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Navigating Progress: A Timeline of Science Policy in Aotearoa

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Summary

The goal of the project was to research and create of a timeline of policy events from within the Science, Research and Innovation (SRI) sector in Aotearoa New Zealand, that aligned with the [Kindness in Science](#) project underway at [Te Pūnaha Matatini](#) (TPM). Kindness in Science aims to apply a complexity lens to the science system to foster a culture of inclusion and identify effective levers for meaningful change to achieve a science system which demonstrates a relational duty of care to all its participants.

To create the timeline, extensive research was conducted that included consultations with colleagues and supervisors at TPM and the OPMCSA, and the analysis of government websites and documents, journal articles, and press releases. Policy decisions or actions that established, modified, or discontinued a relevant policy, agency, or funding mechanism were selected based on their historical significance and their relevance to the Kindness in Science project. Throughout this process relationships between events were identified and outcomes of policy decisions evaluated, resulting in a timeline that offers an initial understanding of the complex interconnections between historical context, policy decisions, and the evolution of the SRI sector.

The timeline provides insights into the evolution of the SRI sector, highlights areas where policy decisions may have had unintended consequences, and provides a foundation for future research to build upon and further explore the impact of policy decisions on diversity, equity, inclusion, and justness within the SRI sector.

The timeline is here: <https://vuw-scicomm.shorthandstories.com/navigating-progress-timeline-science-policy/index.html>

The report concludes by offering considerations for further research into understanding how Aotearoa can work towards a more kind and robust science system that is diverse, inclusive, equitable, and just.

Introduction

The Science, Research and Innovation (SRI) sector in Aotearoa New Zealand has been instrumental in driving scientific advancement, social progress, and economic development (Statistics New Zealand, 2010). However, a recent independent review of the Crown Research Institutes (CRIs), Te Pae Kahurangi, highlighted a lack of coordination and collaboration across independently managed CRIs, under-delivery at the science-policy interface, and a lack of real partnership with Māori (Ministry of Business, Innovation and Employment, 2020). These findings echo long-standing concerns about silos, exclusion, and hostility within the sector that have been acknowledged by many, and have been brought to the forefront through a further review of the SRI system, resulting in significant reforms known as [Te Ara Paerangi Future Pathways](#).

As society faces the long-term challenges posed by issues such as climate change, environmental degradation, and social inequality, collective and collaborative action from a diverse science community will be essential for success in meeting them. The Kindness in Science project with TPM aims to foster such a community, by applying a complexity theory lens to the science system to identify effective levers for meaningful change. As a step towards this goal, a work placement and project was hosted by the Kindness in Science project, with Te Pūnaha Matatini (TPM) and the Office of the Prime Minister's Chief Science Advisor (OPMSCA). The placement involved exploring policy decisions that consider diversity, equity, inclusion or justness within the SRI sector in Aotearoa New Zealand and resulted in the creation of a timeline of policy events.

For complex problems, we need complex solutions that consider the many different levers and possible outcomes that may present themselves once applied. Therefore, examining the policy events that have transformed the SRI sector is an important step towards understanding how diversity, equity, inclusion, and justness have been historically prioritized in the sector and how these priorities may be reshaped for the future. Understanding the complex interconnections between policy decisions and their impact is crucial as we navigate the evolving landscape of science and technology and face a reform of the sector. By considering the historical context of policy events and their impact on the sector, we can work towards creating a more informed and effective science system for the benefit of all.

Policy decisions in this sector are intended to advance and improve the quality of life for all individuals participants in the sector, and society at large, yet these decisions are often made in silos, with limited consideration for their interconnections and interdependencies. To comprehend the impact of policy decisions and to create a more informed future, it is essential to examine the collective history of these events. Therefore, this work placement and project explores the policy

decisions that have shaped the SRI sector in the past, resulting in a timeline of policy events that traces the sector's trajectory over time, highlighting the events that have emerged as a result of earlier reforms and decisions. This timeline provides valuable insights into the factors that have contributed to the evolution of the sector, and can be utilised to inform and guide future policy decisions. This report presents the host organisations, learning objectives, research process and methodology undertaken, and the timeline of policy events. The report concludes by offering considerations for further research into understanding how Aotearoa can work towards a more kind and robust science system that is diverse, inclusive, equitable, and just.

Kindness in Science

The Kindness in Science Collective was founded in 2017, when members of the science community who were frustrated with the hypercompetitive research system in Aotearoa New Zealand, came together to ask if kindness could lead to better scientists and better science. By challenging the 'winner takes all' mentality of scientific research and promoting a culture of inclusivity and collaboration, these scientists believe that embedding kindness in science would ensure a variety of world views and experiences were woven into projects, increasing the impact of research and driving better outcomes. "The term 'kindness in science' should not be perceived as a threat to the robustness of the scientific method but rather a commitment to improving pathways to careers within, and improved outcomes of science to society as a whole" (Bioheritage, n.d.).

Kindness in Science is a living definition, currently defined as: "a fierce commitment to deliberate and sustained action to build a just science system that is accessible, inclusive and equitable" (Kindness in Science, n.d. -b).

The Kindness in Science project has since been funded by TPM to test whether embedding kindness leads to better outcomes. The project proposes the adoption of a culture of inclusion that sustains the robust discourse essential for science while respecting the dignity of all participants, with the aim of addressing the hostile culture within science that has historically marginalized many groups, and identifying effective mechanisms to promote inclusivity (Te Pūnaha Matatini, n.d.). This work will build on previous work by TPM on the impact of science funding and the dynamics of scientific citation patterns, and add to the growing evidence base for the importance of building diverse and effective teams.

Project Aim

The goal of this project was to research and create of a timeline of policy events from within the SRI sector in Aotearoa New Zealand, that aligned with the Kindness in Science project. Policy decisions or actions that established, modified, or discontinued a relevant policy, agency, or funding mechanism were selected based on their historical significance and their relevance to the Kindness in Science project, such as those considering diversity, equity, inclusion, or justness.

The aim of the timeline is to provide a comprehensive overview of the decisions which have contributed to the evolution of the sector, highlighting areas where policy decisions may have had unintended consequences, and providing a foundation for future research to build upon and further explore the impact of policy decisions on diversity, equity, inclusion, and justness. The project also aimed to highlight the importance of examining the collective history of policy events to comprehend the impact of policy decisions and to create a more informed future. It is hoped that this timeline will act as a valuable resource for the Kindness in Science project, strengthening their evidence base on the importance of building diverse and inclusive scientific teams in Aotearoa New Zealand, and helping to identify effective levers for meaningful change in our science research landscape.

Research Methods

Positionality

Before discussing the research methods used in this project, it is important to acknowledge my positionality and consider how it may have influenced my research process and final output. I position myself as a young pākehā woman who is inquisitive, empathetic, and politically left-leaning. I have always been curious about the world and considered myself a scientist at heart, but have struggled to find where I belong within the western framework of science and academia. My identity and experiences shape my perspective, and as such, I approached this project with a self-reflexive lens, recognising the potential impact of my background on the research. To me, science has always felt a little bit unkind, with its pay-walled articles, power imbalances, rigidity, and intrinsically competitive nature. This belief system led me to the Kindness in Science project with TPM, for whom I am conducting this research.

As a graduate student with the Centre for Science in Society at Te Herenga Waka – Victoria University of Wellington, my learnings have informed my approach to research and the questions I ask. Through my studies, I have come to understand that science is not inherently objective, and that my subjective experience plays a key role in the questions I ask, the opinions I form, the words I

write, and therefore in the research I conduct. My degree has also provided me with the opportunity to challenge some of my intrinsic biases which stem from deeply embedded beliefs around what science is and its role within society. While being aware of and recognising biases is important, I have taken additional steps to mitigate any potential biases that may arise from my positionality. These include having open and honest conversations with my supervisors, engaging with diverse perspectives in the literature, and being transparent about my positionality and any potential limitations it may present.

Research Methods

Data Collection

To gather the data for the timeline of policy events, a qualitative research design was employed. The research approach involved an extensive literature review on policy events, utilising academic journals, government reports, news articles and press releases, and consultation with supervisors at TPM and the OPMCSA to gather insights and knowledge about the SRI sector in Aotearoa New Zealand. The objective of fostering connections to ensure effective communication, knowledge-sharing, and collaboration was prioritised during the data collection phase of the project. This was achieved through regular meetings with supervisors to discuss project progress and receive feedback.

During these conversations, notes were taken to record key points, policies, or connections. These notes were later analysed during the data selection stage, to identify relevant items. Data collection for this research project also included attending a retreat (Mahia te Mahi) with TPM, where I participated in networking activities and meetings. The purpose of attending the retreat was to gain a deeper understanding of the TPM's structure and processes, as well as to meet individuals involved in the KIS project, and listen to a talk by Shaun Hendy, a prominent science communicator and researcher with experience integrating science into policy. Attending the retreat and participating in networking activities and meetings provided valuable insights and context for the research project, particularly in terms of understanding TPM's culture, priorities, and processes.

Data Selection

For the purposes of this timeline, a *policy event* refers to a significant decision or action undertaken by the government or other relevant authority within the SRI sector that led to the introduction of new legislation or regulations, the establishment of new programs or funding mechanisms, changes to existing policies or practices, or discontinuation of certain policies, programmes, or funding mechanisms. These events can shape the way that science, research, and innovation are conducted in the country, and have an impact on the sector as a whole.

Policy decisions or actions that established, modified, or discontinued a relevant policy, agency, or funding mechanism were selected based on their historical significance and their relevance to the Kindness in Science project. Events were chosen if they were determined to have a direct impact on the systems underlying the sector, and considered an element of diversity, equity, inclusion, or justness. Events were also determined based on the guidance and expertise offered by the supervisors from TPM and the OPMCSA.

To provide a comprehensive view of the sector's development over time, the first timeline event was selected as 1989. This marks a significant shift in the Science, Research, and Innovation sector, as reforms were being implemented that would ultimately shape its evolution. Starting the timeline with this event provides historical context for the subsequent policy events and their impact on the sector. Additionally, it allows for tracking the evolution of policies and practices correlated to the introduction of contestable funding and the push towards competitive systems in the sector which occurred at this time, from its early stages to the present day.

Reflection and Evaluation

During the selection process, reflection was undertaken regularly to ensure that the project was progressing as planned, milestones were being met, and the successes and challenges encountered were being considered within the context of the MScSoc. This involved taking a step back from the project on a regular basis and critically examining my experience and the work completed so far, as well as comparing my progress to the timeline outlined in my list of milestones. Feedback from TPM and the OPMCSA was also considered during reflection, ensuring that the project remained aligned with my own objectives as well as those of the host organisations, and provided an opportunity to identify any areas where I could improve my performance.

Data Analysis

The selected data was placed into a working Sheets¹ document where it was organised into chronological order and expanded upon with commentary and additional references. In addition, the timeline data will be hosted in the Sheets document where it can easily be accessed and edited by interested parties from the research and policy sphere, and also utilised to create a visual timeline of events on the platform Shorthand, providing an accessible and engaging piece of work to be shared with the wider public, and a further opportunity to develop my technical skillset.

¹ The working document that includes the comprehensive timeline with additional commentary, a list of resources, and link to the Shorthand timeline can be found [here](#).

The preliminary findings suggest that the sector is moving in a positive direction in terms of the increasing number of policies that align with the values of Kindness in Science. However, the data also highlights the need to consider decisions within the context of the system as a whole, as well as the wider political, economic, and international context within which it is situated. The timeline offers correlations between historical and external conditions, the introduction of contestable funding, and the increasing prominence of competitive systems. By tracing the sector's trajectory from these early days through to the present, the timeline highlights the policy events that have emerged as a result of earlier reforms and decisions.

While the analysis of the data is ongoing and further research is needed to provide a comprehensive understanding of the interconnected nature of these policies and their impact on kindness within the sector, the collected data provides a strong foundation for future research by Kindness in Science and serves as a valuable resource for anyone interested in investigating diversity, equity, and inclusion within the science research and innovation system. It is important to note that the findings presented in this report are preliminary and limited by the time constraints of this work placement. Further analysis and research, particularly the application of complexity theory, will be needed to fully understand the intricate web of policies and actors that comprise the SRI sector, and the ways in which events interact to result in positive or negative outcomes. This is simply a starting point for future research and underscores the importance of continued efforts towards building a more just and inclusive SRI system.

A Timeline of Science Policy in Aotearoa

We start our timeline in 1989, following significant public sector reforms that were carried out in the late 1980's, spurred on by pervasive international theories such as New Public Management² and Public Choice Theory³. This resulted in the disestablishment of the Department of Scientific and Industrial Research (DSIR) in 1989, which since 1926, had been responsible for facilitating collaboration between industry and science, overseeing research, and providing subsidies for

² New Public Management as applied to the research system, aimed to increase efficiency and decrease costs of the public sector, and was implemented in a bid to promote economic growth by moving towards the commercialisation of research by the private sector (McGuinness, Hickson & White, 2012).

³ Public Choice Theory suggested that public officials monopolizing the provision of services would result in inefficiency, whereas contracting out services to the private sector would result in greater efficiency and improved outcomes (McGuinness, Hickson & White, 2012). It also played a significant role in the restructuring of government sector agencies to separate policy ministries from operational departments (Whitcombe, 2008).

industrial research in Aotearoa New Zealand. The DSIR was transformed into a tri-institutional model, with the aim of separating policy, purchase, and provision. It was hoped that by separating science policy advice from both the delivery of operational science and funding, there would be increased accountability, enhanced economic growth, and improved decision-making (Statistics New Zealand, 1992).

The Timeline is here: <https://vuw-scicomm.shorthandstories.com/navigating-progress-timeline-science-policy/index.html>

Conclusion

The timeline provides valuable insights into the evolution of science and innovation policy in Aotearoa, highlighting the key decisions and challenges faced by the sector. It also showcases the important role played by various government agencies and organisations in shaping the policy landscape. The findings of this project contribute to a better understanding of the policy events that have considered diversity, equity, inclusion, or justness, and provides a comprehensive foundation of data for further research. The project also highlights the need for continued research in this area to ensure that future policy decisions, particularly with the Te Ara Paerangi reform underway, are well informed and considered within the wider historical, political, and economic context.

It is hoped that the timeline will act as a valuable resource for the Kindness in Science project and provide a foundation for future research to further explore the impact of policy decisions. It is also hoped that this project has worked to facilitate and strengthen the relationship between TPM and the OPMCSA, furthering the goals of the Kindness in Science project, and contributing towards real and meaningful change in the science research landscape. This internship provided a unique opportunity to contribute to the Kindness in Science project and to the understanding of SRI policy in Aotearoa New Zealand. I am grateful for the opportunity to work with TPM and the OPMCSA and would once again like to express my appreciation to Emma, Tammy, and George, who provided invaluable guidance and support throughout this placement. This report demonstrates the value of work placements and real-world projects as opportunities for students to develop their skills and contribute to meaningful research projects. It is hoped that the findings presented in this report will inform future research and policy decisions in the SRI sector in Aotearoa New Zealand, and contribute to the development of a more diverse, inclusive, equitable, and just science system in the country.

Further Considerations

Here, I offer questions for consideration, and present ideas for future research into this topic.

What role can funding agencies play in incentivising systemic change in the SRI sector? How could we go about exploring whether changes to funding structures or institutional cultures are effective levers for change?

Which policies and initiatives have shown the most promise in promoting diversity, equity, inclusion, and justness in the SRI sector, and how can they be scaled up or replicated?

How have scientific institutions and organizations in Aotearoa New Zealand responded to these policy changes? Have they embraced them, or have they faced challenges in implementing them? If there have been barriers to implementing policy, how can these be addressed?

How can we develop a more comprehensive understanding of the complex social, cultural, and historical factors that contribute to systemic inequality in science research?

What strategies have been effective in engaging different stakeholders, such as funders, policymakers, academic institutions, and community groups, in promoting diversity, equity, inclusion, and justness in the SRI sector, and how can they be adapted for different contexts?

How can the voices and experiences of underrepresented groups be more effectively incorporated into decision-making processes in the SRI sector in Aotearoa New Zealand?

Where else can we look to find examples of thriving complex systems?

Will it benefit us to draw comparisons between the initiatives implemented in Aotearoa New Zealand and those implemented internationally, such as Athena SWAN and Dimensions? This could involve analysing the similarities and differences in policy approaches, as well as assessing the effectiveness of different strategies in promoting diversity, equity, inclusion, and justness in scientific research.

Is it possible to investigate the impact of SRI policy decisions on the wider social and economic context of Aotearoa New Zealand, using complexity theory to analyse the interdependencies and feedback loops between scientific research and broader societal outcomes? This could include examining the impact of SRI policy on areas such as health, education, or environmental sustainability, as well as assessing the potential for scientific research to contribute to broader societal goals.

It is likely that there is no perfect system that suits everyone, therefore what should we be aiming to achieve with the current reforms? Are there any areas that aren't as important to focus on?

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