Job Market for Data Scientists in Australia

Introduction

To investigate opportunities for data science professionals in Australia, data from Seek.com.au, a popular job search platform, was collected from May 26th to June 23rd. A total of 378 job postings with the title "Data Scientist" were scraped with over 3000 data points covering roles, title, company, industry and salary. Roles with salaries <$50,000 were ignored and roles had to have the term “data” in the title in order to qualify.

The objectives of this report are to compare differences between the States and Territories, looking at role abundance and salary differences, explore the types of roles available to applicants by investigating job titles and to investigate any trends or patterns relating to Data Scientist job listings over time.

“The State to Be” – An analysis of Data Scientist Roles Across Australia

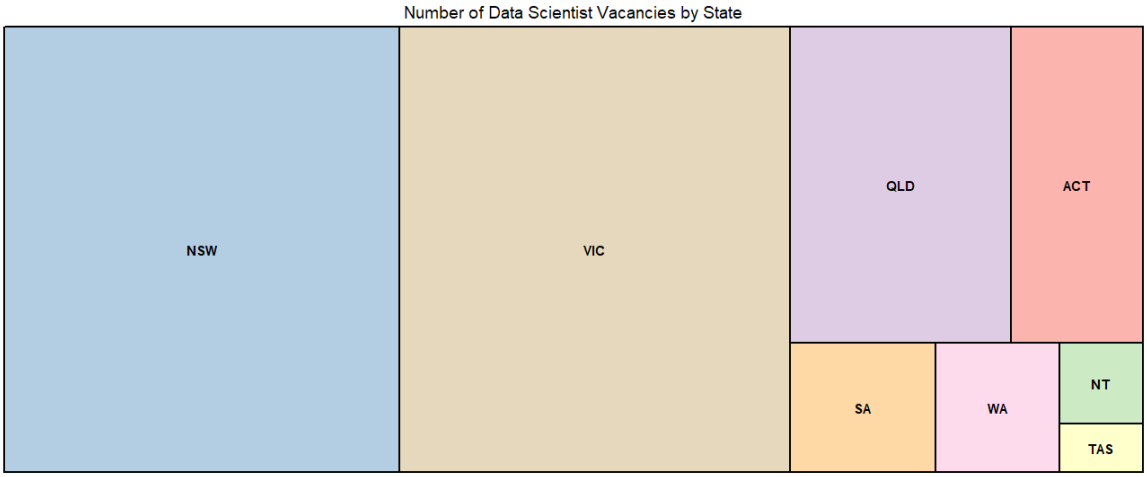
Seek.com.au data was analysed to attempt to determine the best State or Territory in which to be, or applying to be, a Data Scientist. The abundance of opportunities was assessed as well as the compensation for those roles.

Table 1 presents the number of 'Data Scientist' vacancies in each state and territory, highlighting that New South Wales (131) and Victoria (130) have the highest number of vacancies. Data Scientist roles therefore appear to be concentrated in the most populous states.

Table 1
Number of ‘Data Scientist’ Vacancies in Each State/Territory

State	Count
ACT	31
NSW	131
NT	5
QLD	52
SA	14
TAS	3
VIC	130
WA	12

Figure 1
Treemap of 'Data Scientist' Vacancies in Each State/Territory

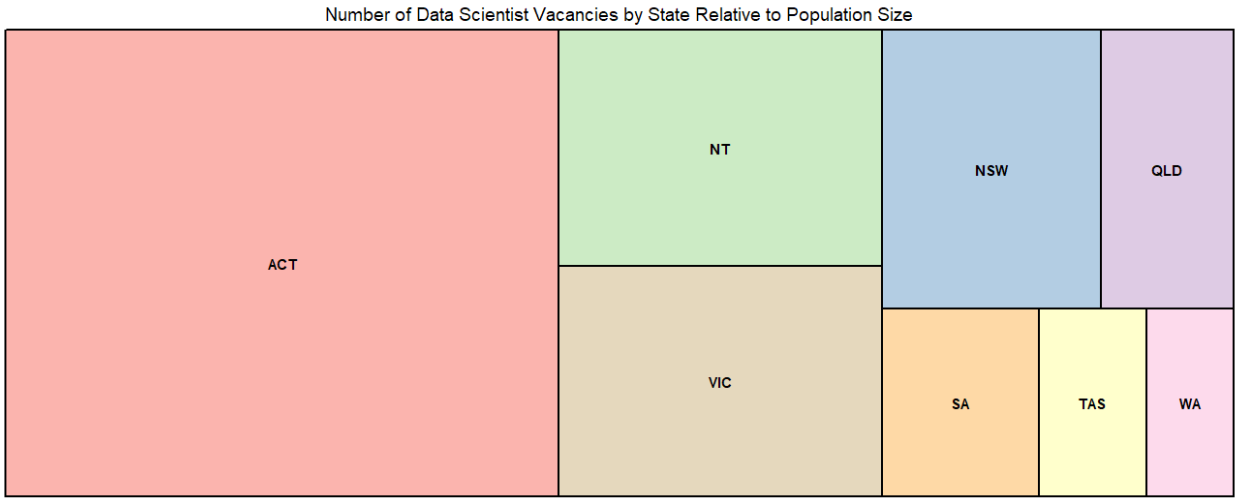


To estimate the relative distribution of Data Scientist roles across Australia, population-adjusted figures are presented. Table 2 provides the count of Data Scientist vacancies per 1000 people in each state and territory.

Table 2
Number of 'Data Scientist' Vacancies in Each State/Territory Relative to Population

State	Count	Population (x1000)	Normalised Count	Number of People (x1000) per Vacancy
ACT	31	460.9	0.06726	15
NSW	131	8238.8	0.0159	63
NT	5	250.1	0.019992	50
QLD	52	5378.3	0.009668	103
SA	14	1834.3	0.007632	131
TAS	3	571.6	0.005248	191
VIC	130	6704.3	0.019391	52
WA	12	2825.2	0.004247	235

Figure 2



The ACT has the highest concentration of vacancies relative to its population with 15,000 people per individual vacancy. Western Australia has comparatively few vacancies relative to its population with 235,000 people per vacancy, the highest in the country.

While New South Wales and Victoria have the most Data Scientist jobs available (131 and 130, respectively) they may not be the best places to be looking for work as a Data Scientist. For those looking for a Data Scientist role, applicants in the ACT may find less competition from local candidates.

As well as understanding role availability across Australia, understanding the salary differences in Data Scientist positions is crucial to assess the opportunities for professionals in this field.

However, it is important to acknowledge the limited availability of salary information, as approximately 80% of job advertisements lacked specific salary data on the Seek.com.au website.

Table 3
Salary Statistics Across All States and Territories

Mean	Median	Q1	Q3	Minimum	Maximum	SD	Count
133779.9	140000	120000	150000	60000	220000	34062.82	90

Figure 3

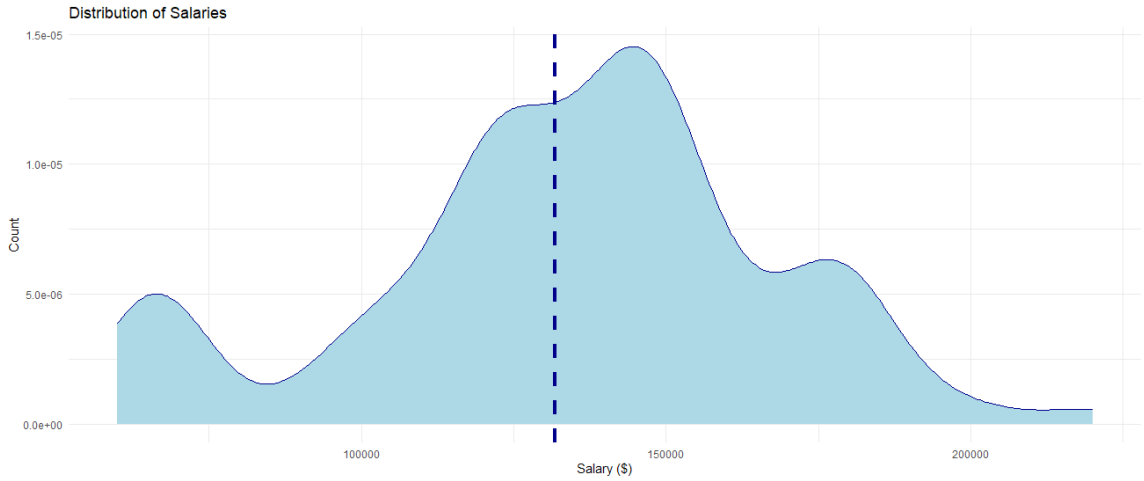


Table 3 provides key salary statistics for Data Scientist positions. The mean average salary is approximately $133,779.9 and the median average salary is $140,000, representing the middle value in the data set.

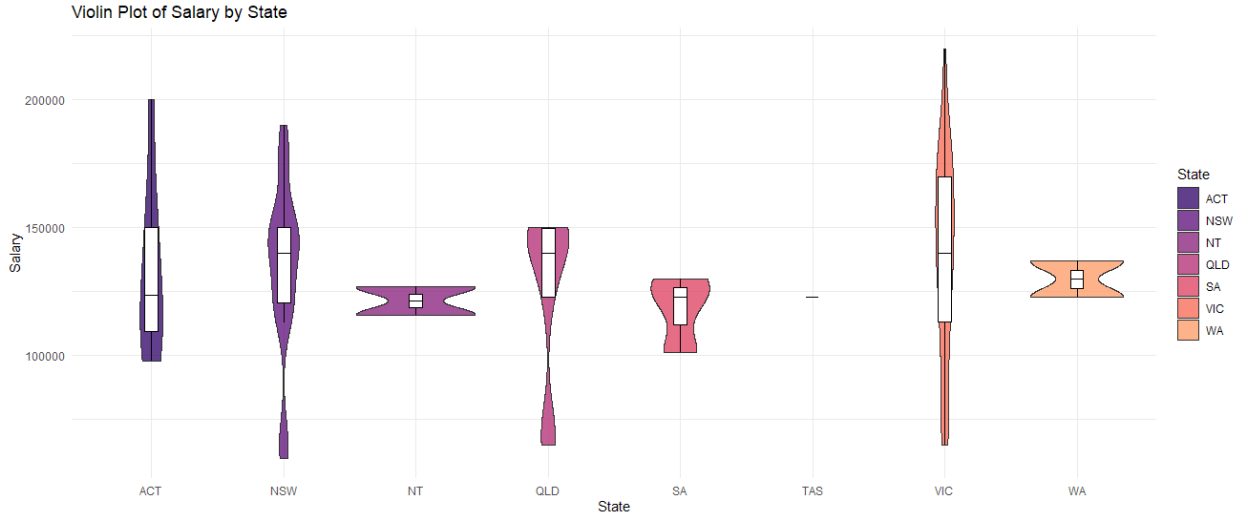
Figure 3 shows an approximate normal distribution around the mean. However, data appears multimodal with two additional populations noted at approximately $70,000 and $175,000 noted. Roles at ~$70,000 are typically graduate roles, representing entry-level positions within the field. Roles at ~$175,000 may be manager roles who can command higher compensation due to their increased responsibilities. It is also worth noting that Government roles typically fit into nationally defined salary bands, which may explain the presence of such a defined peak.

Comparing salaries between all States and Territories is difficult given the lack of data available for some states.

Table 4
Salary Statistics Across Each State and Territory

State	Mean ($)	Median	Minimum	Maximum	SD	Count
ACT	132897.5	123625.5	97790	2.00E+05	34743.19	8
NSW	134386.6	140000	60000	190000	32552.98	34
NT	121351	121351	115887	126815	7727.263	2
QLD	126317.4	140000	65000	150000	33783.87	9
SA	117985.7	122848	101109	130000	15046.73	3
TAS	122848	122848	122848	122848	NA	1
VIC	138443.9	140000	65000	220000	39875.34	31
WA	129869.5	129869.5	122848	136891	9929.901	2

Figure 4



Victoria had the highest mean salary of $138,443.9, however these are not dissimilar to NSW ($134,386.6) and ACT ($132,897.5). VIC, NSW and QLD all have the same median salary, $140,000 (Table 4).

Figure 4 highlights the 'graduate' salary populations in which appear (based on the data available) exclusive to Australia's three most populous states: NSW, QLD and VIC. Comparison of quartiles suggests that a statistically significant difference between states is unlikely.

The ACT is notable for having a higher salary floor than comparable states (lower salary was $97,790) while conversely, QLD is notable for having the lowest salary ceiling (highest salary was $150,000).

Figure 5

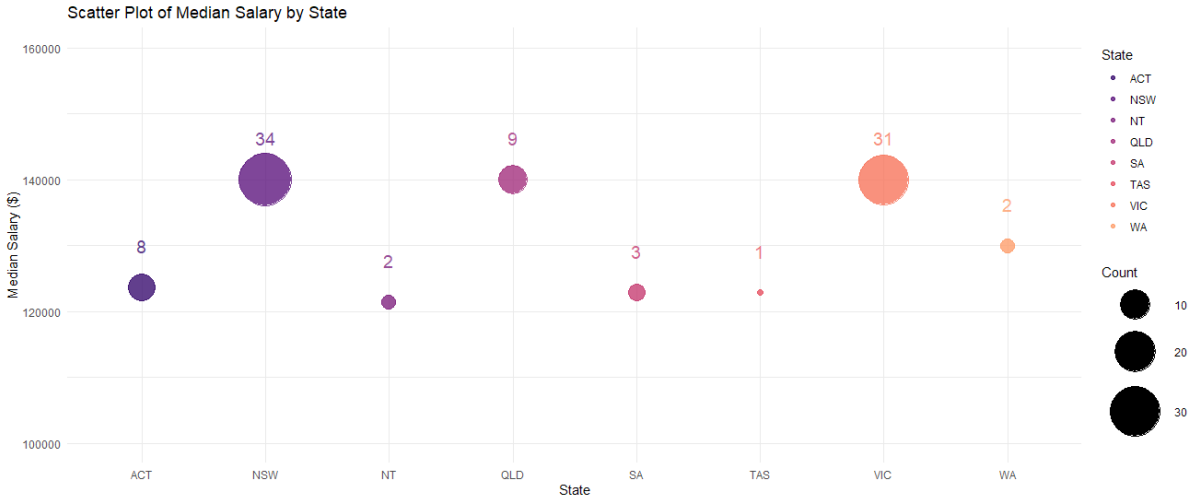


Figure 5 demonstrates the correlation between state population, number of roles available (circle size) and higher median salary.

Figure 5 also highlights the relative sparsity of data in many states; further research is needed before any reliable conclusions can be drawn about which state Data Scientists can expect the best compensation.

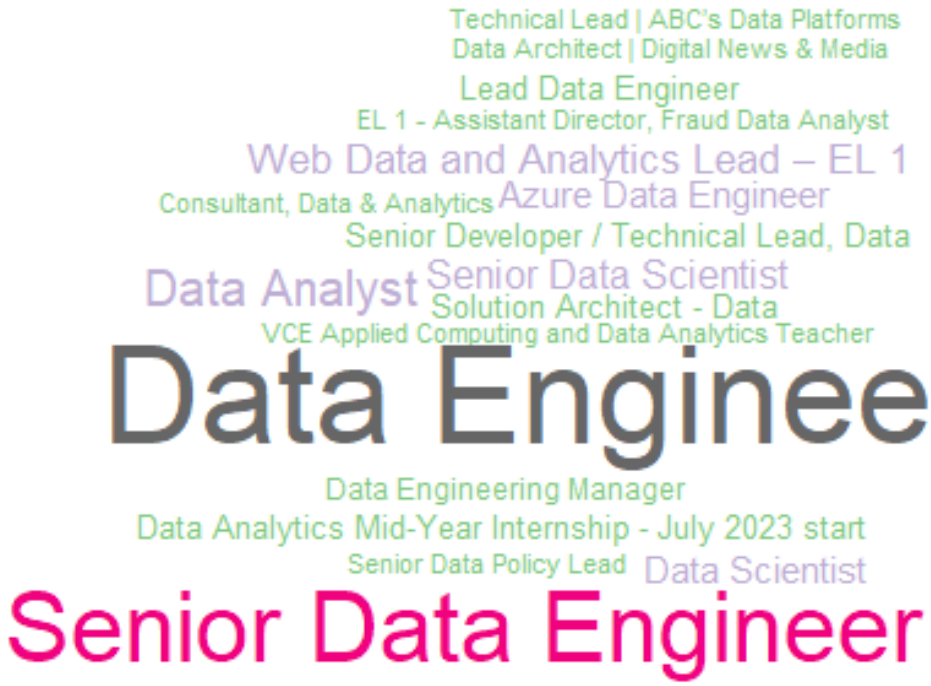
In conclusion, New South Wales and Victoria have the highest number of Data Scientist vacancies in Australia, reflecting their status as the most populous states. However, when considering the distribution of roles relative to population size, the Australian Capital Territory (ACT) stands out with a higher concentration of vacancies. Salaries did not appear to be statistically significant between States and Territories however insufficient data was available to draw reliable conclusions. Further research is needed to draw definitive conclusions regarding the best compensation and job opportunities for Data Scientists in Australia.

"What's in a name?" – An Analysis of the Variety of 'Data Scientist' Job Roles

This section explores the variety of job roles encompassed by the title of 'Data Scientist'. The nuanced nature of these titles can provide insights into the industry, as well as useful information for prospective candidates.

Figure 6 shows the detailed and specific nature of many 'Data Scientist' job titles in Seek.com.au.

Figure 6
Word Cloud of Job Titles Scraped from Seek.com.au



Patterns in the titles can be observed and removing "descriptors" or "specialties" for the titles allowed for the aggregation of roles into a variety of groups such as "Engineers", "Scientists" etc (Table 5)

Table 5
Counts of Different Types of Data Scientist Roles on seek.com.au.

Job Group	Count
Engineer	180
Leadership	65
Scientist	35
Analyst	30
Other	15
Analytics	12
Consultant	12
Architect	8
Developer	8
Specialist	6
Modeller	5
Advisor	1
Trainer	1

Figure 7

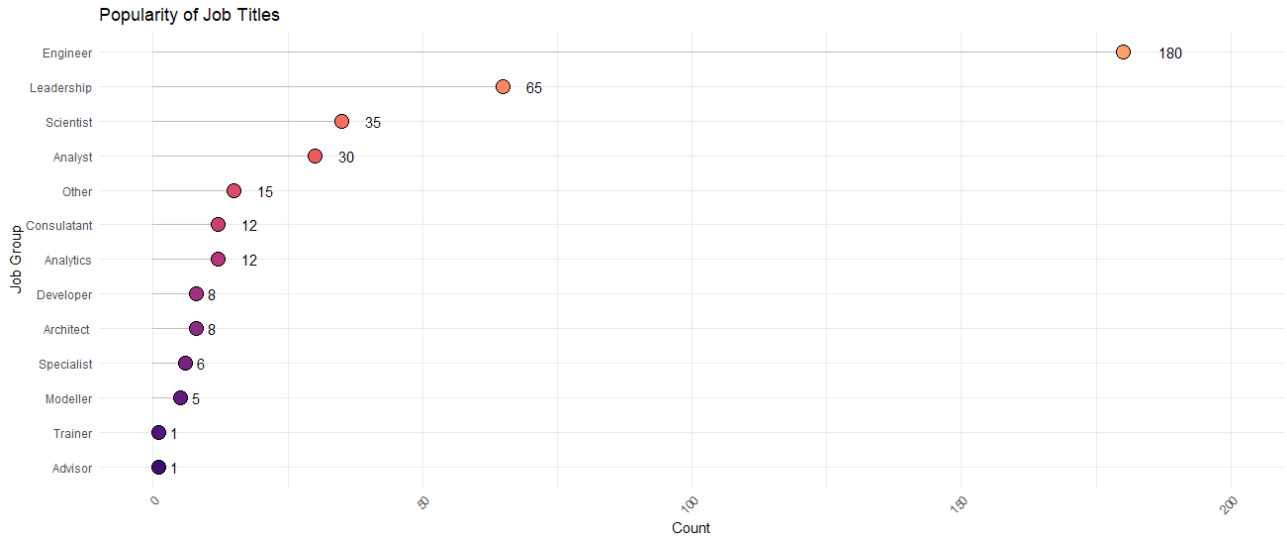


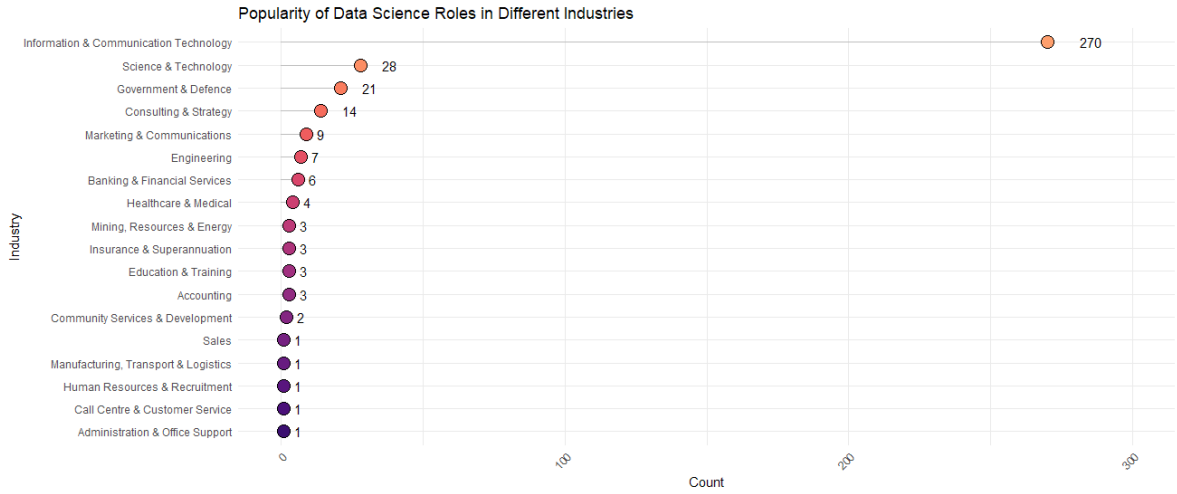
Table 5 and Figure 7 both show that the most popular data scientist job role on seek.com.au is that of a data engineer with 180 positions containing the word “Engineer”.

Leadership type roles (encompassing roles such as “Lead”, “Manager”, “Head” and “Director” were also common with 65 counted.

Analytical roles were also relatively common (77) but varied in their naming: “Scientist” (35), “Analyst” (30) and “Analytics” (12).

Industry data was also available and the number of roles in each industry was assessed.

Figure 8



The most common industry for data scientist roles was in the Information and Communication Technology (ICT) industry, with 270 positions counted. That was followed by Science & Technology and Government & Defence with 29 and 21 roles, respectively.

Salaries across industries were compared, however, comparisons are difficult given the sparsity of salary data and the dominance of a single industry (ICT).

Table 6
Comparison of Data Scientist Salaries Across Multiple Industries ($)

Industry	Median	Mean	Minimum	Maximum	Count
Accounting	103725	103725	103725	103725	2
Banking & Financial Services	180000	180000	180000	180000	1
Call Centre & Customer Service	66271	66271	66271	66271	1
Consulting & Strategy	86424.5	86424.5	60000	112849	2
Engineering	72498	72498	72498	72498	1
Government & Defence	126815	126784.1	97790	146897	7
Healthcare & Medical	115887	115887	115887	115887	1
Human Resources & Recruitment	120000	120000	120000	120000	1
Information & Communication Technology	141313	140600.2	65000	220000	61
Insurance & Superannuation	150000	150000	150000	150000	1
Manufacturing, Transport & Logistics	147500	147500	147500	147500	1
Marketing & Communications	122848	122848	122848	122848	9
Mining, Resources & Energy	101109	101109	101109	101109	1
Science & Technology	136891	136891	136891	136891	1

Figure 9

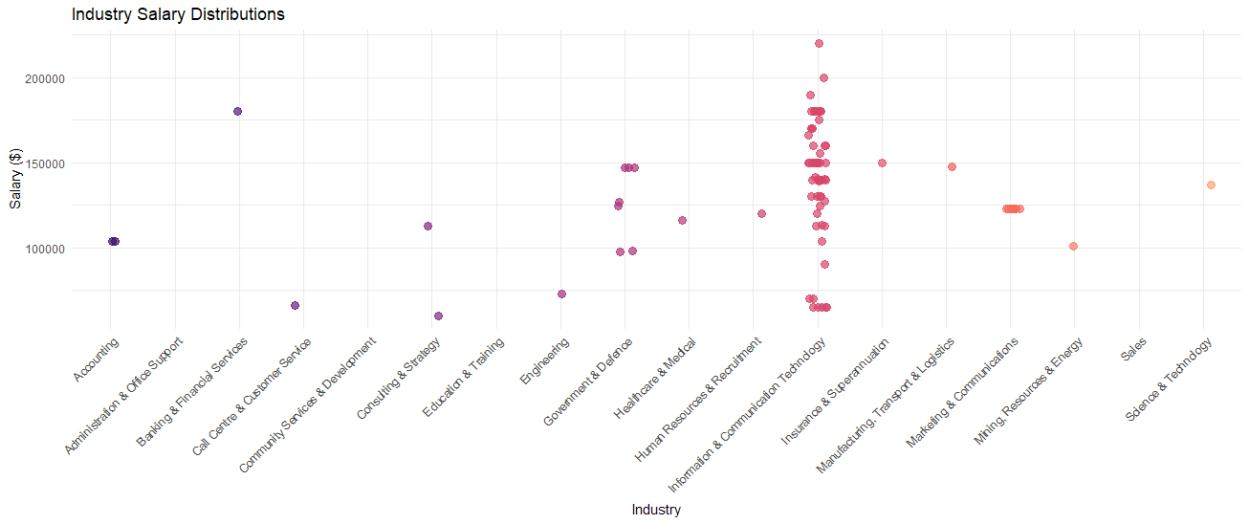
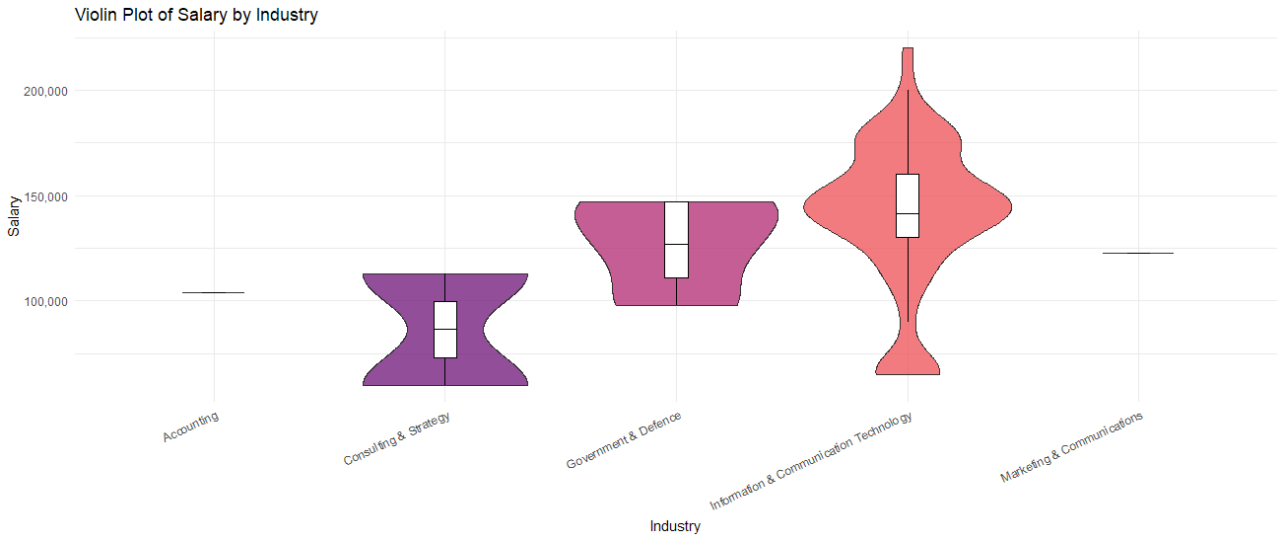


Figure 9 emphasises the scarcity of salary data across most industries, with only a few industries having enough data points for analysis. Those with at least one data point available are presented in Table 6.

Salaries within ICT are competitive with a median average salary of $141,313. Of other industries with several datapoints available, Government & Defence had a median salary of $126,815 (n=7) and Marketing & Communications had a median salary of $122,848 (n=9).

Distribution of data from industries with more than 1 data point were then assessed.

Figure 10



Accounting and Marketing & Communications had no distribution to observe as all adverts had the same salary. Consulting and Strategy had two adverts, as shown by the hourglass shape of the distribution.

ICT demonstrates the multimodal distribution observed earlier when assessing the salary distributions overall. This is unsurprising given that this industry makes up much of the data.

The Government & Defence distribution is notable for its clearly defined salary ceiling at approximately $150,000. Government roles are subject to specific salary banding which may explain this distribution.

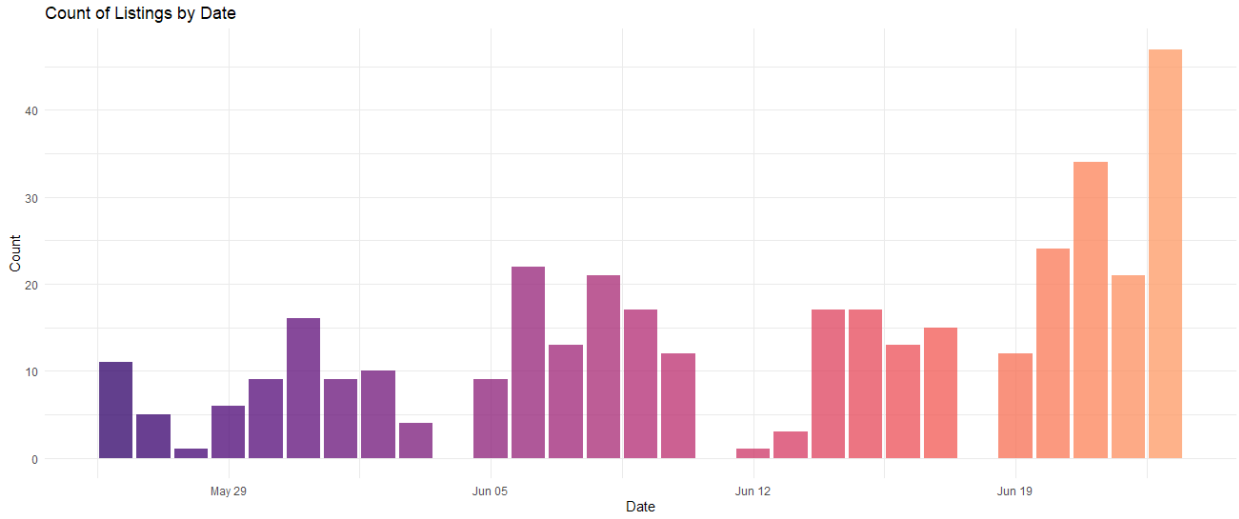
In conclusion, the 'Data Scientist' field encompasses a range of job roles, with data engineering, leadership, and analytical positions being prominent. The ICT industry has the most Data Scientist roles available and salaries in this industry are competitive. However, salary comparisons of the ICT industry to other industries are challenging due to the lack of salary data for other industries.

"Seize the day, then let it go" – An Analysis of how 'Data Scientist' Positions Advertised Changes Over Time

Data was collected on the submissions over time by back calculating the date from Seek.com.au's description of the age of the advert (e.g. "3d ago"). Exacting posting date was not available, and the use of rounding may lead to inaccuracies in precisely which date an individual advert was posted.

Data on Data Scientist vacancies spans a period of 29 days from 26th May 2023 to 23rd June 2023.

Figure 11



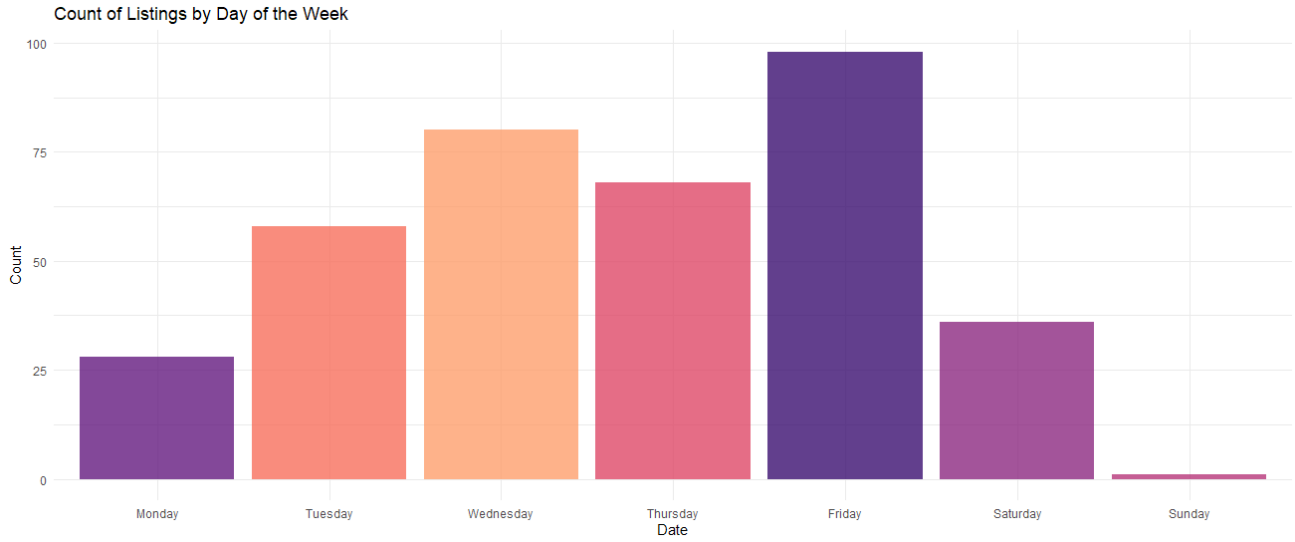
The highest counts observed were 47 on the 23rd of June. Multiple days with zero new positions listed were noted.

The listings exhibit some variability with day-to-day fluctuations observed, however there are periods noted where numbers remain similar suggesting a degree of potential stability in the frequency of new adverts.

Table 7
Count of New Listings by Day of the Week

Day	Count
Monday	28
Tuesday	58
Wednesday	80
Thursday	68
Friday	98
Saturday	36
Sunday	1

Figure 12



Assessing the listing with respect to days of the week explains the missing data; only one advert was released on a Sunday. The busiest days for new adverts was Friday (98) and Wednesday (80). Besides Sunday, the quietest day was Monday (28), which was lower than Saturday (36).

These observations suggest that there may be some patterns and preferences in terms of when new Data Scientist positions are posted, with Wednesday and Friday being relatively busy days for new listings. Data from Mondays and Saturdays is notable; however, these unusual data may be due to potential rounding issues in the data.

Conclusion

This report analysed data from Seek.com.au to explore the opportunities and compensation for data science professionals in Australia. The findings provide insights into the distribution of Data Scientist roles across States and Territories, the variety of job roles within the field, and the changes in job listings over time.

Salary data was considered but its sparsity meant definitive conclusions could not be drawn.

New South Wales and Victoria have the highest number of data scientist vacancies, reflecting their status as the most populous states. However, when considering the distribution of roles relative to population size, the Australian Capital Territory (ACT) stood out with a higher concentration of vacancies.

The variety of job roles encompassed by the title "Data Scientist" was explored. Data Engineering, Leadership, and Analytical positions are the job roles most in demand now. Technology focused industries dominate in this sector with the Information and Communication Technology (ICT) industry having the most Data Scientist roles available, with Science and Technology and Government and Defence making notable contributions.

Finally, the report examined the changes in data scientist job listings over time. While day to day fluctuations were observed, the rate of new job averts remained consistent. Wednesday and Friday were relatively busy days for new listings, while Monday had fewer new positions compared to Saturday.