



Department of
Conservation
Te Papa Atawhai



Toitū Te Whenua
Land Information
New Zealand

How we developed this draft Long-term Insights Briefing

This supplementary note outlines the process used to develop the Long-term Insights Briefing to date, including the consultation and engagement process and key research inputs.

The Department of Conservation Te Papa Atawhai (DOC) and Toitū Te Whenua Land Information New Zealand (Toitū Te Whenua) are working together to develop a joint Long-term Insights Briefing.

The Long-term Insights Briefing will be developed with input from a wide range of parties and based on insights from existing reports, including the background analysis completed to support Te Mana o te Taiao – ANZBS.



Te Kāwanatanga o Aotearoa
New Zealand Government

Process to date

Our initial thinking included desktop research and discussions with a range of experts, both inside and outside of government, to understand the drivers and trends in biodiversity. Technological advancement was an important driver and mega-trend, and one that could be game-changing for achieving thriving biodiversity.

In October 2021 we consulted on the proposed topic: How can innovation in the way we use information and emerging technology help biodiversity thrive? The majority of submissions supported the proposed topic. Submitters noted the importance of understanding the risks associated with biotechnology, and the need for good governance and decision-making to support its use.

Based on consultation feedback, the proposed topic was refined to: *How can we help biodiversity thrive through the innovative use of information and emerging technologies?*

In March 2022, we held a futures-thinking workshop using a scenario-sketching tool developed by the Global Business Network, to produce options for potential futures, and a log of risks and opportunities associated with them. The most common insight was that the systems that support the use of technology and information have a huge impact on its success or failure.

A draft Long-term Insights Briefing was then prepared, taking into account insights from consultation and the futures-thinking workshop. It is also informed by desktop research, including background analysis completed to support Te Mana o te Taiao - Aotearoa New Zealand Biodiversity Strategy.

To demonstrate the opportunities for biodiversity to be found through innovation, information and emerging technology, this draft explores data driven technologies (such as AI), satellite and remote sensing, and genetic technologies.

The draft Long-term Insights Briefing has been reviewed by subject matter experts across DOC and Toitū Te Whenua. It has also been reviewed by relevant Public Service agencies and by groups with expertise in biodiversity.

Feedback on the draft Long-term Insights Briefing will inform the final briefing.

Informing the draft Long-term Insights Briefing

To inform the thinking in the Long-term Insights Briefing, we have reflected on the past and present states of biodiversity, explored global mega trends likely to shape the future, and thought about emerging technologies that have the potential to be game changing for biodiversity.

Some of the resources used to inform our thinking are outlined below.

Biodiversity states and trends

The 2019 Global assessment report on biodiversity and ecosystem services is the most recent and comprehensive assessment of the state of the world's natural environment. Prepared by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), it assesses changes to biodiversity over the last 50 years.

- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). 2019. *The global assessment report on biodiversity and ecosystem services: Summary for policymakers*. Bonn: IPBES Secretariat.
<https://doi.org/10.5281/zenodo.3553458>

Biodiversity in Aotearoa – An Overview of State, Trends and Pressures, presents data and information that describes the extent of the biodiversity crisis in Aotearoa New Zealand. It explores the five key direct pressures responsible for the decline of Aotearoa New Zealand's species and ecosystems (introduced invasive species, changes in land and sea use, direct exploitation and harvesting, pollution and the increasing threat of climate change).

- Department of Conservation. (2020). *Biodiversity in Aotearoa: An overview of state, trends and pressures*.
<https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020-biodiversity-report.pdf>

Global mega trends

To inform the thinking and consultation behind the LTIB, we looked broadly at global mega trends likely to shape the future. Mega trends are transformative global movements, patterns or forces which will likely impact the future.

The resources below have been created with the intention to expose decision makers, businesses, and communities to forces that will likely impact their work in the future.

- World Economic Forum. (2022). *Strategic Intelligence*. <https://www.weforum.org/strategic-intelligence>
- United Nations. (2020). *Report of the UN Economist Network for the UN 75th Anniversary Shaping the Trends of Our Time*. <https://www.un.org/development/desa/publications/wp-content/uploads/sites/10/2020/09/20-124-UNEN-75Report-2-1.pdf>
- EY. (2020). *Megatrends 2020 and beyond*. https://www.ey.com/en_nz/megatrends
- Oxfam. (2020). *Global Mega trends: Mapping the forces that affect us all*. <https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620942/dp-global-megatrends-mapping-forces-affect-us-all-310120-en.pdf?sequence=1&isAllowed=y>
- United Kingdom Government. (2021). *Trend Deck Spring 2021*. <https://www.gov.uk/government/collections/trend-deck-spring-2021>

Emerging technologies

There has been lots of work already done to look at how emerging technologies such as biotechnologies and data-driven technologies, might play a role in the future. Of this work, the LTIB has been particularly informed, by the resources below.

- Chui, M., Roberts, R., Lareina Yee. *McKinsey Technology Trends Outlook 2022*. <https://www.mckinsey.com/~media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/the%20top%20trends%20in%20tech%202022/mckinsey-tech-trends-outlook-2022-full-report.pdf?shouldIndex=false>
- AI Forum New Zealand. (2022). *Artificial Intelligence for the Environment in Aotearoa New Zealand*. <https://aiforum.org.nz/wp-content/uploads/2022/05/AI-for-the-Environment-Report-2022-1.pdf>
- European Policy Centre. (2020). *Improving biodiversity: How can digitalisation help?* https://www.epc.eu/content/PDF/2020/Digitalisation_v3.pdf
- Royal Society Te Apārangi. (2022). *Gene editing in Aotearoa*. <https://www.royalsociety.org.nz/major-issues-and-projects/gene-editing-in-aotearoa/>

- Segelbacher, G., Bosse, M., Burger, P. *et al.* (2022). New developments in the field of genomic technologies and their relevance to conservation management. *Conserv Genet* 23, 217–242. <https://doi.org/10.1007/s10592-021-01415-5>
- Hudson, M., et al. (2019). Indigenous Perspectives and Gene Editing in Aotearoa New Zealand. *Frontiers in bioengineering and biotechnology*, 7, 70. <https://doi.org/10.3389/fbioe.2019.00070>
- OECD AI Policy Observatory. (n.d). *Policies, data and analysis for trustworthy artificial intelligence*. <https://oecd.ai/en/>
- Global partnership on Artificial Intelligence (GPAI). <https://gpai.ai/>