

7. Data Description for Resources to Address Te Ara Paerangi Future Pathways

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There are a number of disparate sources of valuable data that contribute to understanding the current state of Aotearoa New Zealand's Research Science and Innovation (RSI) system. Currently, the Ministry of Business, Innovation and Employment (MBIE) is seeking submissions for Te Ara Paerangi – Future Pathways Green Paper with the aim to create a future-focused research system in New Zealand. We assembled data that has been useful in supporting submissions for Te Ara Paerangi – Future Pathways Green Paper and finding insights on the current state of Aotearoa's RSI system, including a range of issues that the RSI system is currently facing¹⁻⁴. Here we describe the data we have collated from various sources to support researchers to come back to it more readily as Te Ara Paerangi – Future Pathways proceeds.

Despite its potential, much of the data we have accessed and catalogued has not been organised well for people to use, so here we have collated data from the [Research and Development Survey 2020 on StatsNZ](#), [Education Counts](#), [Performance-Based Research Fund \(PBRF\) Quality Evaluations](#) and University Annual Reports. This includes data on the workforce, diversity, funding and expenditure of the RSI system in New Zealand. This data has been archived and described in the form of a [data catalogue](#) and [datasheets](#). A [resource list](#) has also been formed to describe the literature available related to key themes of the Green Paper.

This observation underscores a key recommendation: a national research information system (NZRIS) deserves well-supported implementation as part of a national science policy monitoring capability, to better ensure the state of the nation's RSI system has anticipated future needs, including the ability to support responses to events.

Key data can be found in a [consolidated Excel workbook](#), which has been formatted for use in R. A list of the tables and their caveats found there are as follows:

- 7.1. The number of university academic full-time equivalent (FTE) staff by position and gender in New Zealand (2012–2020).
- 7.2. The percentage of female academic FTE staff by position in New Zealand universities (2012–2020).
- 7.3. The total number of research and development (R&D) personnel, FTEs, FTEs with a PhD and FTE with a PhD:FTE ratio by occupation and sector (2012–2020). The 2020 data for the higher education sector and all sectors is provisional due to not all the data being available at the time of publication of the research and development survey 2020.
- 7.4. The number of total doctorate enrolments and completions across all institutions, FTEs with a PhD, expenditure (\$million) and the FTE:expenditure ratio by sector (2010–2020). Doctoral degrees include PhDs and other doctorates but exclude higher doctorates. The 2020 data on the expenditure (\$million) for the higher education sector and all sectors is provisional due to not all the data being available at the time of publication of the research and development survey 2020.
- 7.5. The number of university doctorate completions and enrolments in total, by domestic status and per academic FTE (1998–2020). Doctoral degrees include PhDs and other doctorates but exclude higher doctorates. Data in this table, including totals, had been rounded to the nearest 5 to protect the privacy of individuals, so the sum of individual counts may not add to the total.
- 7.6. The gender of doctorate completions and enrolments at each New Zealand institute (2020) and for all institutes combined (1998–2020), and the total number of completions by university

(2011–2020). Doctoral degrees include PhDs and other doctorates but exclude higher doctorates. Gender diverse was only reported from 2019. Data in this table, including totals, had been rounded to the nearest 5 to protect the privacy of individuals, so the sum of individual counts may not add to the total.

- 7.7. The ethnicity of doctorate completions and enrolments in New Zealand (1998–2020). Doctoral degrees include PhDs and other doctorates but exclude higher doctorates. Students were counted in each ethnic group they identify with, so the sum of the ethnic groups may not add to the total. Data in this table, including totals, had been rounded to the nearest 5 to protect the privacy of individuals, so the sum of individual counts may not add to the total.
- 7.8. Doctoral completions by the field of study (2008–2020). Doctoral degrees include PhDs and other doctorates but exclude higher doctorates.
- 7.9. The total funding (%(million)), success rate (%) and funding increase (%) of the Marsden Fund and the Endeavour Fund (2006–2021).
- 7.10. The percentage of tertiary researchers in each age band by subject (2003–2018).
- 7.11. The ethnicity of tertiary researchers by subject (2003–2018).

References

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- (2) Patel, S.; Baisden, T.; Stewart, L.; Yee, G. 5. *Hypercompetition: Observations and Remedies*; Zenodo, 2022. <https://doi.org/10.5281/zenodo.6354888>.
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- (4) Patel, S.; Yee, G.; Baisden, T. W. *The Grim Realities of a Doctoral Student in Aotearoa*. Zenodo, 2022. <https://doi.org/10.5281/zenodo.6348121>.