



ENGINEERS
AUSTRALIA

Australian engineering vacancies

Trends for Quarter 1, 2020

May 2020



ENGINEERS
AUSTRALIA

AUSTRALIAN ENGINEERING VACANCIES

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Key points

- These statistics are for the period up to 31 March 2020 and may not capture the full effects of COVID-19 pandemic restrictions. They represent the base line from which the lockdown effects can be measured. Australian engineering vacancies have trended downwards for the past year and this has accelerated over the last quarter before the pandemic impact occurred.
- All states and territories experienced contractions in average quarterly growth of engineering vacancies in the first quarter of 2020.
- NSW continues to advertise the highest number of engineering vacancies in Australia, but vacancies have experienced a downward trend over the 12 months of 2019.
- NSW, Victoria, Queensland and Western Australia also continue to record higher numbers of engineering vacancies than the smaller states of South Australia and Tasmania, and the territories. However, analysis for the last 12 months to 31 March 2020 shows that for the first time in a long time, both Queensland and Western Australia recorded less than 10,000 jobs in that period.
- Civil engineering vacancies continue to dominate the Australian engineering employment landscape.
- It is expected that the June quarter will show a sharper downturn in internet vacancies, reflecting the effect of COVID-19 restrictions.

Introduction

This report investigates trends in engineering employment in Australia through analysis of engineering vacancies data. The original data is produced by the Department of Employment, Skills, Small and Family Business (the Department) and was released on 22 April 2020.

The Department produces a monthly Internet Vacancy Index (IVI) through the Labour Market Information Portal (LMIP) based on new advertisements on CareerOne, Seek and JobSearch. Duplicate advertisements are removed, and data has been indexed to 100 from January 2019 in order to analyse trends over the last 12 months.

Job vacancies provide a valuable gauge of the Australian labour market. The Beveridge Curve¹ provides the theoretical underpinning for analysis of the relationship between unemployment and vacancy levels. In general, as vacancies increase, unemployment falls and as vacancies fall unemployment increases.

This report should not be read as a report on specific job numbers but rather as a valuable analysis of vacancy trends which provides a broad indication of the direction of the engineering labour market.

This report includes Australian, state and territory trends as well as trends in a range of specific engineering occupations.

This report includes trends in the following engineering occupations:

- Civil engineering professionals (unit group 2332). This includes civil engineers, geotechnical engineers, quantity surveyors, structural engineers and transport engineers.
- Chemical and materials engineers (unit group 2331). This includes chemical engineers and materials engineers.
- Electrical engineers (unit group 2333). This includes electrical engineers only.
- Electronics engineers (unit group 2334). This includes electronics engineers only.
- Engineering managers (unit group 1332). This includes engineering managers only.
- ICT support and test engineers (unit group 2632). This includes ICT quality assurance engineers, ICT support engineers and ICT systems test engineers. It must be noted that for this occupation it can be hard to gauge how many of these occupations are engineering specific, so some caution should be taken with numbers for this occupation.
- Industrial, mechanical and production engineers (unit group 2335). This includes industrial engineers, mechanical engineers and production or plant engineers.
- Mining engineers (unit group 2336). This includes mining engineers and petroleum engineers.
- Other engineering professionals (unit group 2339). This includes aeronautical engineers, agricultural engineers, biomedical engineers, engineering technologists, environmental engineers, naval architects and engineering professionals not elsewhere classified.
- Telecommunications engineers (unit group 2633). This includes telecommunications engineers and telecommunications network engineers.

Some occupations, where the numbers are too small to provide meaningful analysis, may be excluded.

¹ The Beveridge Curve depicts the relationship between the unemployment and job vacancy rates. See <https://www.abs.gov.au/Ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/f30e7cb8e821ccccca2583b90076c5fa!OpenDocument> for further information.

Context

Over the course of 2019, the Australian economy continued to soften and the COVID-19 pandemic is expected to severely impact all sections of the labour force, including engineers.

Increased unemployment is expected, and the severity of the economic contraction will depend on the success of containment efforts, how long the associated restrictions will remain in place and how long full economic recovery takes. The Reserve Bank of Australia (RBA) has noted that broad and significant economic contraction is *expected to be recorded in the June quarter and the unemployment rate is expected to increase to its highest level for many years.*²

In a survey of businesses to measure the impact of COVID-19, the Department of Education, Skills and Employment as at 1 May 2020 noted that the construction industry had been least affected by the pandemic with 32% of responding businesses reporting having been *greatly affected* compared with 54% across all industries.³

The survey report further noted that figures relating to staffing in the manufacturing industry broadly reflect all industry figures, with 27% of businesses decreasing staff since the onset of the COVID-19 pandemic compared with 30% for all industries.⁴

Twenty-two per cent of businesses in the Professional, Scientific and Technical Services industry have decreased staff numbers since the onset of the pandemic, compared with 30% for all industries.

Engineers Australia analysis of the impact of restrictions on engineering shows that direct impacts of pandemic restrictions may reduce employment of qualified engineers (in any role) by 10.2%, and employment of qualified engineers in engineering occupations by 6.4%.⁵

These results are lower than effects elsewhere in the economy because five of seven core engineering industries which account for about two-thirds of the profession are viewed as experiencing zero or minimal impacts. Another core engineering industry, Information and telecommunications, is likely to experience low employment reductions in the range 7 to 8%. Only one core engineering industry, Manufacturing, is likely to experience higher than national average employment contraction, about 16.5%.⁶

Our analysis further shows that employment in the other industries which account for about one third of employment are likely to experience the brunt of the impacts. In other words, it is likely that most engineers working in core engineering industries could be unaffected by direct COVID-related restrictions but are likely to be affected by secondary impacts that arise with the passage of time.⁷

For people who have found themselves unemployed due to the pandemic, the Department of Education, Skills and Employment have created an online jobs hub. It provides an up to date list of some of the businesses and organisations that are currently hiring, how to contact them and up to date information on jobs by location. The jobs hub landing page notes that whilst some workforces are suffering cuts, other areas of the economy are experiencing an increased demand for employees. These include healthcare, transport and logistics, mining and mining services, manufacturing, agriculture and government sectors.⁸

² <https://www.rba.gov.au/media-releases/2020/mr-20-11.html>

³ <https://lmip.gov.au/default.aspx?LMIP/Gaininsights/COVIDInformation/ResearchandInsights>

⁴ *Ibid.*

⁵ Kaspura, Andre, *Preliminary estimates of impact of restriction on engineering* 21 April 2020

⁶ *Ibid.*

⁷ *Ibid.*

⁸ <https://www.dese.gov.au/covid-19/jobs-hub>

Australia

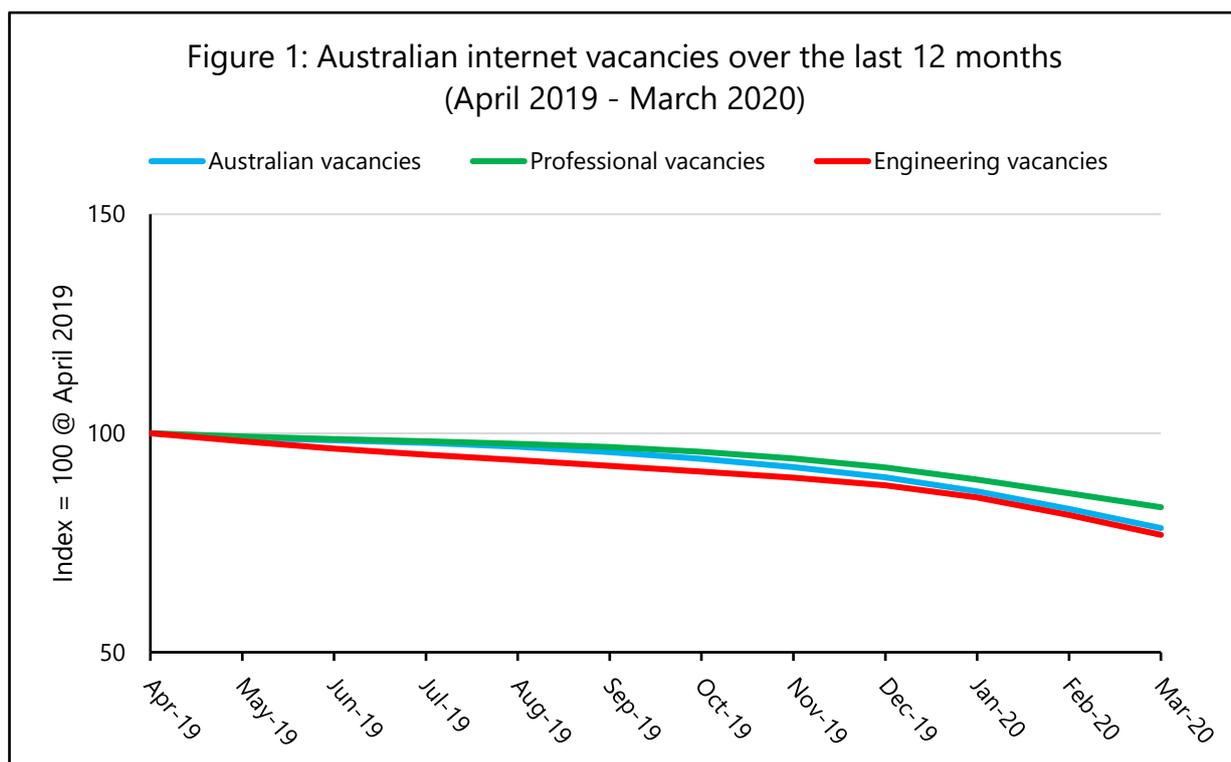
There is a downward trend in advertised engineering vacancies across Australia. Annual vacancy growth in the 12 months to March 2020 declined by 23%. In quarter 1 2020, vacancy growth has contracted by nearly 10%. States and territories are mirroring this downward trend, although the larger states have fared somewhat better than smaller ones.

Engineering vacancies are mirroring the downward trend for Australian vacancies overall, whilst professional vacancies remain slightly steadier.

The downward trend in advertised vacancies reflects broader economic downturn across Australia, with reports in September of 2019 that the economy was at its most *sluggish pace since 2009, when the GFC slammed the brakes on GDP growth*.⁹

Engineering vacancies comprised 2.4% of all Australian vacancies in the last 12 months. On average, 3,880 engineering jobs were advertised nationally each month in that time. Engineering vacancies are in decline, with the highest number, (4,277) advertised in April 2019 and steadily decreasing to the lowest number (3,285) in March 2020.

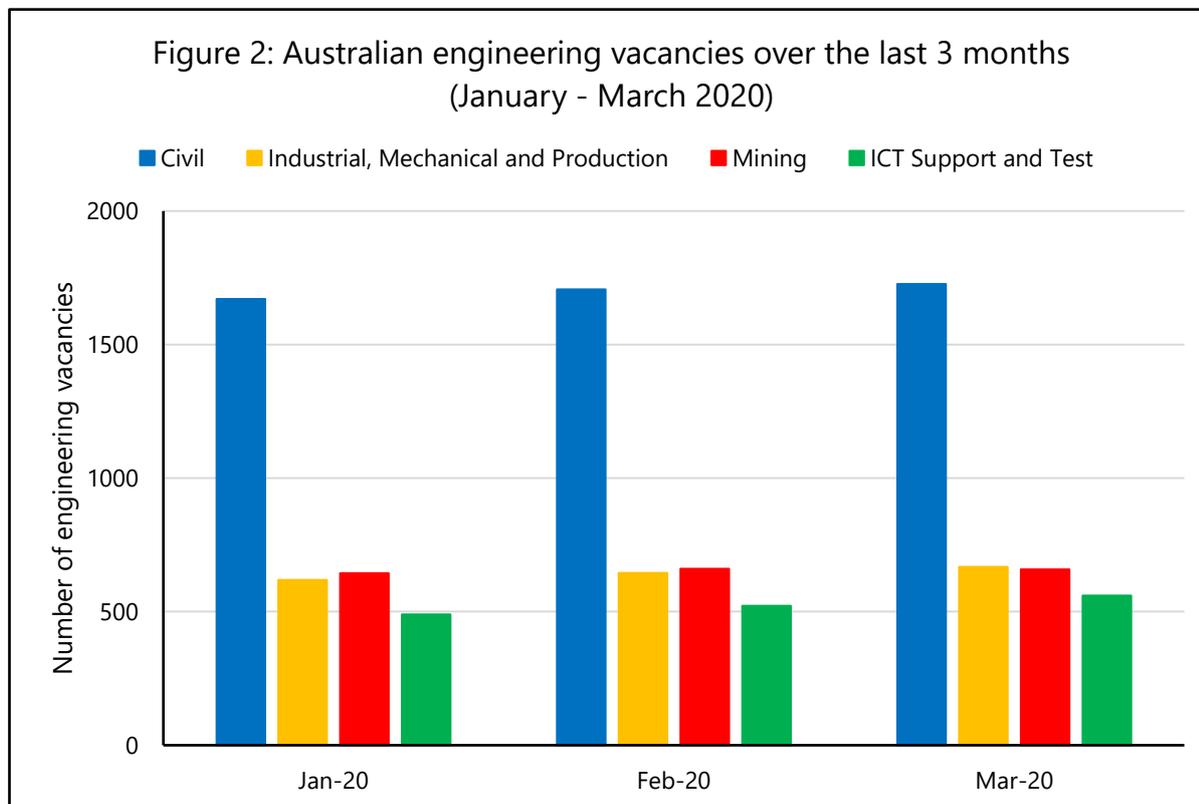
Figure 1 shows trends in the Australian labour force, through analysis of internet vacancy index data, comparing trends for all Australian vacancies with trends for professional vacancies and trends for engineering vacancies over the last 12 months to March 2020.



⁹ Letts, Stephen, *Australia’s economy has slowed to a decade low but the budget may already be back to surplus*, 4 September 2019, ABC News, <https://www.abc.net.au/news/2019-09-04/gdp-q2-2019/11474470>

Australian engineering vacancies by occupation

Civil engineering vacancies have consistently dominated the Australian engineering employment landscape since IVI data records began and the first quarter of 2020 is no exception. The awarding of major civil infrastructure projects has generated business for associated industries boosting the demand for civil engineers. Rebuilding and recovery efforts in response to the devastation caused by the bushfires is also likely to rely on engagement of civil engineers.



The monthly averages for engineering vacancies advertised each month across Australia for the first quarter of 2020 from highest to lowest are listed below. (It should be noted that the Department of Education, Skills and Employment urges some degree of caution with the internet vacancy index detailed occupation data.¹⁰)

- 1,701 civil engineering vacancies
- 644 industrial/mechanical/production engineering vacancies
- 654 mining engineering vacancies
- 524 ICT support and test engineering vacancies
- 325 electrical engineering vacancies
- 287 other engineering professional vacancies
- 178 engineering manager vacancies
- 76 telecommunications engineering vacancies
- 40 electronics engineering vacancies
- 28 chemical and materials engineering vacancies

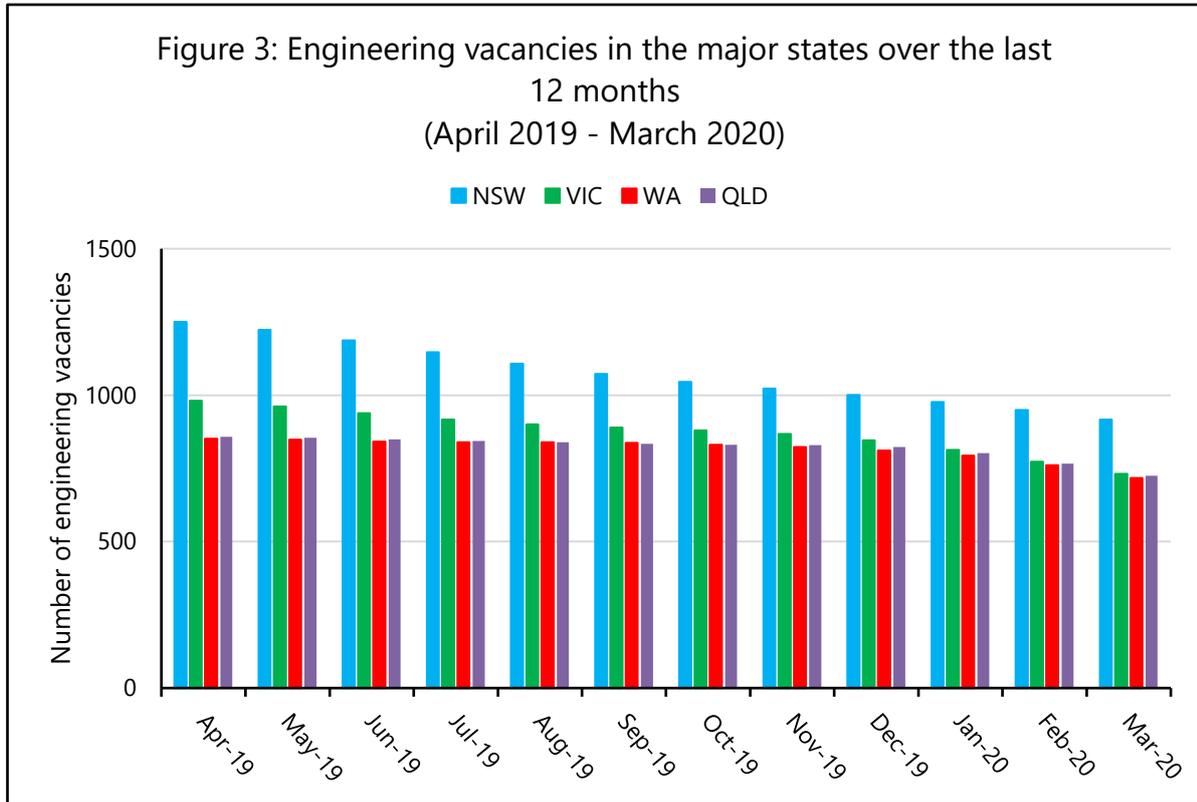
¹⁰ The Department of Education, Skills and Employment has coded vacancies to occupations based on the Australian and New Zealand Standard Classification of occupations to a 4-digit level. While every effort has been made to ensure the accuracy of occupation coding, it should be noted that there is always some level of coding error, the effect of which can have large impacts at the four-digit level. Additionally, four-digit data is presented in three month moving average terms, and has not been trended or seasonally adjusted, and is more susceptible to fluctuations from month to month. Care must be taken when using four-digit data to draw conclusions about demand for an occupation, as the degree to which occupations advertise online can vary greatly. Data for a small number of occupations have been suppressed, as the data were deemed too unreliable.

Just four engineering occupations recorded more than 500 vacancies in quarter 1 2020 and each of those increased slightly each month.

Figure 2 shows Australian engineering vacancies for the four Australia New Zealand Standard Classification of Occupations (ANZSCO) in engineering for which the LMIP recorded more than 500 vacancies from January to March 2020. Occupations for which there were consistently less than 500 vacancies recorded per month for the period have been excluded.

The major states

Figure 3 shows that the status quo remains in terms of distribution of engineering vacancies across Australia’s major states, with NSW consistently maintaining the highest number of engineering vacancies. Victoria, Queensland and Western Australia also continue to record higher numbers of engineering vacancies than South Australia, Tasmania and the territories. States recording less than 2,000 engineering vacancies in the 12 months to March 2020 have been excluded.



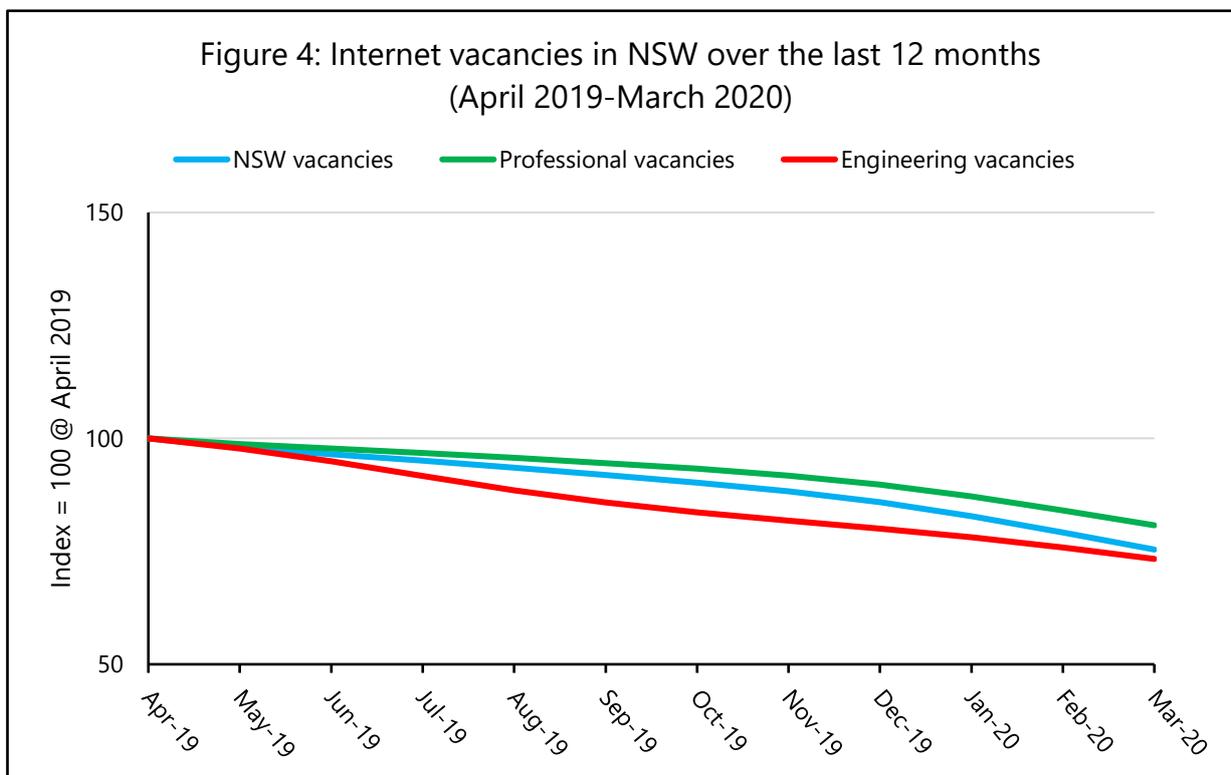
New South Wales

Vacancy trends are in steady decline across the country, but NSW is faring better the most. The average growth rate for engineering vacancies across NSW contracted by just over 6% in the first quarter of 2020. An average of 1075 engineering jobs were advertised in NSW every month during the last 12 months.

NSW has consistently recorded the highest number of engineering vacancies in Australia. Nearly 28% of all engineering jobs advertised in Australia over the last 12 months were recorded for NSW.

In the last 12 months, most engineering vacancies in NSW have been advertised for civil engineers, followed by ICT support and test engineers, industrial/mechanical/production engineer and electrical engineers. The fewest engineering vacancies in NSW were advertised for chemical and materials engineers, electronics engineers and telecommunications engineering professionals.

Figure 4 shows engineering vacancy trends across NSW comparing total vacancies with professional vacancies and engineering vacancies over the last 12 months.



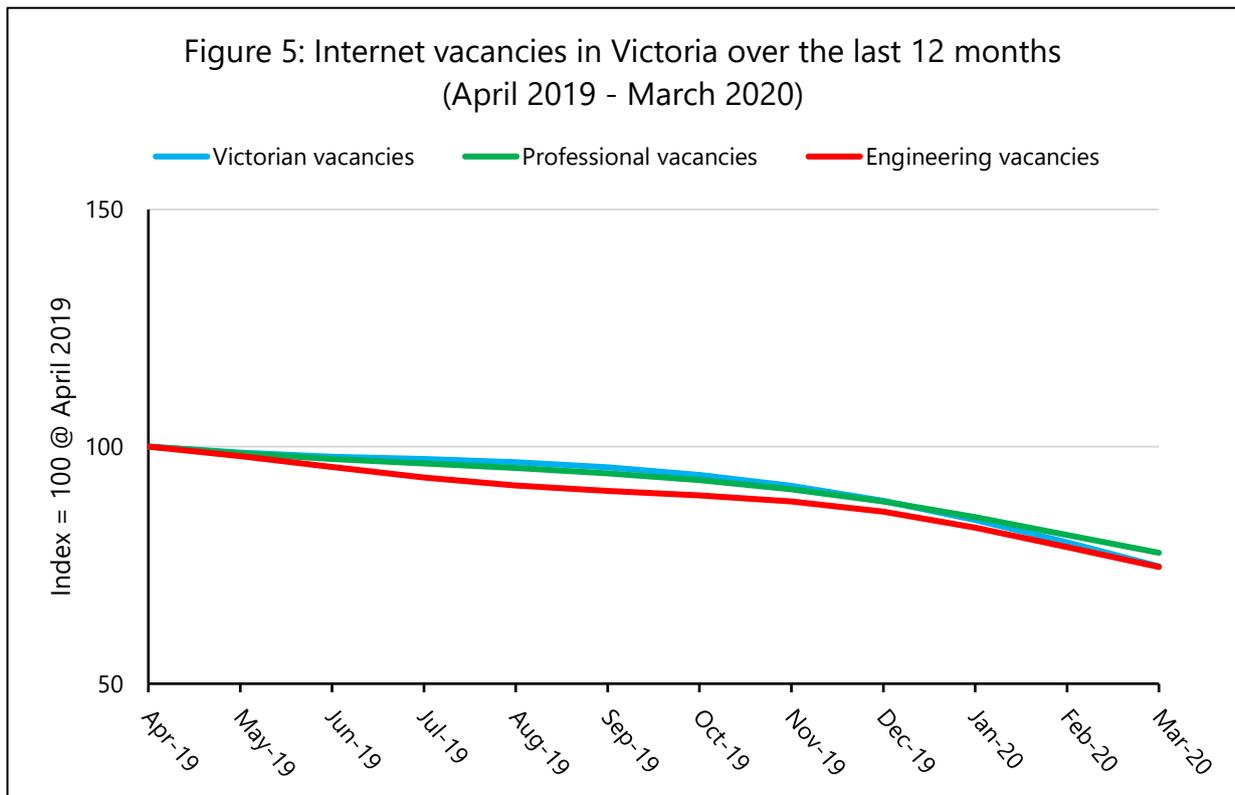
Victoria

Victorian vacancy trends mirror that of the nation. The growth rate for engineering vacancies across Victoria contracted by just over 10% in the first quarter of 2020. An average of 875 engineering jobs were advertised in Victoria every month during the last 12 months.

Victoria continues to advertise the second largest number of engineering vacancies in Australia. 22.5% of all Australian engineering vacancies in the last 12 months were advertised in Victoria.

Most engineering vacancies advertised for Victorian based roles were for civil engineers, followed by industrial/mechanical/production engineers and ICT support and test engineers. The fewest roles were advertised for chemical and materials engineers, electronics engineers and telecommunications engineering professionals.

Figure 5 shows engineering vacancy trends across Victoria comparing total vacancies with professional vacancies and engineering vacancies over the last 12 months.



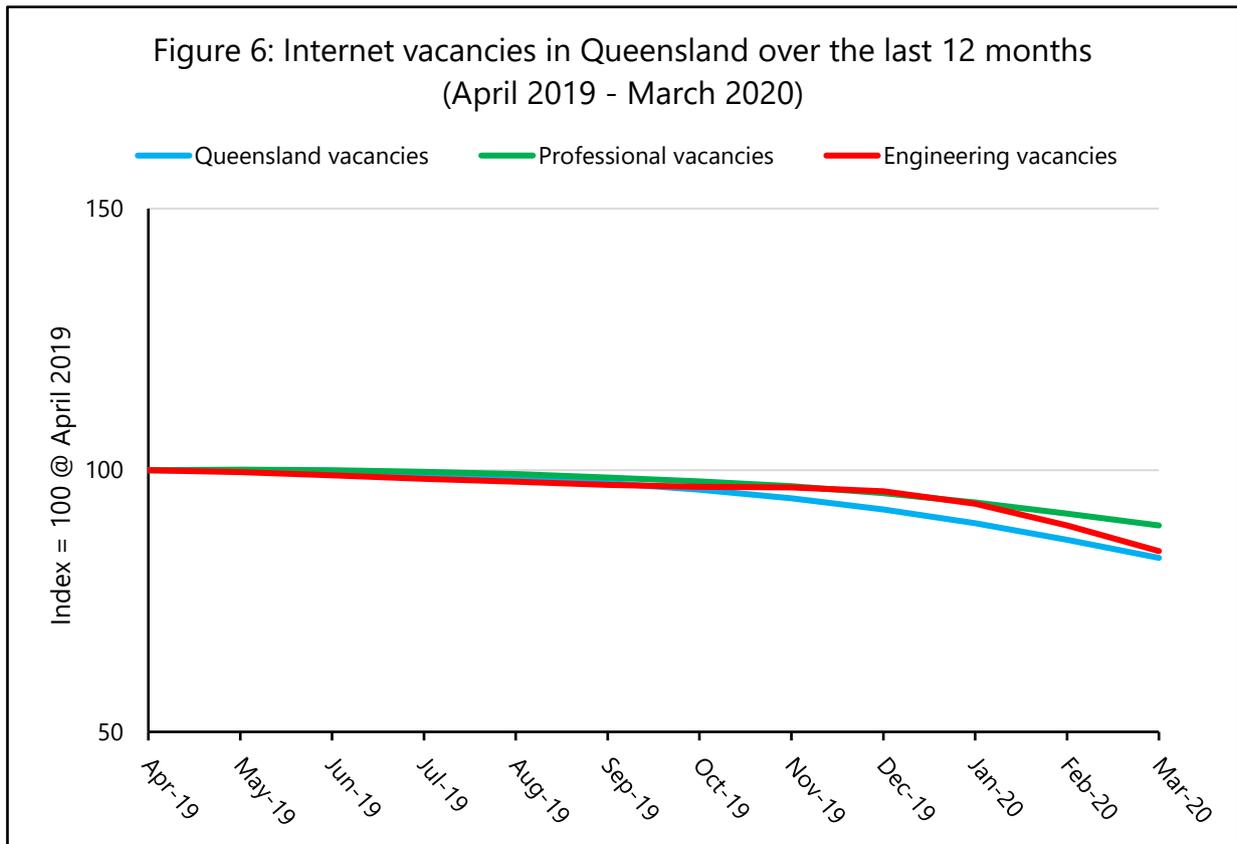
Queensland

Queensland is subject to a downward trend in engineering vacancies, mirroring the Australian engineering vacancies downward trajectory with the average growth rate for Q1 2020 falling by nearly 10%.

21% of engineering vacancies in Australia were advertised in Queensland over the last year, with an average of 821 engineering roles advertised for positions in Queensland per month.

Most engineering vacancies advertised across Queensland were for civil engineers, followed by mining, industrial/mechanical/production engineers and ICT support and test engineers. The fewest jobs were advertised for chemical and materials engineers, electronics engineers, and telecommunications engineering professionals.

Figure 6 shows engineering vacancy trends across Queensland comparing total vacancies with professional vacancies and engineering vacancies over the last 12 months.



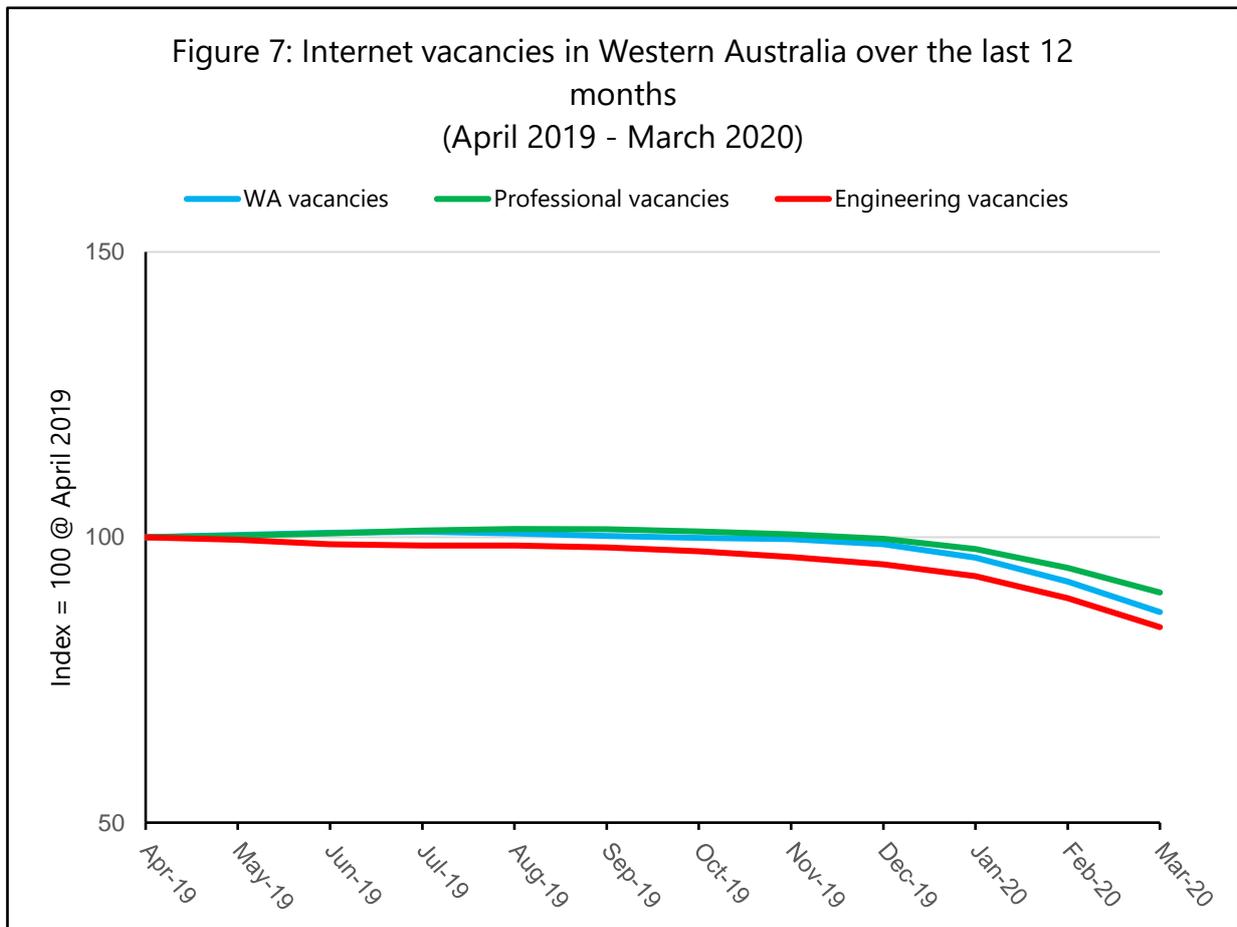
Western Australia

Western Australia is no exception to national vacancy trends. With the average vacancy growth for the Q1 2020 contracting by 9.5%.

21% of engineering vacancies in Australia were advertised in Western Australia over the last year, with an average of 816 engineering roles advertised for positions across the state each month over the 12-month period.

In WA most engineering vacancies were advertised for mining engineers, followed by civil engineers, industrial/mechanical/production engineers, electrical engineers and ICT support and test engineers. As with other states and territories, the fewest advertisements were for electronics engineers, chemical and materials engineers, and telecommunications engineering professionals.

Figure 7 demonstrates engineering vacancy trends across Western Australia, comparing total vacancies with professional vacancies and engineering vacancies over the last 12 months.



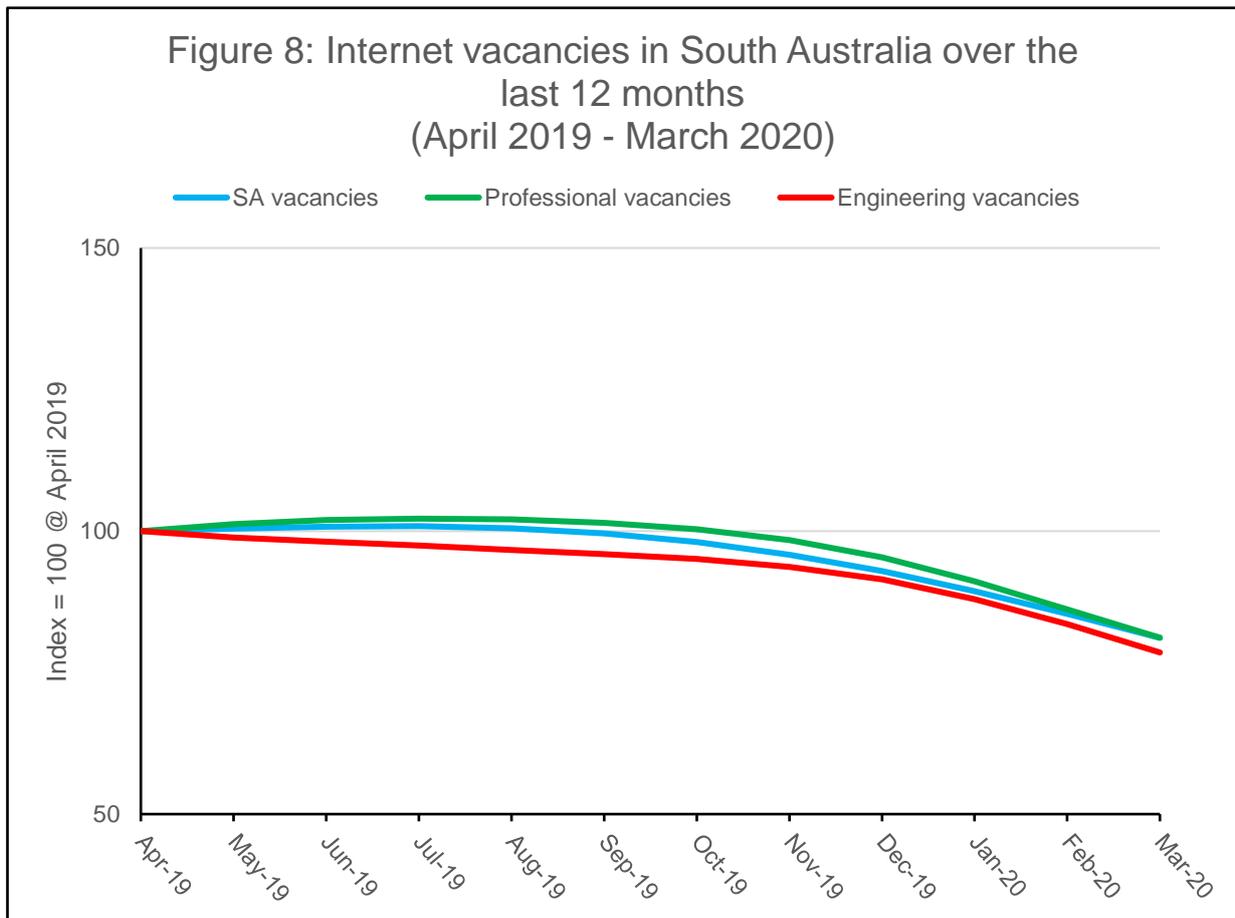
South Australia

South Australia fared slightly worse than other states, with average vacancy growth for the state falling by close to 11%.

4% of engineering vacancies in Australia were advertised in South Australia over the last year, with an average of 165 engineering roles advertised for positions across the state each month over the 12-month period.

Most engineering vacancies were advertised seeking civil engineering professionals, followed by industrial/mechanical/production engineers, mining engineers, electrical engineers and ICT support and test engineers. The fewest roles were advertised for chemical and materials engineers, telecommunications engineering professionals and electronics engineers.

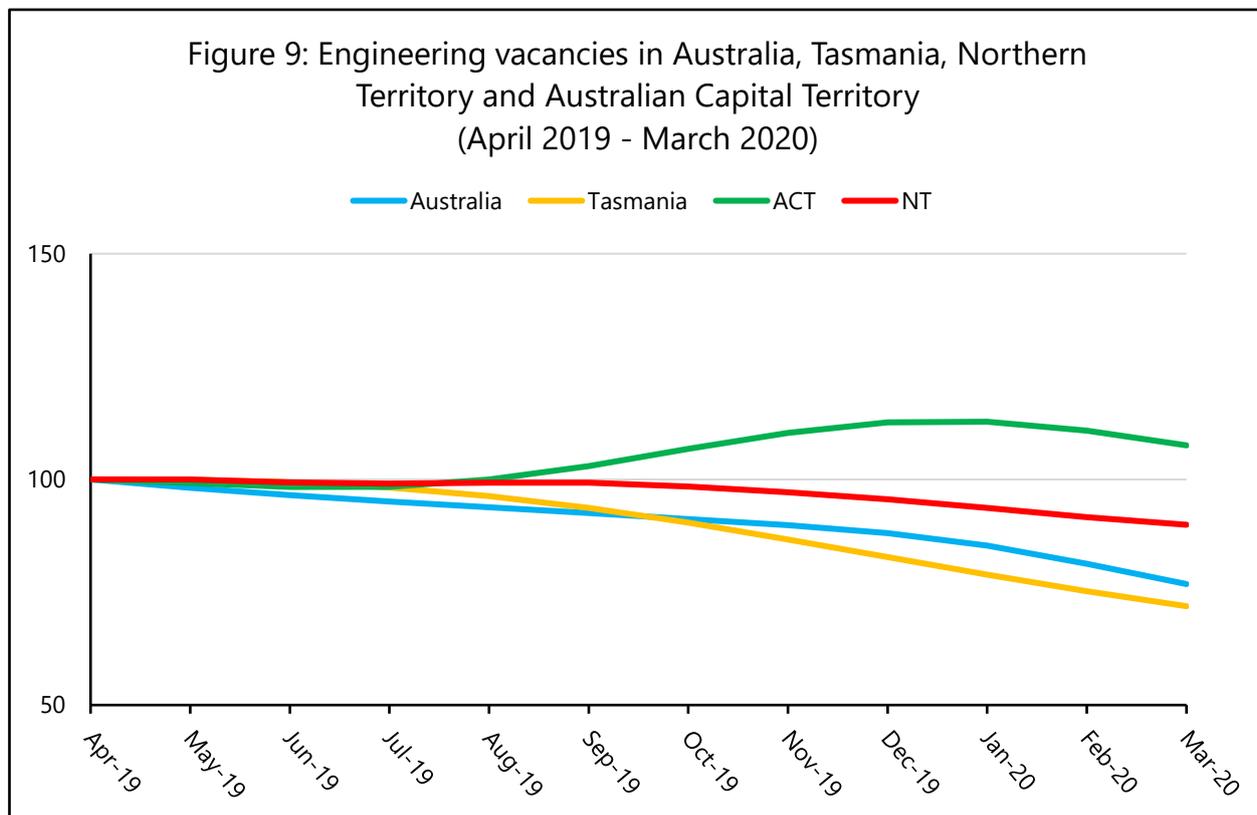
Figure 8 shows engineering vacancy trends across South Australia, comparing total vacancies with professional vacancies and engineering vacancies over the last 12 months.



Tasmania and the territories

The following analysis of vacancy trends in Tasmania, the Northern Territory and the Australian Capital Territory, when expressed in trend terms, may fluctuate more than other states because the numbers are much smaller.

Figure 9 shows engineering vacancy trends across Tasmania and the territories over the last 12 months to March 2020



Tasmania

Like other states and territories, Tasmania’s quarterly vacancy growth has declined by nearly 9%.

On average, 33 engineering roles are advertised monthly in Tasmania. Less than 1% of engineering vacancies Australia wide were advertised for roles in Tasmania in the last 12 months.

As with other states, most engineering vacancies in Tasmania advertised in the last year were for civil engineers, followed by electrical engineers, industrial/mechanical/production engineers and mining engineers. The fewest engineering jobs were advertised for electronics engineers, chemical and materials engineers, and telecommunications engineering professionals.

Northern Territory

The Northern Territory has fared slightly better than the rest of Australia in first quarter of 2020, with engineering vacancies declining by just 4%.

On average, 42 jobs are advertised per month for engineering roles in the Northern Territory in the last 12 months. Nearly 2% of all engineering vacancies nationally, were advertised in the Northern Territory,

Most engineering vacancies in the NT in 2019 were advertised seeking civil engineers, followed by mining engineers, industrial/mechanical/production engineers and engineering managers. The fewest engineering jobs were advertised for electronics engineers, ICT support and test engineers and telecommunications engineering professionals.

Australian Capital Territory

After some growth at the end of 2019, ACT vacancies have slowed as with the rest of Australia. Engineering vacancies in the ACT have contracted by nearly 5% in the first 3 months of 2020.

On average, about 80 engineering job advertisements per month, representing just over 2% of all engineering vacancies advertised nationally, have been advertised in the ACT in the 12 months to March 2020.

Unlike other states and territories, most engineering vacancies advertised in the ACT were for ICT support and test engineers, followed by civil engineers and industrial/mechanical/production engineers. The fewest number of engineering vacancies advertised in the ACT were for chemical and materials engineers, as well as mining engineers and telecommunications engineers.



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