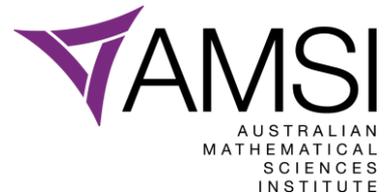


Growing industry internships for research PhD students through the Research Training Program - Implementation Submission August 2022



About APR intern

The APR.Intern program, carried out by the Australian Mathematical Sciences Institute (AMSI) is a national, all-sector all-discipline industry internship scheme for PhD students. It provides PhD students with the opportunity to transfer their skills from theory to real-world application. While students are empowered to thrive in a practical research environment, businesses gain a competitive advantage by accessing high-quality research expertise for a defined project.

APR.Intern's extensive experience in facilitating PhD internships leave AMSI well placed to provide comment on the inclusion of funding for industry internships for PhD students in the new Research Training Program. Under the Federal Government-funded National Research Internships Program (NRIP) from 2017-2021, APR.Intern facilitated 633 PhD student internships of 3 to 6 months duration with a network of 337 industry partners and 35 participating universities. The national breadth of this program provides insight into the optimal PhD placement process and key learnings to ensure Australia's postgraduate students are industry-literate and career-ready.

The comments outlined below are based on user feedback, including responses to routine surveys and other information generated in the course of program operations.

General comments

AMSI welcomes the introduction of financial incentives to universities to enrol PhD students in internships to strengthen research collaboration and employment opportunities with industry.

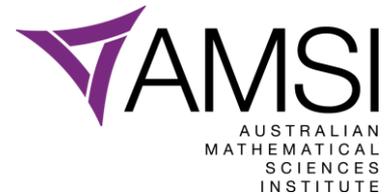
From the middle of the 1990s, the number of PhD graduates in Australia has increasingly outnumbered the academic jobs available, and opportunities to gain employment in academia have become more limited.¹ This was one of the underlying reasons for the establishment of APR.Intern. Through meaningful internship experiences, APR.Intern has created opportunities for PhD students outside academia with employers who value their advanced skills and are keen to innovate.

The outcomes of the program show that industry internships indeed help to build new employment pathways beyond academia. More than 88% of former interns regard the internship experience as "important" or "very important" in preparing them for future employment. Industry partners and former interns overwhelmingly agree that the internship has been instrumental in growing workplace skills, confidence and insight into how the research and analytical skills of the PhD student translate to industry.

The APR.Intern program has also been able to create a pathway to employment with 22.5% of internships resulting in ongoing roles at the company they interned with. In addition, the industry

¹ [Paul X McCarty and Maaïke Wienk, "Advancing Australia's knowledge economy; Who are the top PhD employers?" CSIRO Data61/AMSI, 2019.](#)

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partner benefits from innovative ideas and concepts brought by the intern. More than 75% of industry partners have indicated that they have implemented the internship project outcomes, with improved service delivery, product development, and progress towards meeting business challenges frequently reported as beneficial impacts.

In summary, AMSI has much evidence that industry internships for PhD students have important mutual benefits for industry and interns alike. To maximise the benefits to students and industry partners and to ensure the goals of the new RTP program can be fully realised, AMSI would like to make the following observations.

Timing of the internship

The experience of the APR.Intern program, which leaves the timing of internships to industry partners, interns and the university, shows that fewer than 11% of PhD internships commence in the first 18 months of candidature. Typically, the program places interns in the last quarter of their candidature.

This allows the student to settle into their candidature, map out their research and make a solid start to their study before broadening or changing their focus to an external party. In addition, confirmation typically occurs at the 12-month mark and up until that point the focus of the PhD may change.

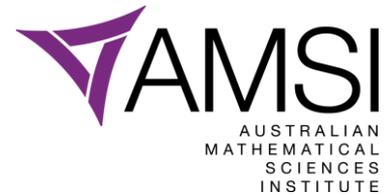
Feedback received by the program indicates many academics and graduate research schools are concerned that undertaking an internship early on might derail rather than positively influence the PhD. A common concern is flight risk: that a student might be offered employment by the host business when they are still a long way from completion of their PhD. On the other hand, if the internship is taken toward the end, if the student is offered a job it is usually clearly on the understanding that the PhD will be completed.

In addition, the reason for undertaking internships in the last quarter of the PhD is that students at that point are contemplating their career prospects. Many APR.Intern industry partners explicitly state that they are looking to employ interns pending a successful internship. This is not usually possible if the student is mid-way through a PhD and not actively looking for employment.

Further, preliminary findings from our program evaluation suggest that industry find it advisable for the student to have gained the academic maturity and advanced skillset for the industry partner to gain the added value that a PhD intern can bring. This typically does not occur until the later stages of the PhD. The student will have completed most or all of their studies, bringing an advanced skillset to the business.

From this perspective, limiting the execution of PhD internships to the first 18 months of candidature might result in a reduced overall demand for internships and the proposed funding model will not be optimally targeted towards the intent of the RTP program to build employment pathways. This is not to say that an early internship is never desirable or appropriate. However, **AMSI recommends to not**

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place restrictions on the timing of internships to allow industry, interns and universities to facilitate internships at a time that is optimal for all parties involved.

Structure of the internship – block mode

Being able to apply undivided focus on a business problem is a key driver of demand from industry for the APR.Intern program. For over 66% of industry partners, delivery of results in a short-term, tightly focused project was an important factor in making the internship a successful one.

Projects are often time critical and can form part of a larger program of work. In many cases, the intern is working as part of a team and their expertise can be vital to the completion of a major project.

While part time internships provide welcome flexibility for students with family commitments, stretching out an internship over an extended period of time is likely to dilute the experience for the intern and weaken the value proposition for industry.

AMSI recommends that internships are offered in block mode, so that focus can be achieved, and the industry research project can be completed in a defined period.

Duration of the internship

As indicated above, the APR.Intern program places PhD candidates in internships ranging from 3 to 6 months. AMSI concurs that under a new RTP funding program, 60 full-time equivalent days of engagement (or three months) is an appropriate minimum for internships to be of value for industry partners and interns. However, we note that in the APR.Intern program there has been a strong preference for internships of longer duration. The average length of an internship under this program to date has been 5 months, with fewer than 25% of internships lasting only 3 months.

AMSI recommends that universities take the three-month RTP guideline strictly as a minimum only and allow the duration of the internship to be guided by the needs of the parties involved and the requirements of the internship project.