MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

NOT GOVERNMENT POLICY – NOT FOR DISTRIBUTION

SCIENCE SYSTEM ADVISORY GROUP

PAPER NUMBER	SSAG-MBIE-024	**DATE**	17/06/2024
TITLE	Management of Intellectual Property generated in Public Research Organisations		
RESPONSIBLE MANAGER	Gina Williamson		
AUTHOR/S	Dr Simon Wakeman, Principal Policy Advisor - Innovation Policy, MBIE		
PURPOSE	To provide information on practices in New Zealand and internationally regarding intellectual property generated in Public Research Organisations.		

NOT GOVERNMENT POLICY
NOT FOR DISTRIBUTION
SSAG-MBIE-024

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Management of Intellectual Property generated in Public Research Organisations

SIMON WAKEMAN

PAPER FOR THE SCIENCE SYSTEM ADVISORY GROUP

14 JUNE 2024

Stakeholders have raised concerns about the way public research organisations (PROs*) treat intellectual property (IP) in inventions

CONCERNS WITH PRO IP PRACTICES EXPRESSED BY STAKEHOLDERS

- PROs/their Technology Transfer Organisations (TTOs) demand an unreasonable share of equity in spinouts from PRO inventions

  → *Discourages downstream investors and/or ongoing involvement by researchers*

- PROs/TTOs demand ownership rights to the IP from the research, even when the company has funded the research

  → *Creates barrier to collaborations with industry*

* In this document, PRO includes both universities and Crown Research Institutes (or equivalent in other countries) unless otherwise specified

This document describes approaches to treatment of IP generated in PROs in NZ and overseas

RESEARCH QUESTIONS

- Descriptive
  - *For PROs in NZ vs comparator countries:*
    - Who owns the IP in inventions generated within PROs?
    - What control do Govt/funding agencies exercise over IP rights?
    - What revenue share do researchers receive from IP licensed by a PRO?
    - What share of equity do PROs retain in spinouts?
  - *What are the differences in law/practice in NZ vs comparator countries?*

- Analytical
  - *What are the implications of the current NZ settings?*
  - *What are potential policy options for remedying the issues with NZ approach?*

In NZ and most other countries, PROs own rights to IP generated by staff but staff may receive compensation or rights in some cases

WHO OWNS THE IP IN INVENTIONS GENERATED WITHIN PROS?

Country	
US	• Following Bayh-Dole Act, universities (and other research organisations) own IP generated by faculty/staff, but researchers share in licensing revenues
Europe	• In most European countries, patent legislation dictates that employers/PROs own IP but researchers have rights to fair compensation • In Sweden, Italy and Switzerland, "professor privilege" means academic researchers retain IP rights, but in Italy & Switzerland they are obliged to use the PRO's commercialisation services
Australia	• Under Patents Act, PRO owns IP generated by staff, but the employment contracts may vary in some situations (eg, PRO chooses not to commercialise)
Singapore	• PRO owns IP generated by staff and has right to decide on commercialisation but in some cases, researcher can ask for IP to be reassigned to it if the PRO decides not to commercialise
Israel	• PRO owns IP if invented during employment but must give reasonable and fair compensation (the Patent Law)
NZ	• Under Patents Act 2013, employer owns invention if created in course of employment and employee has limited rights to compensation (beyond salary) unless of "outstanding benefit" - As compensation, universities likely to provide researcher share of revenue (eg, 33%) while CRIs pays only a nominal sum ($1) • Ownership of IP in other cases (eg, if funded by third parties) determined by PROs own policy - U of Auckland requires ownership of the IP but it appears to be an exception

Generally, governments/public funding agencies do not exercise control over IP rights but require PROs to protect/commercialise IP

WHAT CONTROL DO GOVT/FUNDING AGENCIES EXERCISE OVER IP RIGHTS?

Country	
US	• Bayh-Dole Act 1980 gave ROs the ability to retain rights in IP but required ROs to protect and/or commercialise (eg, NSF requires invention disclosure of within 2 months) and gives government "march in" rights in specific circumstances (eg, alleviate health or safety needs)
Europe	• Most European countries have Bayh-Dole-like legislation enabling universities to claim IP ownership on scientific research - In most countries researchers are obliged to use services of TTO, but in Sweden and a few other countries researchers have full control of commercialisation
Australia	• The US Bayh-Dole Act inspired public agencies to vest rights in PROs but oblige them to protect the IP and/or make it openly accessible (National Principles of IP Management for Publicly Funded Research)
Singapore	• Public funding agencies do not demand ownership of IP rights but National IP Protocol sets principles for use of IP including non-exclusive right to use for non-commercial purposes
Israel	• Failed to legislate national policy re ownership of publicly funded IP but introduced specific policies re IP from government health system and the Agricultural Research Administration
NZ	• Depends on funding agency/department - Funds administered by MBIE allow the applicant (including commercial beneficiaries) to own the IP but MPI funds often require that MPI retain ownership IP

Researchers usually receive 30-50% of revenue from IP licensed from PROs

WHAT REVENUE SHARE DO RESEARCHERS RECEIVE FROM IP LICENSED BY A PRO?

US	• Researchers (collectively) typically receive 30-50% of licensing revenues
Europe	• Researchers are entitled to "reasonable compensation" • Revenue shares vary widely across countries/institutions, but typically inventor receives 25-85% • In Sweden (Uppsala University) researcher compensated at market value if IP out licensed
Australia	• Researcher/inventor(s) typically receive 33-50% of net revenue
Singapore	• Nanyang Technological University / National University of Singapore share 33%/50% of revenue (after costs) with researchers • A*Star policy re IP not observed clearly but appears to share 33% with researchers
Israel	• Per Management of Knowledge Products Directive, researcher receives 35% / 31.5% of revenues from inventions from public health system / Agricultural Research Administration • Not observed generally but Tel Aviv University typically allocates 40% of revenue to inventors
NZ	• PROs generally share a portion of revenue with researchers, while universities policies are more defined (typically researchers get 33%) while CRIs vary on a case-by-case basis

PROs typically license IP to spinout on commercial terms but only take small (5-15%) equity share unless it remains actively involved

WHAT SHARE OF EQUITY DO PROS RETAIN IN SPINOUTS?

Country	
US	• ROs typically retain 3-10% equity stake (post-investment) undiluted up to and including Series A, although can vary on case by-case basis - MIT & Stanford grant IP license on commercial terms and retain 5-15% equity post-investment
Europe	• Average PRO equity share is 7% but varies wildly across PROs/countries - Approximately 48% of PROs take shares of equity and 46% shares of future revenues - Some do not support spin outs or share equity
UK	• PRO grants IP license on commercial terms and retains 5-50% equity share depending on ongoing involvement of TTO (eg, Cambridge takes 33% if Cambridge Enterprises works with spinout)
Ireland	• National IP Protocol states that PROs will take equity in spinouts but needs to be negotiated with the company in accordance with various guidelines to determine a realistic level • University College Dublin typically takes a 15% equity stake, but will take 10% in some cases
Australia	• Universities routinely take 30% equity stake and some (eg, University of Queensland) do not give researchers any equity if they remain employed at the university
Singapore	• A*STAR retains a minority stake (<20%)
NZ	• PROs equity share average over past 5 years is 16% (ranging from 0-50%) - higher shares associated PRO transferring IP to spinout (vs license on commercial terms) - PRO licenses or assigns/transfers IP rights to the spinout are determined on case-by-case basis - Equity shares of 2/3 (as reported for UC, VUW) appears to be atypical

NZ law/practice puts higher weight on benefit to PROs (vs researcher) and gives limited direction on how benefits distributed

DIFFERENCES IN LAW/PRACTICE IN NZ VS COMPARATOR COUNTRIES

- PRO interest in IP is given higher priority over researchers' and other partners'
  - *Some compensation for researchers (esp. by universities) but approach varies by PRO*
- PRO takes relatively high share of equity in spinout companies in compensation for its previous investment in developing the opportunity
  - *PRO equity share typically does not come with ongoing commercialisation expertise or financial investment (University of Auckland's Founders Fund is an exception)*
- No legislative framework or national policy relating to IP generated in PROs and/or from public funding

ADDITIONAL OBSERVATIONS

- CRI corporate model and university TTO funding models place incentive on PROs to maximise value captured from IP
  - *CRIs and university TTOs structured as "profit centres" (vs not-for-profit departments)*
- PROs limited experience in commercialisation (due to low volume) mean best practice is still evolving

NZ's current settings may disincentivise researcher, investors, and industry involvement without encouraging PRO commercialisation

IMPLICATIONS OF THE CURRENT NZ SETTINGS

- Lack of clarity on IP ownership can discourage collaboration between researchers and industry
- Small or no share of equity allocated to researcher-founders …
  - *Dissuades VC/investors from investing*
  - *Means PROs more likely to hold on to IP/inventions (vs commercialise them)*
  - *Reduces incentives on researchers to put effort into commercialisation (vs doing academic research)*
- Inadequate compensation may discourage researchers from pursuing more research that generates commercially value and/or disclosing their discoveries

Options range from supporting PROs to develop own approaches to prescribing approaches in line with international best practice

POTENTIAL POLICY OPTIONS FOR REMEDYING THE ISSUES WITH NZ APPROACH

- More supportive
  - *Further encourage TTO capability development, helping them evolve best practice*
    - eg, KiwiNet Spin-Out Programme (supported by CPN) provides support for deal structuring
  - *Reduce expectation on CRIs/university TTOs to generate return from commercialisation activities (eg, direct funding of TTOs)*
- More prescriptive
  - *Develop standardised investment terms for PRO spinouts*
    - TenU (2023). University Spin-out Investment Terms Guide (from UK)
  - *Develop national policy re IP generated in PROs/from public funding to align with best practice internationally*
    - National IP Protocol 2019 (Ireland)
      - Applies to publicly funded or public owned research
      - Requires PROs to maximise benefits of commercialisation to Ireland (vs the PRO)
      - Sets out default ownership and licensing
  - *Provide direction to PROs (from shareholding ministers) re treatment of PRO IP*