Genomics Aotearoa - Development of Work Plans and Projects

1. Document Purpose

Genomics Aotearoa needs a process for developing future Work Plans. Some of the way forward has already been agreed and formalised in GA's foundational legal documents, the Genomics Aotearoa Consortium Agreement and the Investment Contract with MBIE. This document presents the relevant information from the existing legal agreements. It then proposes a process that is compatible with the substance and philosophy of those existing agreements.

The draft proposal was presented for comments, discussion, modification and approval (see Document History). The aim was to continue to refine this document, in consultation with GA Partners, management and governance groups, until it was a suitable guide for development of GA's future work programme.

2. Work Plans and Projects

The Work Plan[1] is the programme of work that Genomics Aotearoa (GA) delivers with funding from the Ministry of Business, Innovation and Employment (MBIE). A large proportion of the programme consists of projects led by researchers from GA's Partner institutions. The Partners are: University of Otago; University of Auckland; Massey University; University of Waikato; Victoria University Wellington; Manaaki Whenua Landcare Research New Zealand Limited; The New Zealand Institute for Plant and Food Research Limited; Institute of Environmental Science and Research Limited; and AgResearch Limited. GA only undertakes activities contained in the Work Plan, unless otherwise approved in writing by MBIE.[2]

The initial Work Plan comprised of the priority activities outlined in the GA Business Case. Work Plan achievements are reviewed annually (for the year ending 30 June).[3] This Work Plan set the direction of Genomics Aotearoa's work for the first 3 years.

Each subsequent Work Plan will build on the achievements of existing activities, together with any new projects identified as priority by the Science Leadership Team (SLT). To assemble Work Plans, the SLT will draw on their interactions with the International Advisory Panel and with Associates, on interactions with researchers and end users through GA activities including annual meetings, and on the 3-year and 6-year review processes (reviews of GA governance structures and activities).[4] The SLT will work with the Vision Mātauranga Manager from early on in this process to co-develop Work Plans.

The overall Work Plan must be approved by the Partners (with agreement reached on indicative budgets for the applicable outputs and on which Parties are responsible for the delivery of those outputs). The Work Plan is then submitted to the Governance Board for approval, and will not be implemented until approved by MBIE.[5] For the purposes of approval, the Science Leadership Team will represent the Partners. (Each Genomics Aotearoa Partner has at least one researcher on the SLT, and sometimes more than one researcher. In the event that a vote is required, each Partner institution shall have one vote.)

GA provides an annual update to MBIE for approval no later than 30 April each year, as part of an annual strategic discussion with MBIE. This gives information about the activities that GA proposes to undertake within the upcoming 12-month period (1 July – 30 June), including an updated Work Plan/Programme and financial information if required.[6]

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[1] The Work Plan is also referred to, in the Investment Contract between MBIE and the Host, University of Otago, as the Work Programme.
[2] Genomics Aotearoa Consortium Agreement (Agreement), 5.1-5.2. The Agreement is also part of the Variation to Investment Contract between MBIE and University of Otago, February 2018.
[3] Agreement, 8.4
[4] Agreement, 8.4
[5] Agreement, 5.1-5.2
[6] Strategic Science Investment – Infrastructure platform investment contract between the Ministry of Business, Innovation and Employment and the University of Otago, 4.12

3. Years 1-3 Work Plans and Ongoing Activities

The focus in Year 1 was on the establishment of Genomics Aotearoa structures, strategies and processes, the development of a detailed investment plan, and commencement of capability development and research activities. The overall work programme was set out in a Platform Plan.[7] The Governance Board approved Work Plans for 11 projects.

Project	**Led by**
1801: High quality genomes	Dr David Chagne (Plant & Food) Dr Thomas Buckley (Landcare Research)
1802: Te Nohonga Kaitiaki	Assoc Prof Maui Hudson (University of Waikato)
1803: Aotearoa New Zealand variome	Prof Stephen Robertson (University of Otago)
1805: Better breeding values	Prof Dorian Garrick (Massey University) Dr Michael Lee (University of Otago)
1806: Environmental metagenomics	Dr Kim Handley (University of Auckland)
1807: Cell free genomics	Prof Parry Guilford Assoc Prof Mik Black (University of Otago)
1808: Genomic translational oncology	Dr Cris Print (University of Auckland)
1809: Culture independent genomic typing of bacterial pathogens	Dr Una Ren (ESR)
1810: Epigenome-wide association study technology	Prof Greg Jones (University of Otago)
1811: Bioinformatics capability	Prof Peter Dearden (University of Otago), Assoc Prof Mik Black and leadership team
1812: Clinical genomics	Prof Stephen Robertson (University of Otago)

Some of these projects run for 3 years. Some are likely to generate ongoing activities for the life of GA. In particular, the 1811 Bioinformatics capability work encompasses:

- Training to upskill the general workforce in bioinformatics, and upskilling the health workforce in bioinformatics (see also 1808 Genomic translational oncology)
- Development of a genomics data repository, and creation of a national software platform to facilitate the management and analysis of genomic data.

Additionally, there is a range of activities that are annual or ongoing, and are likely to appear in plans each year. These are detailed in the Platform Plan, and include governance and management, communications, international relationship building, and Vision Mātauranga activities. Genomics Aotearoa will disseminate new capability and knowledge throughout New Zealand by fostering links with research and end user organisations, especially those in the health, environment, primary production and bioinformatics sectors.[8]

The focus for future years is on:

[7] Genomics Aotearoa Platform Plan, January 2018
[8] Platform Plan, 3.2

- The establishment of Genomics Aotearoa as the central hub for genomics/bioinformatics capability and knowledge in New Zealand
- Communication of results emerging from the research
- Cross-pollination between GA research themes and partner organisations in GA activities
- Growth in numbers of associated PhDs and postdoctoral fellows
- Establishment of Genomics Aotearoa internationally as the central communications hub for New Zealand genomics/bioinformatics capability and knowledge
- Ongoing support for the genomic data repository, with embedded guidelines which accord with Te Ao Māori, as it is populated with new genomic information
- Use of the guidelines developed to assist researchers to incorporate Te Ao Māori into genomics/bioinformatics research activities
- Support for Māori researchers, research leaders, and the SING-Aotearoa summer internship for indigenous genomics
- GA researcher collaboration across major NZ research initiatives and provision of tools and processes to end users, with significantly increased capability.

The overarching goals of GA, in terms of development of time and needs-appropriate methodologies, tools, infrastructure, capability and integration of Te Ao Māori, are unlikely to change over the 7-year period. However, at a more detailed level, priority activities will be responsive to changes in the national and international landscape, in a science that is rapidly transforming.[9]

4. Goals and Outcomes

New Work Plans and projects will align with the goals of Genomics Aotearoa, as formulated in the GA Consortium Agreement:

> *GA will develop and support application of world-leading genomics and bioinformatics capabilities, which deliver impactful answers to key biological problems of importance to New Zealand and translate the capabilities developed in these activities broadly throughout the New Zealand community of users of genomics and bioinformatics. GA will remain agile in its role, such that it delivers to the current needs of users as the genomics and bioinformatics landscapes change over time*.[10]

New Work Plans and projects will contribute to at least one of the intended outcomes outlined in the Consortium Agreement:

(a) *a collaborative research ecosystem significantly upskilled in the application of genomics and bioinformatics as related to genomics;*

(b) *genomically literate business, government, and industry communities that understand the opportunities and challenges of genomics and are well placed to use new genomics*

[9] Platform Plan, 3.2
[10] Agreement, 3.1

and bioinformatics tools to deliver economic, social and environmental benefits for New Zealand;

(c) *an indigenous genomics platform providing key knowledge related to New Zealand species and accelerated development of Māori interests related to genomics and bioinformatics*.[11]

5. Key Performance Indicators

New Work Plans and projects will align with GA's Key Performance Indicators, and contribute to at least one KPI. These were developed in association with MBIE.[12] In summary:

Vision Mātauranga

- Increase in culturally informed genomics research
- Tangata whenua use and benefit from applications of genomic opportunities

Other

- Increase in media and public awareness, understanding and acceptance of genomics approaches

Impact

- Generation of high quality, new, exciting genomics research that adds value to the uniqueness of Aotearoa New Zealand

Project Delivery

- End users have access to and leverage genomics and bioinformatics knowledge, tools and methods to generate valuable outcomes across a diverse range of disciplines and sectors

Uptake

- Increase in end user awareness and demand for genomics approaches

Domestic and International Collaboration

- Partners, associates and the broader science sector recognise the leadership and value of GA
- Significant new international connections for genomics collaboration
- International recognition of increased NZ contribution to international life science knowledge
- NZ core to many international genomics and bioinformatics partnerships and collaborations

Capability

- GA attracts and retains genomics talent in New Zealand

Investing in People

- An engine of genomics and bioinformatics capability to support the NZ life science system

[11] Agreement, 3.2
[12] Variation Agreement, November 2019

6. Objectives and Themes

Work Plans and projects need to align with, and contribute to, GA objectives:

- Establish an agile, leading-edge collaborative platform of research on genomics that establishes new connections in the New Zealand genomics sector
- Grow genomics capability in New Zealand through excellent genomics research
- Grow new science collaborations with genomics research centres, networks and teams that are doing world-leading work
- Provide a nationally collaborative genomics and bioinformatics framework with strong support for researchers and translation of knowledge between individuals and organisations
- Involve genomics and bioinformatics researchers and end users, connecting them strongly nationally and internationally, and building on New Zealand's existing skillset
- Identify bottlenecks in growing the use and benefits of genomics and bioinformatics in New Zealand
- Support life science-based research platforms and projects that deliver significant and enduring impact.[13]

A transformational aspiration sees Māori moving from being subjects of research to being creators and leaders of genomic research. KPI measures include:

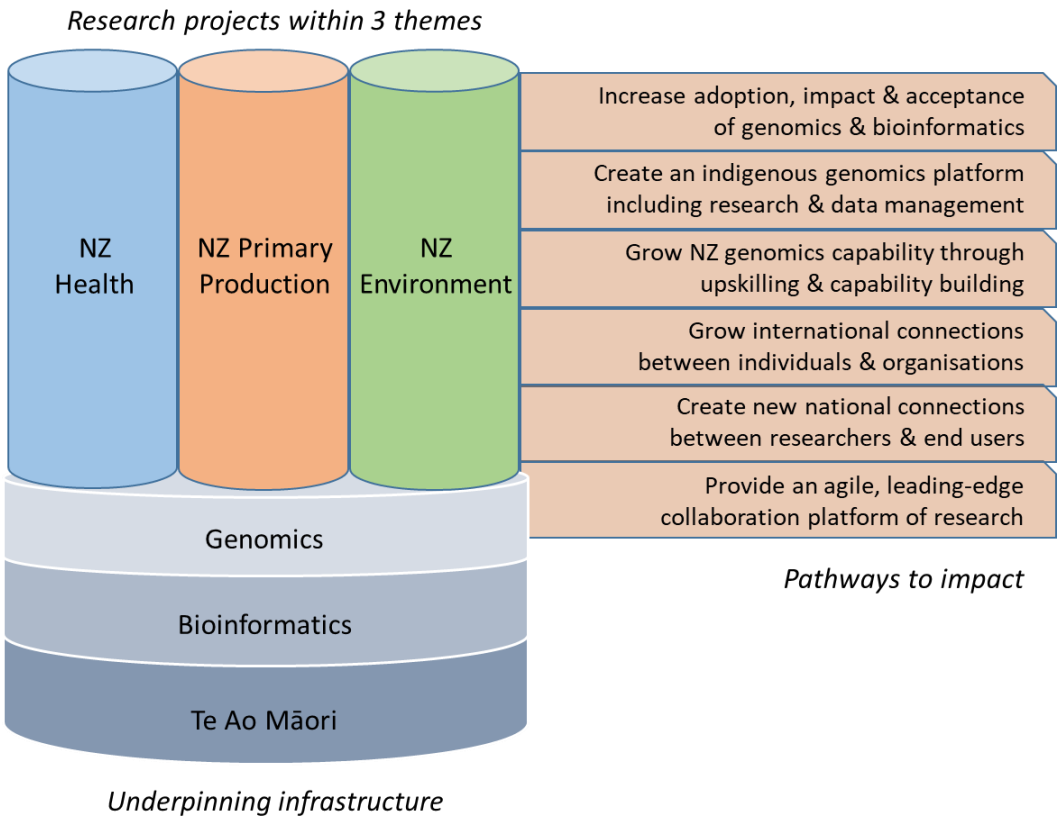
- Increasing responsiveness, with GA developing working relationships to identify distinctive issues and needs in Māori communities
- Increasing Māori participation and advancing Māori involvement in research
- Increasing numbers of Māori creators and leaders of research.[14]

Projects come under three broad themes:

1. Health
2. Environment
3. Primary Production

These themes intersect with the development of the enabling infrastructure and conceptual platforms of: genomics, bioinformatics and Te Ao Māori/Vision Mātauranga.[15]

[13] Agreement, Appendix 5
[14] Platform Plan, Key Performance Indicators, p. 20.
[15] Agreement, Appendix 5



The GA Partners intend that New Zealand genomics and bioinformatics will be advanced through:

a) *A collaborative research system significantly upskilled in the application of genomics and bioinformatics through acquiring new techniques from overseas, developing new and novel methods and maintaining best practice;*
b) *An active and growing, national network of bioinformaticians, collaborating in research and sharing and growing a national bioinformatics analytical platform;*
c) *Bioinformatics becoming thoroughly embedded in health system clinical diagnosis and prognosis;*
d) *Genomically-literate business, government, non-governmental organisation and industry end-users who understand both the opportunities and challenges of using genomics and are actively increasing their application of genomics and bioinformatics to deliver economic, environmental and social benefits for New Zealand, including Vision Mātauranga benefits of indigenous innovation, taiao, hauora and mātauranga;*
e) *An indigenous genomics platform that facilitates Māori management of indigenous genomic research and data, together with driving Māori upskilling and uptake of genomics information and tools to benefit their communities.*
f) *A national genomics data repository including bespoke processes for Māori management of indigenous data, which is actively populated across all New Zealand genomics research activities.*[16]

[16] Agreement, Appendix 5

The aim is that this will contribute to economic, environmental and social benefits through, inter alia:

a) *Compilation of the New Zealand human variome from which researchers and end users have accelerated the development of new diagnostic and prognostic methods for a wide range of diseases and conditions relevant to New Zealand;*
b) *Capability to determine environmental functions from analysis of environmental DNA, with this information being used for environmental reporting and to monitor and understand responses of biotic systems to threats such as climate change, invasive species and disease.*
c) *Capability to compile large and complex genomic data sets for conservation management and improved breeding in the primary production sector. This capability will be being used to:*
d) *prioritise and strategise indigenous species protection and recovery*
e) *tackle plant pests and diseases of animals and plants through genomically-targeted approaches such as species-specific toxins and gene drives;*
f) *prevent incursions of new pest species;*
g) *improve breeding outcomes through linking of genomic features with phenotypic traits, particularly for emerging primary production industries – including taonga species – and also for existing industries.*[17]

7. Te Ao Māori and Māori Research

A Māori-centred approach is crucial to the success of Genomics Aotearoa. Work Plans and projects need to take account of this direction from the GA Consortium Agreement:

> *Genomics Aotearoa acknowledges that Māori/Iwi will have specific rights and interests in data resulting from genomic investigations of Māori as well as indigenous plant and animal biota. We are aware of Māori sensitivities to genetic/genomic technologies and the ethical issues of relevance to Māori communities. Therefore GA will be informed by best practice approaches to Māori research ethics (Te Ara Tika Guidelines for Māori Research Ethics), genomic research with Māori (Te Mata Ira Guidelines for Genomic Research with Māori), bio banking with Māori (He Tangata Kei Tua Guidelines for Bio banking with Māori), and the protection of Māori data (www.temanararaunga.Māori.nz). We expect that the implementation of these guidelines and an approach that ensures mana and rangatiratanga (control and protection of interests) over the data will be (a) consistent with expectations under the Treaty of Waitangi, and (b) culturally responsive.*[18]

Cultural responsiveness:

Is Māori-informed and directed;

i. *Treaty of Waitangi-compliant:*

[17] Agreement, Appendix 5
[18] Agreement, Appendix 6

ii. *partnership in all activities – ranging from idea conceptualisation, to research prioritisation, to governance, all research involving indigenous people and biota, and participation in decision making, and*
iii. *protection of interests and rights via control over indigenous data;*
iv. *Minimises risks and maximises benefits to Māori;*
v. *Incorporates best practice engagement processes with Māori communities;*
vi. *Something Māori can look to as a safe 'go to' place/space (advice and advocacy);*
vii. *Protects and enhances kaitiakitanga interests.*[19]

Work Plans and projects must include a narrative describing how the project will adopt an ethical practice within the relevant guidelines:

- Research involving New Zealand indigenous flora and fauna – Te Ara Tika Guidelines for Māori Research Ethics: A framework for Researchers and Ethics Committee Members
- Research involving Māori biological material or data from Māori biological material – Te Mata Ira Guidelines for Genomic Research with Māori
- Research involving Māori biobanking or the banking of Māori biological material – He Tangata Kei Tua Guidelines for Biobanking with Māori
- Research involving engagement with Māori community – Te Ara Tika Guidelines for Māori Research Ethics: A framework for Researchers and Ethics Committee Members.

This guidance will be updated by the 1802 Te nohonga kaitiaki project, which will produce guidelines for genomic research with taonga species, including pathways for benefit sharing and commercialisation that explicitly incorporate Vision Mātauranga.

This will also be updated whenever new initiatives and guidelines become available that outline the latest thinking on best practice in Aotearoa and internationally. A discussion of guides and literature related to Māori cultural concepts and values relevant to biotechnology and genetic research can be found in Mead, Hudson and Chagné (2017). They conclude that: "it's appropriate to keep seeking clarification about Māori cultural concepts and values and how they apply to new knowledge and new emerging technologies."[20]

8. Ethical and Regulatory Requirements

All Work Plans and projects, whether executed by Genomics Aotearoa staff, partners, associates or subcontractors, are subject to ethics, regulatory and safety requirements.

Human and Ethical Consent: Genomics Aotearoa requires human and animal ethical consent, as appropriate, to be granted before funding projects. Ethical standards must be adhered to during the project, and any reporting requirements met.

[19] Agreement, Appendix 6
[20] Aroha Te Pareake Mead, Maui Hudson, David Chagné, *Māori perspectives and gene editing: A discussion paper,* 11 November 2017, p.16.

Department of Conservation (DoC) Approvals: Researchers will apply for the appropriate DoC permits to collect native animals or plants.

Data Privacy, Governance, Use and Storage: Where needed, processes concerning privacy of data, and consent for its use and storage, will be examined and approved by the appropriate National Ethical Committees before work begins. GA will implement the principles of Te Mata Ira in relation to data governance, storage, access, use and representation. GA will uphold those principles through governance and guidance from the Vision Mātauranga Manager and through appropriate IP arrangements. When guidelines are developed for appropriate partnership with Māori in the generation and use of genomic data, GA requires researchers to sign up to those protocols, for example the Principlesoutlined in the section above.

Biological Compliance: Regulatory requirements with respect to biological compliance will be met through the normal activities of GA's research partners. They will ensure that any process requiring genetic modification, or the use of new organisms, will be carried out in Ministry for Primary Industries (MPI) approved and inspected facilities, and will follow all Environmental Protection Authority (EPA) and MPI regulations if undertaken in New Zealand.

Health and Safety: All research will conform to the health and safety policies and processes of the partner or subcontractor organisation in which it is undertaken.[21]

9. Roles

Roles are those described in the Consortium Agreement. All adhere to the GA Conflicts of Interest Policy and Process (see Appendix).

Associates: Associates are listed in the Consortium Agreement, and are defined as those organisations who are affiliated to Genomics Aotearoa, but who do not make a monetary contribution and are not involved in the governance or management of GA.[22] GA will consider Associate members as preferential participants to involve in research and translation work. They will be given first right of refusal to undertake research and translation work on GA projects where there is a gap appropriate to their skills/capability. They are also a sounding board for GA ideas and future direction in GA annual meetings.[23] GA has an open door policy for groups that may wish to become Associates.

Partners: Wherever practicable, research projects should involve two or more of the Partners. The Work Plan is approved by each of the Partners (with agreement reached on indicative budgets for the applicable outputs, and on which Parties are responsible for the delivery of those outputs).[24] The Science Leadership Team undertakes this approval. GA has a formal process, outlined in the Consortium Agreement, for adding new Partners.

[21] Platform Plan, 3.7
[22] Agreement, Definitions
[23] Agreement, Schedule 2
[24] Agreement, 5.1-5.2

Science Leadership Team: The Science Leadership Team (SLT) includes one member from each of the GA Partners, plus the Director and the Vision Mātauranga Coordinator. They make recommendations to the Governance Board concerning mission-led science and infrastructure investments in Work Plans, including a consideration of alignment of the science with the GA vision. The SLT make decisions by consensus, or if necessary, by majority vote, according to the Consortium Agreement process. They:

a) stay aware of aligned activities, such as the National Science Challenges and the Centres of Research Excellence, with regard to the development of Work Plans, and endeavour to minimise overlaps and maximise synergies;
b) manage and maintain transparency in the selection and prioritisation of projects;
c) ensure scientific methodology, data collection, management and analysis are of international standard.[25]

International Advisory Panel: The International Advisory Panel (IAP) provide advice to the Governance Board regarding Work Plan proposals.[26] The Panel advise the Board on the prioritisation of projects in the Work Plans.[27] They review projects in the context of international best practice, opportunities and linkages. They also can provide advice on what areas to focus on when new Work Plans are being put together, and on procedures and strategies for generating and selecting projects.

Director: The Director of GA prepares draft Work Plans and indicative budgets, assisted by the Operations Manager.[28] The Director chairs the SLT and is involved in co-development of Work Plans, as well as their final preparation for submission to the Governance Board.

Governance Board: A proposed Work Plan for research or infrastructure projects comes from the Director and Science Leadership Team to the Governance Board for approval.[29] The terms of reference and decision-making processes for the Board are described in the Consortium Agreement.

[25] Agreement, 8.4
[26] Agreement, 7.6
[27] Agreement, 7.13
[28] Agreement, 8.13
[29] Agreement, 7.6

10. Approach to Funding

Money available to projects is allocated via a commissioning process. This process is designed to be inclusive of our Partners and Associates, Māori, scientists and stakeholders, in consultation with our funder, MBIE, and overseen by an independent Governance Board. This process is also designed to be in line with approaches taken by other national bodies, such as that of National Science Challenges. It balances the importance of consulting appropriately, spending wisely, and moving swiftly in response to rapid change in this area of science.

GA is not a funding agency and does not hold contestable funding rounds or call for proposals. There is a need to be agile and responsive to the fast pace of scientific developments in this field, and the time involved in holding funding rounds would be a potential barrier to this. The breadth of partners, associates, advisors, researchers and governance groups who have input into the design of the Work Plans ensures that a wide range of infrastructure, research and translation activities are proposed for consideration.[30]

The underlying principles in this approach are:

- There is a robust, fair and transparent process following agreed and documented decision-making practices.
- There is close adherence to ethical standards, and especially to the Conflicts of Interest Policy and Process (see appendix).
- Genomics Aotearoa aims to operate in a way that is trustworthy and expects the same from all its members and researchers.

11. Process for Developing Work Plans and Projects

The proposed process for developing Work Plans and projects is:

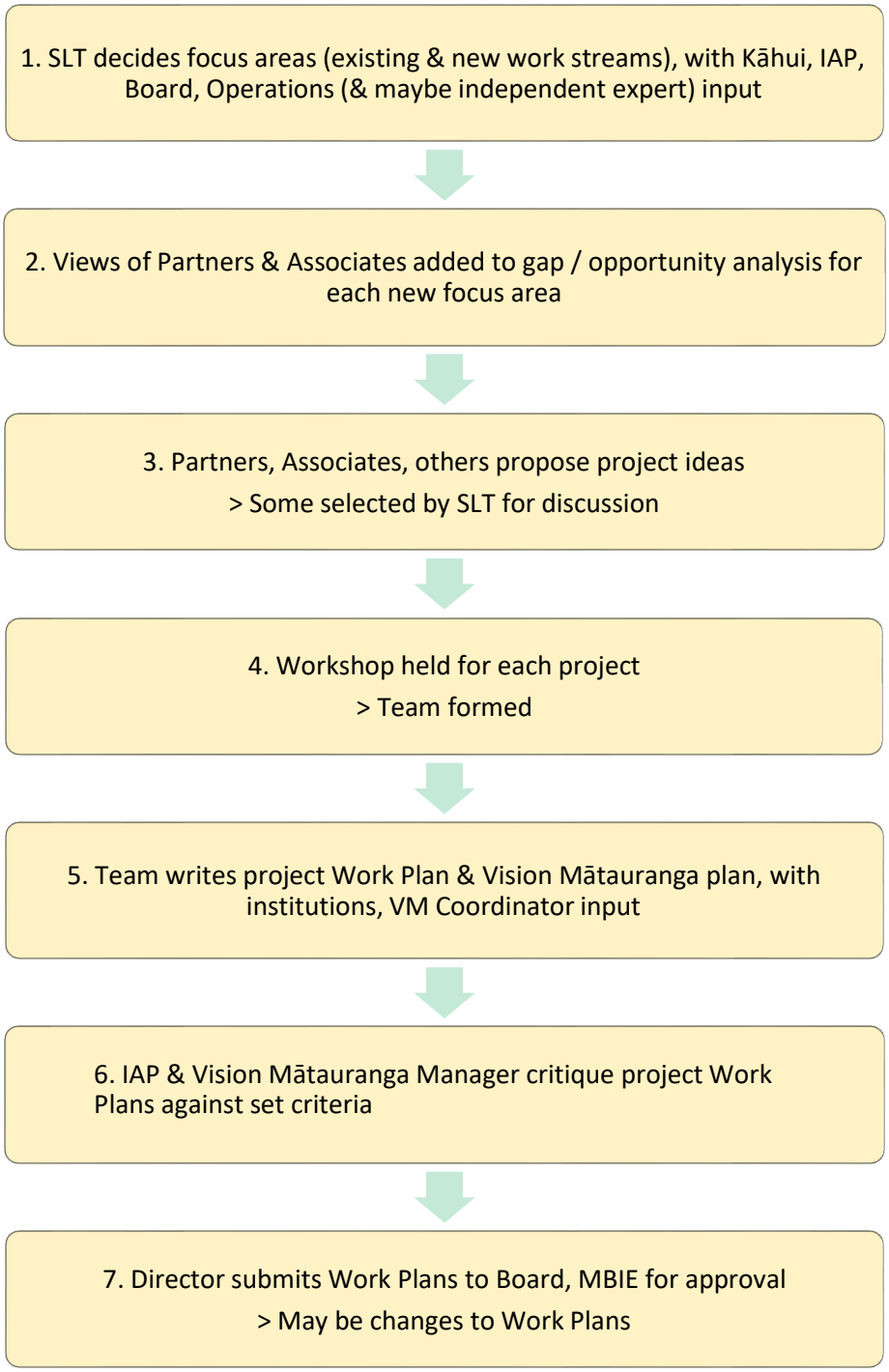
1) Within the 3 key themes, decide on area(s) of focus (or work streams). The SLT undertakes this, in partnership with the Kāhui, and with input from the IAP and Board.
    a) One of these is a work stream that continues on work from the beginning of GA, so successful and necessary projects remain funded and key researchers have certainty of employment to continue the work. (Current work is reported and assessed annually, including disclosure of Māori engagement to date, achievement of milestones, science outcomes and benefits for end users.)
    b) When there is funding available for new focus areas or work streams, undertake an analysis outlining current research, needs, opportunities, risks, gaps, and other necessary information. The SLT, or an appointed sub-committee of the SLT consisting of those scientists with appropriate specialist knowledge, undertakes this analysis. In cases where the SLT judges it necessary, GA may commission a report from an independent expert, for SLT review.
2) Once the SLT has defined a gap or opportunity in a particular area, circulate this to GA Partners and Associates (where appropriate with transparency on funding available), inviting

[30] Platform Plan, 3.6

them to contribute their views to the analysis and to consider how the opportunity might be progressed. Based on this input, SLT decides on any changes to the gap / opportunity analysis and the new area of focus.

3) Recirculate the finalised gap / opportunity analysis to GA Partners, Associates and selected groups external to Genomics Aotearoa, inviting people to indicate their interest in being involved and to propose their project idea(s) in a short pitch (i.e. one page). Based on responses, SLT selects a small number for further discussion. As well as the merits of the idea, the track record of people and organisations is taken into consideration, for example preference is given to those whose work already aligns with the opportunity under discussion. Selection is not limited to GA Partners and Associates, but is limited to those with expertise in the relevant fields, who are also people and organisations that the SLT judges will work within the Genomics Aotearoa goals, objectives and principles of partnership outlined above.
4) Steps 1-3 become the basis for an invitation-only workshop focused on a single project. This is attended by a small number of people (less than 20), and facilitated by a subject-specific sub-committee of the SLT. The workshop has a defined agenda and gathers a small group to define, plan and develop a project. (Based on steps 1-3, there may be more than one project idea to develop, and each is the subject of a separate workshop. However, there will not be more projects progressed to this stage than can be funded, i.e. at this stage, projects are not in competition with each other for selection.) Selection to attend the workshop is an indication that GA is interested for that person to be involved in the project, but does not guarantee a piece of the funding - which will be clearly signalled beforehand in communications.
5) Following the workshop, the team that has formed during the workshop writes up a project Work Plan, using the standard GA format, to a deadline for consideration. This includes a Vision Mātauranga or Māori community engagement plan, which has involvement from:
    a) the relevant department or group who guides such engagement at the institution/s involved
    b) the Genomics Aotearoa Vision Mātauranga Coordinator.
6) The IAP and the Vision Mātauranga Manager critique the project Work Plans, considered against a set of criteria, seebelow. Some changes to Work Plans may be required.
7) Based on steps 1-6, the Director submits a final set of Work Plans to the Board for approval, and to MBIE for approval. These may require further changes to Work Plans.

Process summary:



This process is designed to enlist a broad range of groups to help the SLT to put together a Work Plan aimed at solving an identified problem. This will be done in a phased way and road tested with 1-2 project Work Plans to ensure that the process works well for Genomics Aotearoa.

This process involves two calls to GA Partners and Associates for input and involvement. The intent is that the process is open and transparent. Although there is no public call for proposals, there is an open invitation to apply to become an Associate (to be made explicit via the GA website). This ensures that Genomics Aotearoa remains accessible to new ideas and new researchers.

Subject-specific sub-committees within the SLT ensure scientific excellence, but the overall SLT determines the appropriate portfolio balance across the infrastructure objectives, research themes and sectors. The Governance Board also has a role in ensuring a balance of activities across the GA infrastructure (genomics, bioinformatics, Te Ao Māori), themes (health, environment, primary production) and types of activity (capability building, research, software infrastructure, and applied research).[31]

In addition to processes for new work, the SLT, Director and Operations Manager are responsible for review processes of existing work, which will include disinvestment based on lack of performance.[32] Disinvestment is the decision, made during step 1 above, to decline to continue an existing project for a further funding period. As well as lack of performance, other reasons to discontinue a project are that it has achieved all its goals and reached its natural end, or that it has been superseded by scientific developments elsewhere, or that it no longer meets the criteria for Genomics Aotearoa projects. Management of performance during an existing contract is a separate matter covered by the terms of the Multi-party Subcontract used for each project, see Appendix II.

12. Criteria for Work Plans and Projects

New Work Plans and projects will:

- Fit within the approach of the funder, MBIE, and the Strategic Science Investment Fund[33]
- Align with the strategic goals of Genomics Aotearoa, outlined above
- Contribute to the intended outcomes of the Consortium Agreement, see above
- Contribute to at least one of GA's KPIs
- Align with, and contribute to, GA objectives, outlined above
- Within the field of genomics and bioinformatics, fall within one of 3 themes: Health; Environment; Primary Production (and make up an appropriate portfolio balance across the infrastructure objectives, research themes and sectors as determined by SLT)
- Give due weight to Te Ao Māori/Vision Mātauranga, follow the guidance in Section 7 above, and describe how the project is relevant to Māori and how it will engage with Māori at each stage
- Follow appropriate high standards of ethics, demonstrate consideration of the rights of individuals and communities in genomic research, and meet all relevant regulatory and safety requirements
- Meet a high standard of science excellence, including level of novelty in the field but considered in relation to the need to develop tools and techniques, and demonstrate awareness of existing national and international literature and scientific developments
- Demonstrate excellence of translation mechanisms to next and end users, with consideration for whether the project and its outcomes have, or can achieve, or can contribute to, general acceptance for public use (social license)

[31] Platform Plan, 3.6
[32] Platform Plan, 3.6
[33] www.mbie.govt.nz/info-services/science-innovation/funding-info-opportunities/investment-funds/strategic-science-investment-fund

- Show relevance to unique New Zealand health, environment or primary production challenges
- Involve collaboration between different research entities, including a minimum of 2 GA partners or associates
- Demonstrate at least one of:
  - International collaboration and building of international relationships
  - Inclusion of appropriate end users as part of translation of knowledge
  - Researcher capability building
  - Māori research focus on genomics and also on the rich cultural narratives that inform parts of the research and make the results more relevant to Māori
  - Synergies with existing GA projects
- Complement (and not overlap) with other existing funding streams
- Provide a work environment where everyone is treated, and treats others, fairly and with respect, with zero tolerance for bullying or harassment of any kind.[34]

In summary, Work Plans must fit with GA strategy and be one of:

- A continuation of an existing successful GA project that remains relevant
- A response to new ideas and opportunities, such as a significant international scientific advancement
- A response to shifting needs and priorities identified at flax roots level in New Zealand.

Where the work is led by a Principal Investigator who is not a member of a GA Partner organisation, that PI's organisation must agree to sign the Multi-party Subcontract approved and used by GA Partners (see appendix).

13. Other Strategic Funding

The current Work Programme contains a small per annum budget, which is set aside for Strategic and Travel funding. The intent of this small fund is to provide timely support toward opportunities for upskilling, and only where this cannot be supported by the appropriate GA project budget. This may include:

- Support for post-graduate or post-doctorate travel to relevant conferences or training nationally or internationally
- Support to early career researchers (committed to staying in NZ) to visit leading international teams to assess new methods and equipment, learn advanced laboratory skills, and bring these skills and learnings back and establish them in New Zealand
- Support for bringing international experts to provide training and advice in New Zealand
- Support for training and outreach to key audiences or stakeholders where this demonstrably contributes to meeting the KPIs of Genomics Aotearoa.

This will not normally include funding of events and conferences held by other groups and organisations.

[34] Platform Plan, 3.2

Applicants have to demonstrate that the skills they wish to acquire (or to be acquired by practitioners in New Zealand) are relevant to ongoing work in New Zealand, but are not core capabilities that could be readily acquired locally through other means. The scheme is intended to support and retain young scientists with up-to-date genomics and bioinformatics skills, and introduce and translate new analytic and clinical methods to New Zealand.

In addition, the fund may provide seed money for small activities relevant to GA's goals that may lead to future opportunities. Specifically, grants up to $10,000 may be used to fund the work of a new person, new organisation or new activity normally within an existing Board-approved project Work Plan.

The Director of Genomics Aotearoa receives applications. Decisions on allocation of amounts in the small strategic and travel fund, up to $10,000, are made as follows:

1. Applications are judged according to the criteria and principles outlined in this document - on the merits of the individual proposal and the alignment with the strategic goals and policies of GA.[36]
2. The Director rejects applications that clearly do not meet the criteria (for example, a request to sponsor an organisation's conference). Applications that may meet the criteria are circulated to the SLT by email for consideration. Based on the SLT majority opinion received by email, excluding the vote of any SLT member who is part of the application, the Director takes the decision to fund or not. The Director may also consult with MBIE to ensure that the applicant is not already receiving funding elsewhere for the same activity.
3. For amounts that exceed $10,000, or when the applications received exceed the annual amount budgeted, the Director will consult with MBIE and the Board at their next meeting, where a decision will be taken to fund or not.

Appendix I: Conflicts of Interest Policy and Process[37]

1.1. The Parties to the Agreement take the issue of conflict of interest very seriously. All Parties involved in GA including staff of the Parties, the Governance Board, International Advisory Panel, and members of the Science Leadership Team including the Director and any members or appointees to any other advisory boards or panels formed, must follow a rigorous process to maintain the credibility of the investment and other decisions and to assure all stakeholders that their proposals or other matters are given fair and reasonable consideration.

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1.2. The collaborative nature of GA means that there is a high level of engagement among organisations and expert researchers. A pragmatic approach is necessary in order to make best use of the expertise of all involved in GA. This may occur at all levels including the Governance Board, Director, members of the Science Leadership Team and any others involved in making decisions including but not limited to assessing proposals for Project Funding and any funding or investment decisions. Individuals may assist in the assessment of proposals and investment decisions where they have no direct interest and limited indirect interest in the proposal. In all cases, conflicts of interest or potential conflicts of interest will be recorded in the GA Conflicts of Interest Register and decisions around the management of any conflict will be recorded in meeting minutes.

1.3. Conflicts of interest may occur in different ways, as outlined below.

1.4. Direct Conflicts of Interest:

(a) This occurs where a person in a position to influence the funding outcome is directly involved with the proposal (as a participant, manager, mentor, or partner) or has a close personal relationship with the applicants e.g. family or close friend. It also occurs when this person is a collaborator, or is in some way involved with the applicant's research programme.

(b) In these cases, the person must declare the conflict of interest, take no part in the assessment of the proposal or decisions around funding, and leave the room while the discussion takes place at their own volition, at the request of the Chair or other member of the team, committee, panel, or Governance Board undertaking that assessment.

1.5. Indirect Conflicts of Interest:

(a) This can occur where a person in a position to influence the funding outcome is employed by an organisation involved in the proposal but is not part of the applicant's research programme. An indirect conflict can also occur where a member of a team, committee, panel, or Governance Board considering the proposal has a personal and/or professional relationship with one of the applicants, e.g. an acquaintance.

(b) For indirect conflicts, the person must declare the conflict of interest and, at the discretion of the Chair, who shall consult with other members of the team, committee, panel, or Governance Board undertaking that assessment, either that the individual(s) affected:

(i) leave the room;

(ii) stay but remain silent unless asked to respond to a direct question; or

(iii) contribute to the assessment of the proposal or decision.

1.6. Involvement in a competing proposal or business activity:

(a) Such conflicts of interest occur where a person has an involvement (direct or indirect) with a proposal that is in direct competition with a proposal being considered by a panel or where the outcomes proposed by a proposal under discussion may compete with a person's personal business interests. In such cases, the panel member must declare the conflict of interest and, at the discretion of the Chair who shall consult with other members of the team, committee, panel, or Governance Board, either that the individual(s) affected:

(i) leave the room;

(ii) stay but remain silent unless asked to respond to a direct question; or

(iii) contribute to the assessment of the proposal or decision.

1.7. Involvement in strategy development:

Members of the Governance Board, Director, and members of the Science Leadership Team are likely to be involved in determining the strategic direction and priorities of GA which may be perceived as affecting the future participation of different Parties. It is not intended to exclude these members from these processes and their input is expected to ensure the perspectives of all Parties to GA are included in strategy and priority setting. In these situations any conflicts of members representing Parties should be noted. In addition:

(b) in the cases of the Science Leadership Team the Director shall monitor discussions and raise any concerns over the degree of representation occurring and ultimately moderate any perceived bias in developing recommendations to the Governance Board;

(c) in the case of the Governance Board, the Chair shall monitor discussions and raise any concerns over the degree of representation occurring. If the Chair believes the Governance Board is unable to moderate any representation bias, in the interests of GA, he or she may take the matter under discussion into an *ad hoc* sub-committee of the Governance Board comprised of independent or uninterested members to make final decisions and such decisions will be the decisions of the full Governance Board.

1.8. All conflicts of interest must be declared and recorded in the GA Conflicts of Interest Register. If any individual feels they have a conflict with a proposal, or other decision that they have been asked to consider, they should contact either the Governance Board Chair or Director immediately to declare the conflict and seek advice on what action is required.

1.9. When the Chair has any conflict of interest, a deputy Chair must be appointed to take on the duties of chairing any meeting to consider any matter where this conflict of interest is relevant.

1.10. When the Director or any other person has a direct conflict of interest, such as may occur when his or her own research is being considered for funding by GA, the Director or other person shall be excluded from direct assessment of that activity in the Work Plan development process. A process for independent assessment of any such proposals, broadly equivalent to how other proposals are assessed, shall be determined by the Governance Board who shall make any funding decisions on the same basis as for any other proposal.

Appendix II: Multi-party Subcontract