australian women's skills and capabilities can contribute to overcoming the current and future professional skills shortage in the security industry.
- Understanding the enablers and barriers to women's participation in the security sector and identify practical ways to act on this knowledge. This involves understanding the sector's industry, policies and institutional practices, understanding educational and training pathways, and identifying how strategic interventions by key agencies and stakeholders can have an influence.
- Exploring ways of creating a cyber security talent management system that works for women. This entails identifying the elements of a cyber security talent management system that would most effectively and equitably attract, select, and retain female talent, encompassing planning, employee engagement, learning and development, performance management, recruiting, onboarding, succession, and retention.

About the authors

This research project is being conducted by RMIT University Centre for Cyber Security Research and Innovation in partnership with the Australian Women in Security Network (AWSN). This project is being carried out as an independent academic research analysis and is not linked to any commercial interest. The research team is comprised of: Dr Leonora Risse, Dr Maria Beamon, Dr. Joanne Hall, Dr. Lena Wang, Dr. Banya Barua, Professor Matt Warren, and Mr Laki Kondylas.

Further information on this project and a link to the survey can be found at <https://www.rmit.edu.au/news/ccsri/understanding-gender-dimensions-project-survey>

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