stickman CYBER

Australia's Cybersecurity & Technical Skills Gap

Analysis of ABS census & labour force data

1997-2024

2024

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Introduction

Ajay Unni, StickmanCyber
CEO and Founder

"The Australian cybersecurity is growing quickly, but there is a worrying shortage of technical cybersecurity skills and very few Australians are in dedicated cybersecurity roles such as penetration testing. Our estimate of 10,000 technical cybersecurity pros is woefully short of what's needed to combat modern cybersecurity threats. It's also incredibly low when you consider what an exciting and dynamic industry this is.

"Many recent high profile breaches are a natural consequence of Australia's cybersecurity and technical skills gap. Too much of the cybersecurity burden is falling to IT teams and professionals with a broad knowledge of IT, who lack specialised cybersecurity expertise. Companies cannot realistically expect their IT guy, who handles email complainants and forgotten passwords most of the day, to protect them from sophisticated ransomware groups. There is also a degree of misplaced and disproportionate trust in technology. Yes, security tools are a necessary piece of the puzzle, but they are not the whole thing. Australia needs more security people, not products.

"There are no quick fixes to this problem. Right now, migrants with technical skills are filling a lot of technical roles, but Australia needs to incentivise young people and students to pursue a career in cyber. Companies also need to improve working conditions and reduce burnout to ensure that people stay in the field. This is how it fills the gap long term. In the short term, businesses that cannot find the skills they need in house must look to trusted third party security service providers who have the skills they lack.

Key findings and methodology

In July 2024, StickmanCyber conducted analysis of the latest Australian census and labour force data 1997-2024 using the Australian Bureau of Statistics Table Builder service. Key findings include:

- There are only 11,000 technical cybersecurity workers in the entire country
- Only 3% of all ICT professionals are currently in specialised cybersecurity positions
- 51% of cybersecurity professionals were born outside of Australia, as Australia depends on skilled migrants to plug its technical skills gaps
- Only 16% of Australian cybersecurity professionals are women and just one in 20 pen testers and cybersecurity architects are women (5%)

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How many technical cybersecurity workers are in Australia?

AustCyber estimates that there are 127,000 people employed in the Australian cybersecurity sector, but these figures include many general ICT software development and database roles, and roles "related to cyber skills" including Software Developer and Chief Information Officer.

From ABS census data of 25m Australians, only 11k said that they were employed in the seven specialist cyber security roles outlined by the Census' occupation options, based on ANZSCO Australian and New Zealand Standard Classification of Occupations:

1. Cyber Security Operations Coordinator
2. Cyber Security Architect
3. Cyber Security Analyst
4. Cyber Security Advice and Assessment Specialist
5. Cyber Governance Risk and Compliance Specialist
6. Cyber Security Engineer
7. Penetration Tester

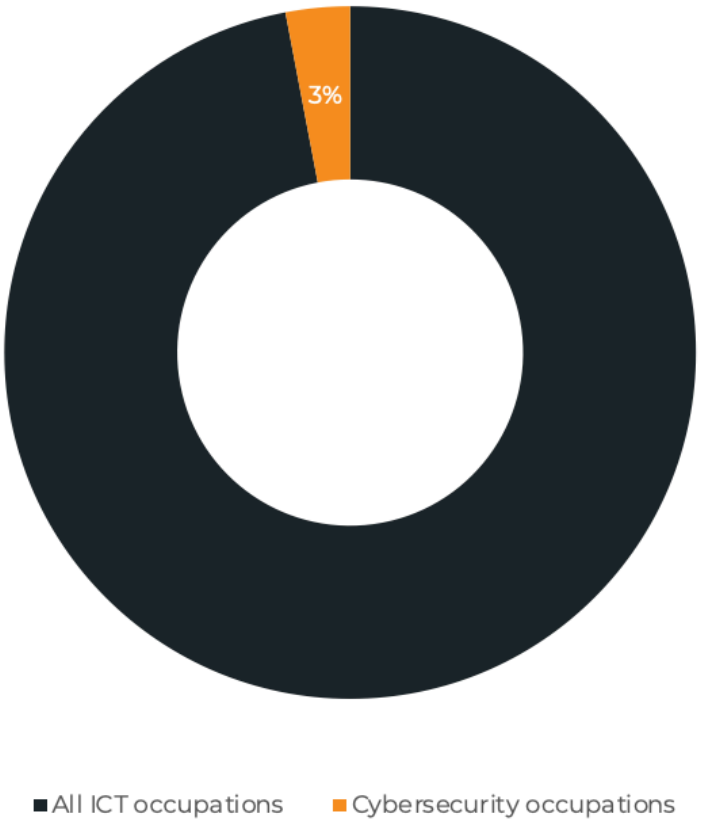
Number of technical cybersecurity professionals based on Australian Census data

11k

What proportion of ICT workers are in cyber roles?

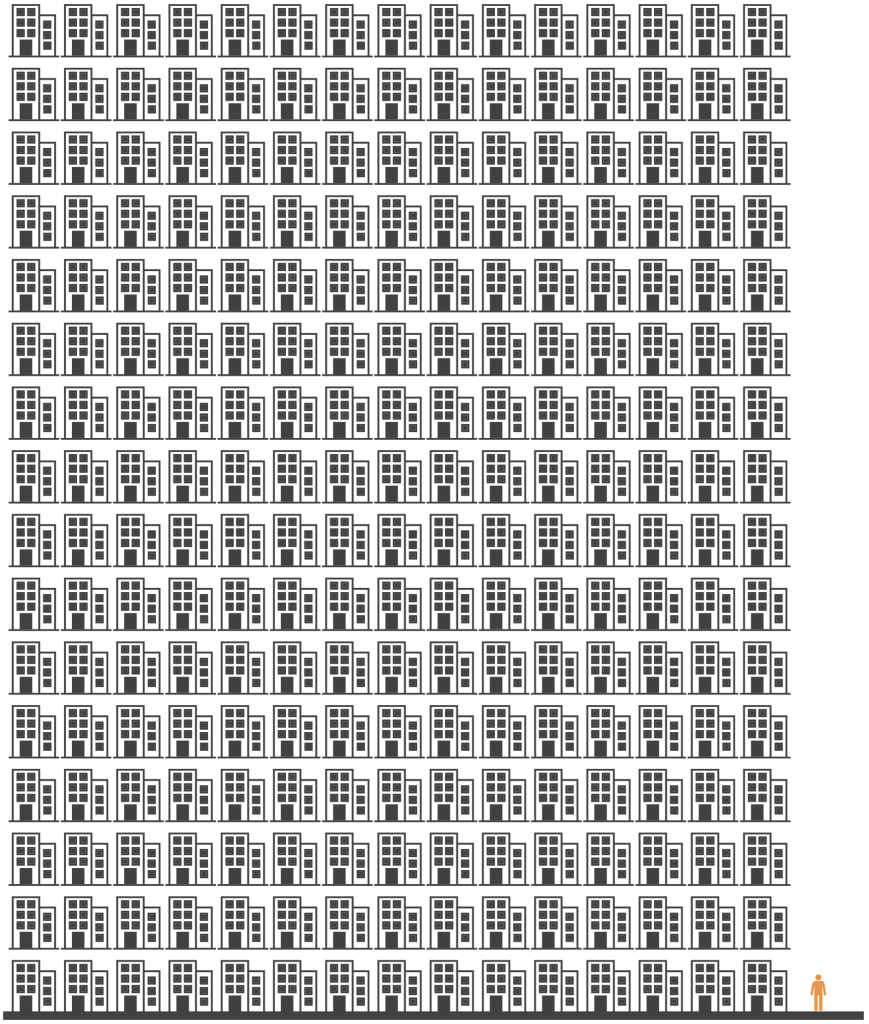
Australia has a cybersecurity shortage, not an ICT shortage. There are 376k ICT professionals in Australia, but only 3% of all ICT professionals are currently in specialised cybersecurity positions. For the sake of comparison, there are 50,000 ICT project managers in Australia and 7,000 Chief Information Officers. There are more than twice as many software engineers in NSW alone (23k), than cybersecurity pros in the whole of Australia (11k). See the appendix for the full table of ICT and cyber roles by region.

Given such a shortage, most companies will struggle to recruit these positions. It's vital that companies without in-house cybersecurity expertise find trusted security partners to help them implement and manage their security program.



How many cybersecurity pros are available to Australian businesses?

Based on there being 2.6m businesses in Australia, there is roughly one ICT worker for every 7 companies. In comparison, there is only one cyber security professional per 240 Australian businesses.



These figures are naturally even lower for the most specialised positions. There is only one penetration tester for every 13k Australian businesses, yet pen testing is one of the most effective ways of finding weaknesses and hardening defences. It is also a key requirement in many regulations such as PCI DSS – which is essential for all Australian businesses that store, process or transmit customer credit card data. Despite the shortage of pen testers in the country, Australian businesses should try to use Australian-based pen test service providers wherever possible for the sake of quality assurance and local knowledge.

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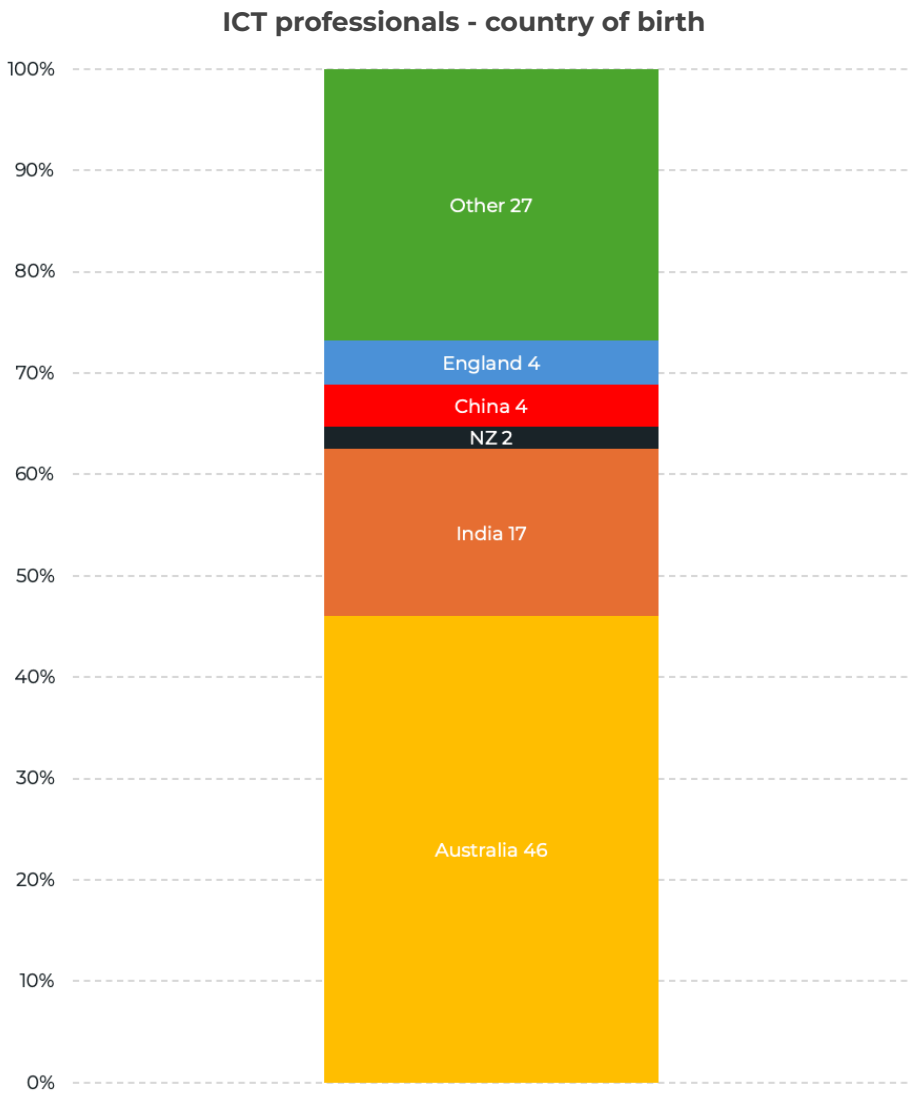
What is the proportion of non-Australian born Cyber pros?

Many would argue that there is an overreliance on skilled migrants to fill the technical skills gap in Australia, as the country struggles to train these skills internally.

It should be noted that 30% of the Australian population was born overseas. Yet among all ICT professionals, 54% were born outside of Australia. Indeed, a whopping 62% of cybersecurity architects working in Australia today were born overseas.

Unsurprisingly, India contributes the greatest proportion of non-Australian born ICT and cybersecurity workers. More than 60,000 out of 376,000 ICT workers were born in India (16%).



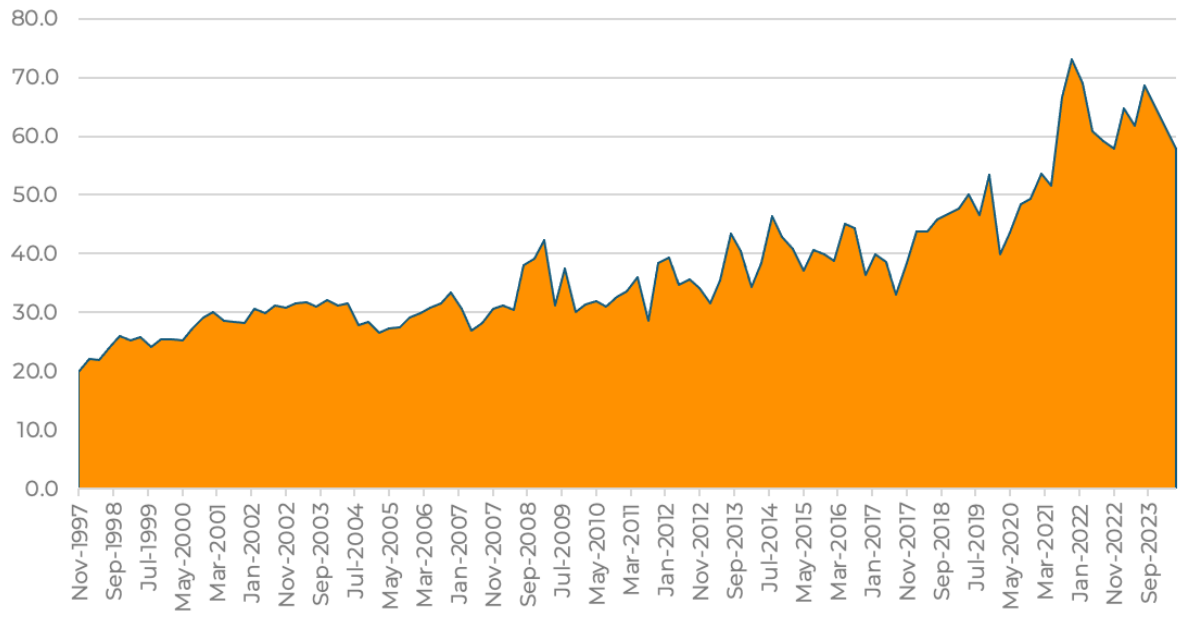
Is the industry growing?

We have established that there are not enough technical cybersecurity professionals working in Australia at the moment, but how fast is the sector growing?

From 1997 to 2024, the number of Australian Database and Systems Administrators and ICT Security Specialists has nearly tripled, but starting from a very low base. Considering that these numbers include system administrators and database administrators in addition to IT security roles, they are still relatively low. In 1997, the scale and nature of cybersecurity threats was vastly different to today. I would expect a sharper increase than the chart below shows to reflect the significance of the industry.

These numbers have also decreased slightly since 2021, which could be cause for concern.

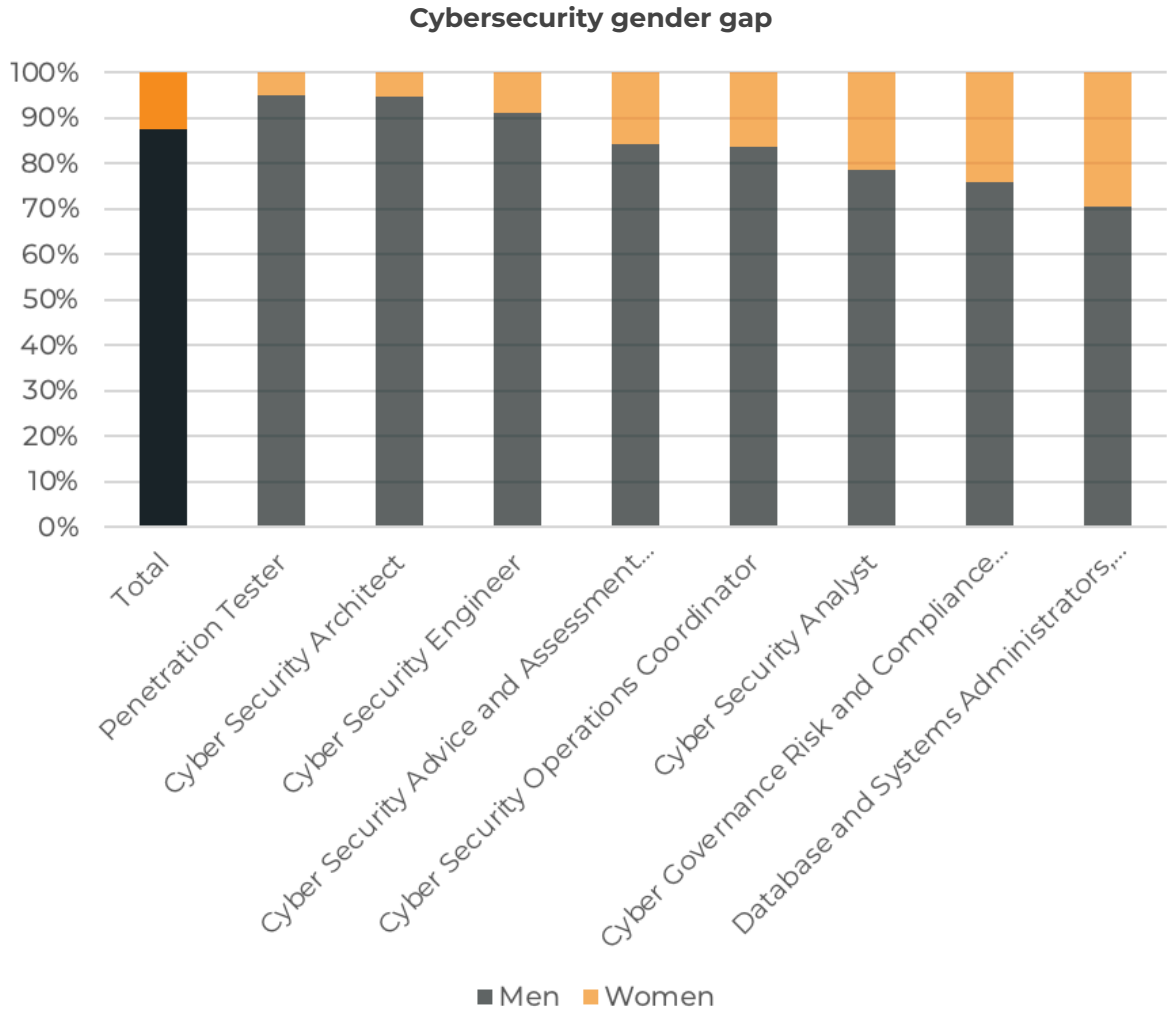
2621 Database and Systems Administrators, and ICT Security Specialists 000's



Who are Australia's cybersecurity professionals?

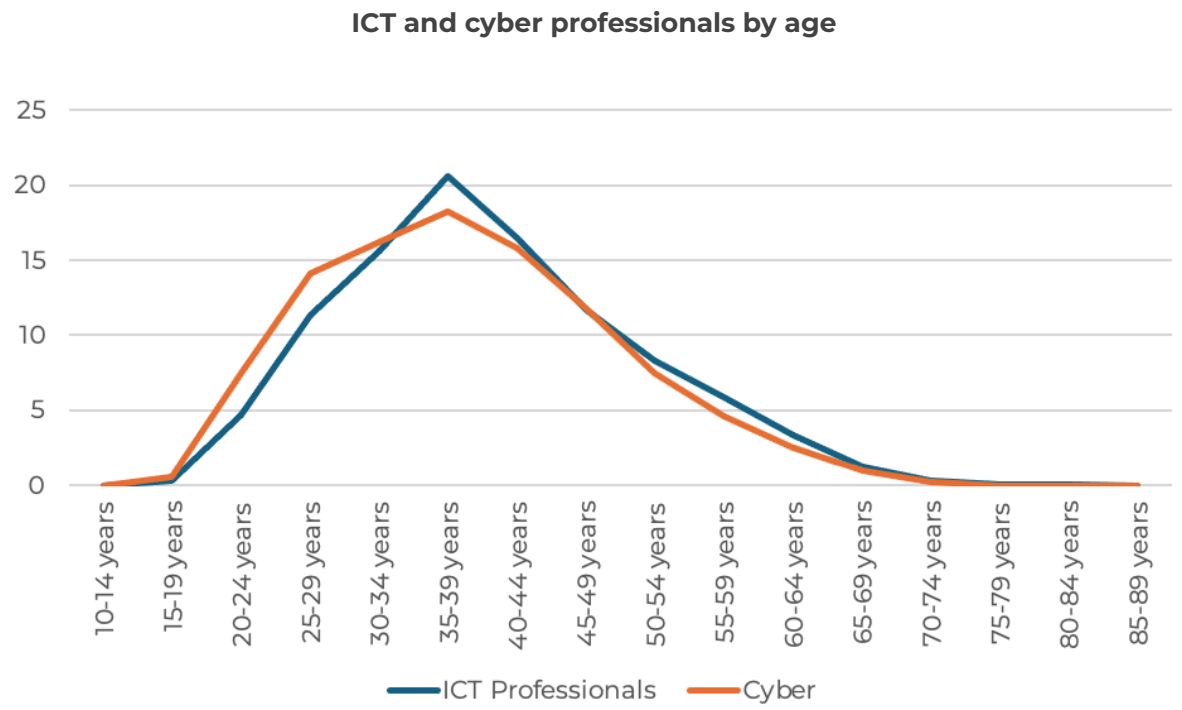
The data shows that only 16% (1 in 7) Australian cybersecurity professionals are women. This is lower than previous estimates, and significantly lower than the global average. While the tech and IT sectors are improving their gender balance, cybersecurity still lags a long way behind.

For certain cybersecurity roles, the ratio of men to women is even more extreme. Just one in 20 pen testers and cybersecurity architects are women (5%).



Cybersecurity skews younger than other ICT professions. A greater proportion of cybersecurity pros are under 30 years old compared to the ICT sector as a whole (22% vs 16%).

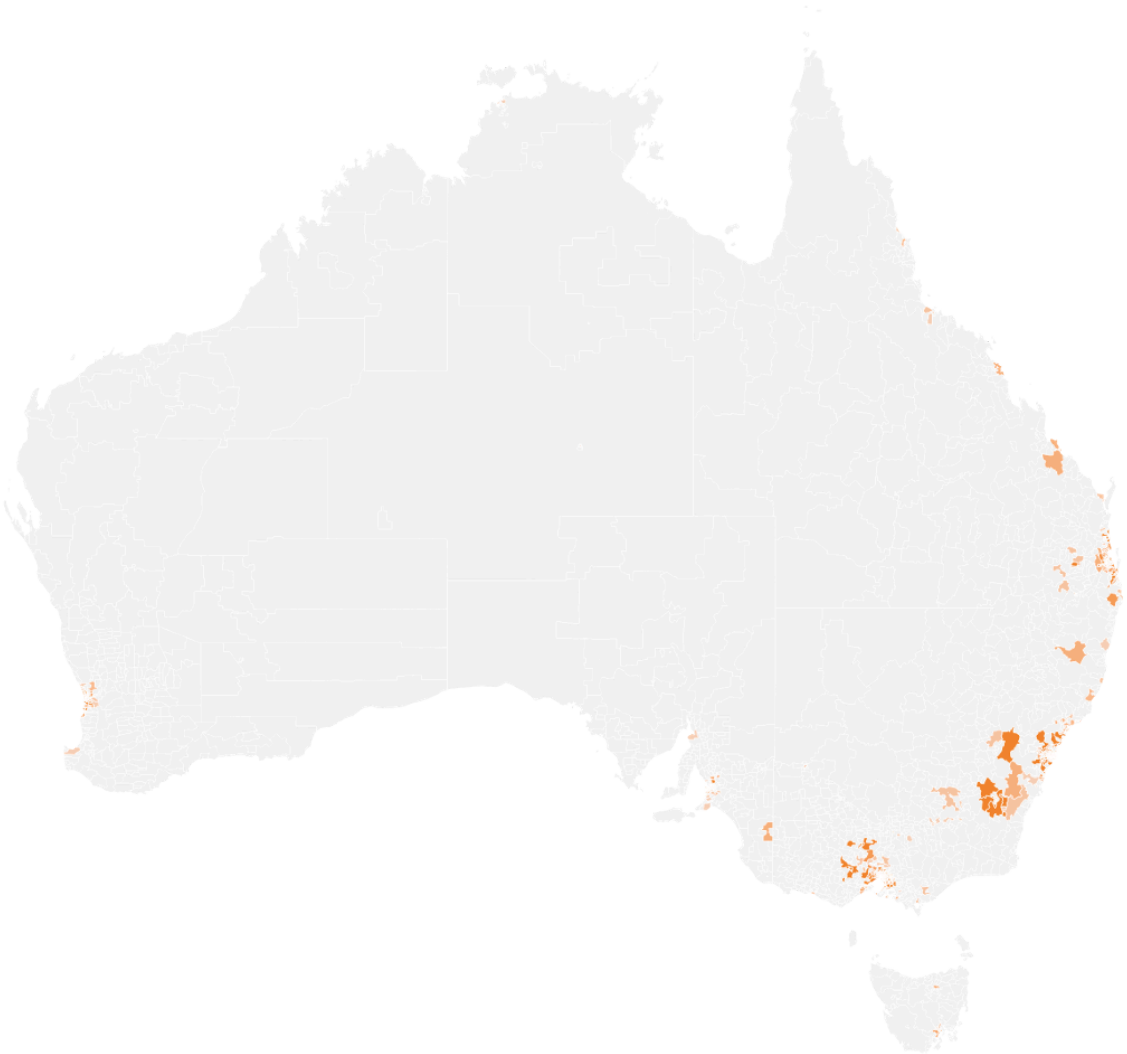
This is good news, as it is important to encourage young people into the industry. However, I would like to see this trend be even more pronounced, since the cybersecurity sector was virtually non-existent 20 years ago. I would expect cybersecurity to skew even younger.



Where are Australia's cybersecurity professionals?

10,285 out of 11,387 cybersecurity professionals identified in the latest census are based in Australian state capital cities. There are almost no rural cybersecurity professionals, despite it being an ideal industry for remote working. Young people in country towns should be encouraged and incentivised to study cyber-related courses and enter the industry.

To visualise these figures, see below for chart showing all Australian postcodes with any cybersecurity professionals. The dark orange regions represent postcodes with 10 or more.



Conclusion

"The cyber skills gap is a major issue because it directly and indirectly leads to breaches.

"Technology can automate a lot of essential cybersecurity processes, but most companies don't have the people and skills needed to manage the plethora of security tools that are used to protect their network, applications, systems and people. That's the crux of the matter. People will always remain central to the industry. Skilled cybersecurity pros are adept at thinking like their adversaries, communicating their needs to the board, and identifying threats. Machines can only do so much. Even with AI, the industry will still require people to run and manage many functions while dealing with the unknow challenge of AI safety, security and privacy

"The Australian government wants to incentivise STEM education, but it needs to go a step further and encourage more people into the cybersecurity industry specifically, which is a major push in countries like the UK. In the long term, we cannot rely on technical skills coming in from abroad.

"Meanwhile, we also need to see changes in the industry that limit stress and burnout. It's no good bringing people into the industry and treating them badly so that they leave.

"Most companies in Australia are trying and failing to answer the seemingly simple question "how do we measure our security?" For companies that don't have a security expert in house to tell them, this is where trusted security services partners like StickmanCyber can help. We can fill this gap, manage security tools and deliver better security outcomes.

About Us

Started almost 2 decades ago in Sydney in 2006, we began delivering a number of security programs of work including a large PCI DSS program for Energy Australia and since then, have grown to one of Australia's most trusted and respected Cyber Security firms.

In 2020, we became a member of the NSW Government Cybersecurity Taskforce. We are also a member of the Australian Cyber Security Centre.

Today, we service over 100 mid-tier and ASX-listed companies, providing them with comprehensive cyber security solutions tailored to their individual needs.

Our Services

StickmanCyber As A Service

Governance, Risk and Compliance

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Appendix

	NSW	VIC	QLD	SA	WA	TS	NT	ACT	Total	% of total ICT sector
ICT Sales Assistant	5385	3693	2392	772	982	168	51	248	13694	3.64
ICT and Telecommunications Technicians nfd	197	201	117	35	58	14	3	42	674	0.18
ICT Support Technicians nfd	344	289	197	74	120	22	11	53	1099	0.29
Hardware Technician	435	384	304	116	123	34	16	66	1479	0.39
ICT Customer Support Officer	15370	12658	7886	2985	4049	836	347	2012	46151	12.26
Web Administrator	1012	843	421	116	140	44	14	145	2732	0.73
ICT Support Technicians nec	288	230	134	47	47	19	12	54	840	0.22
ICT Network and Support Professionals nfd	321	247	124	56	64	7	5	50	872	0.23
Computer Network Professionals nfd	88	81	51	20	25	3	6	19	289	0.08
Computer Network and Systems Engineer	5183	4032	1918	860	1312	113	119	1005	14540	3.86
Network Administrator	1603	1545	803	363	400	72	26	218	5025	1.33
Network Analyst	649	507	188	64	106	13	11	104	1642	0.44
ICT Support and Test Engineers nfd	81	58	25	13	11	0	0	30	225	0.06
ICT Quality Assurance Engineer	364	364	123	40	47	3	0	54	1004	0.27
ICT Support Engineer	4554	2942	1131	508	539	73	41	321	10113	2.69
ICT Systems Test Engineer	665	625	259	153	95	9	4	215	2031	0.54
ICT Support and Test Engineers nec	48	22	12	4	7	0	0	0	96	0.03

	NSW	VIC	QLD	SA	WA	TS	NT	ACT	Total	% of total ICT sector
Database Administrator	1973	1644	873	324	579	65	37	356	5851	1.55
Systems Administrator	4429	3835	2600	908	1299	282	152	1184	14694	3.90
Business and Systems Analysts, and Programmers nfd	332	298	141	50	69	7	3	56	954	0.25
ICT Business and Systems Analysts nfd	104	99	47	11	24	7	0	27	322	0.09
ICT Business Analyst	8281	6373	2316	809	1266	139	72	1095	20342	5.40
Systems Analyst	5101	4493	1859	706	893	79	70	943	14143	3.76
User Experience Designer (ICT)	1235	1034	312	73	134	8	3	94	2889	0.77
Multimedia Specialists and Web Developers nfd	8	6	9	3	4	0	0	3	34	0.01
Multimedia Specialist	297	432	209	70	56	15	8	28	1111	0.30
Web Developer	2911	2856	1662	490	589	157	34	297	8989	2.39
Software and Applications Programmers nfd	1244	981	412	117	207	9	5	100	3074	0.82
Analyst Programmer	1587	1586	486	296	255	37	20	241	4526	1.20
Developer Programmer	15164	13667	6737	2105	3118	464	139	2538	43940	11.67
Software Engineer	23377	17172	6347	2359	2847	285	48	1862	54296	14.42
Software Tester	2987	2974	1138	382	539	37	18	524	8586	2.28
Devops Engineer	572	483	151	43	63	9	0	45	1363	0.36
Software and Applications Programmers nec	42	56	13	0	6	0	0	10	132	0.04

	NSW	VIC	QLD	SA	WA	TS	NT	ACT	Total	% of total ICT sector
ICT Managers nfd	3437	2486	1156	309	683	66	72	271	8467	2.25
Chief Information Officer	3001	2283	1011	293	442	61	16	218	7326	1.95
ICT Project Manager	20041	15953	6576	2067	3161	362	231	3926	52307	13.89
ICT Managers nec	3644	2803	1146	426	585	85	54	548	9291	2.47
Penetration Tester	65	69	21	9	18	0	0	22	200	0.05
Cyber Security Engineer	605	485	164	55	106	5	5	139	1561	0.41
Cyber Governance Risk and Compliance Specialist	137	114	56	21	23	4	0	52	401	0.11
Cyber Security Advice and Assessment Specialist	1219	1037	384	176	226	21	7	582	3659	0.97
Cyber Security Analyst	693	736	260	149	173	17	8	378	2405	0.64
Cyber Security Architect	243	244	41	20	39	0	0	50	641	0.17
Cyber Security Operations Coordinator	636	480	247	133	174	21	12	245	1951	0.52
Database and Systems Administrators, and ICT Security Specialists nfd	150	169	80	31	45	14	5	72	569	0.15
Total	140102	113569	52539	18661	25748	3686	1685	20542	376530	100.00

Thank You!

With growing cybersecurity attacks, most businesses lack the skills and time to mitigate their risks; we provide a comprehensive fully managed service that protects and certifies your business, resulting in mitigating your risks, building trust, winning and retaining clients.

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