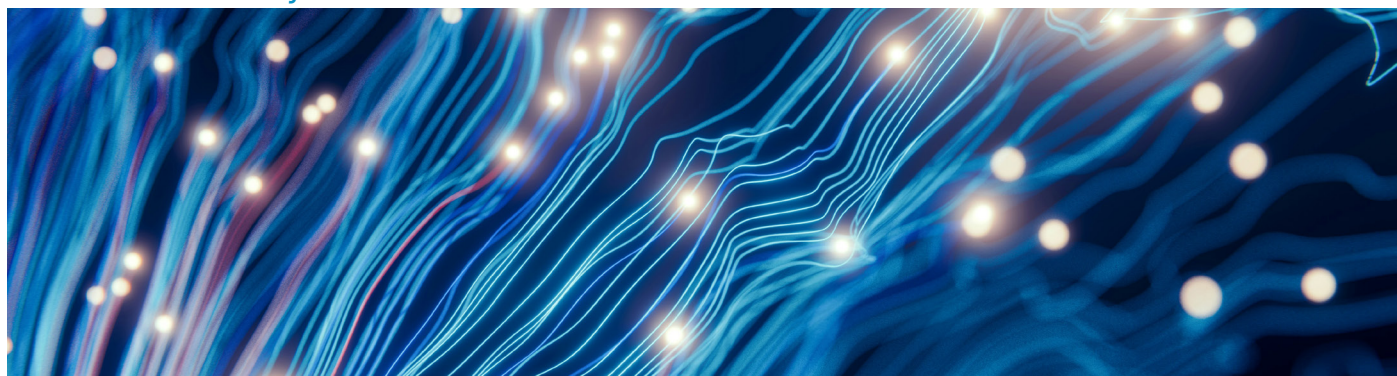


Unlocking Government documents with AI

Think Piece 43: May 2025



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This think piece has been designed to explore how artificial intelligence (AI) can be used as a research tool for large data sets. The Institute is drawing on our recent research by using data sets of two types of government documents: Long-term Insights Briefings (LTIBs) and government department strategies (GDSs).

Public Service Commissioner Sir Brian Roche has said that the public service is not as future-orientated as it should be, and that as a result, New Zealand is not as well prepared for the future as we need to be. He suggests the public service should become more curious and less risk adverse, and work harder at embracing new technologies (such as AI).

Roche said in May, on TVNZ's Q+A, that he would like 'the whole concept of curiosity to become an article of faith in the New Zealand public service – we should always be questioning why we do it and whether we can do it better'.¹

Earlier in the year, he had identified three focus areas to gear the public service more towards results and outcomes:

1. Social investment
2. Use of data and AI
3. Supporting economic growth.²

This think piece explores what AI could look like when applied to Government documents, and in particular how AI might provide taxpayers more value in terms of delivering quality products and services. Improvements are possible not just in terms of the delivery of goods and services to citizens, but also in terms of delivering a more interconnected and aligned policy ecosystem.

The experiment

As an experiment, we explored using AI (specifically NotebookLM) to assess and compare the content of LTIBs and GDSs through the lens of Roche's three focus areas. The process is outlined on page 4. Detailed AI responses to our final questions can be found in Tables 1–3 and in our two supporting papers. All supporting documents, as well as endnotes, can be found on the Institute's website under Think Pieces.

Government documents

There is an important link between LTIBs and GDSs. An LTIB is a document produced by a government department chief executive to explore a specific issue, emerging trend or potential risk. LTIBs are current, in that they are less than three years old.

Our LTIB data set contained 19 LTIBs published between September 2021 and August 2023. LTIBs are not Government policy but are likely to shape Government strategy over time. In contrast, GDSs *are* Government policy and impact public policy on a daily basis. Our GDS data set contained 195 GDSs published between May 1999 and December 2024. As our first question, we asked NotebookLM to define the two document types, after we uploaded the data sets. Table 1 below gives its responses.

Table 1: AI responses to definition questions

Q1: What is a Long-term Insights Briefing?

Long-term Insights Briefings (LTIBs) are future-focused documents required by the Public Service Act 2020. Produced independently of Ministers every three years, they are not government policy. Their purpose is to share information and impartial analysis on medium/long-term trends, risks, and opportunities affecting New Zealand society, including policy options. They enhance public debate and contribute to future decision-making.

Q2: What is a Government Department Strategy?

Based on the sources, a government department strategy generally sets a long-term direction and provides a shared vision. It is typically a high-level document outlining goals and outcomes, and key areas for action or steps to achieve them. It aims to inform decisions and guide activity. Strategies indicate necessary changes but don't usually detail specific actions or precisely how to get there.

Lessons learned from the results

Below we describe our observations on the full experiment.

Table 1: Definitions

The response to, What is an LTIB? was clear and accurate.

The response to, What is a GDS? aligned with the Institute's criteria and provided a high level of confidence that the criteria the Institute has selected for the GDS Index aligns with the 195 GDS documents published.

Table 2: Opportunities, risks and actions

The AI responses to LTIB and GDS questions were similar. This could indicate that departments share a common understanding of the issues and the required strategy. Conversely it could be argued that the LTIBs could be more novel, creative and curious, as the topics that have been selected by chief executives of departments may indicate a failure to identify and explore new and emerging issues. This may be an interesting area for the Public Service Commission to explore further.

Table 3: Roche's three focus areas

The results in Table 3 aim to illustrate the extent departments are exploring Roche's three focus areas, however, we have concerns that AI responses may not be accurate.

Summary

The speed and quality of the AI analysis was impressive, even if some nuances were missed and errors were made. We saw first-hand how AI can quickly identify common themes across vast amounts of data – making it a powerful tool for confirming our thinking and scoping further research.

Importantly, without verifying AI responses, it is difficult to have confidence in its observations. The concept of garbage in, garbage

out (GIGO) is not the full story with AI; the quality of the AI tool is also relevant, including its understanding of key terms and the research questions.

For the *2025 GDS Index*, we are likely to explore AI further, especially given the size of the GDS data set.

Looking forward, the real value of AI may be in enabling other large government data sets to be more easily compared. This opens the door to aligning goals and strategies, spotting gaps, and reducing duplication across documents like Cabinet minutes,³ national risk reports,⁴ and fiscal updates.⁵ AI, managed well, should contribute to putting in place a policy ecosystem able to anticipate and prepare for the future.

Table 2: AI responses to questions on opportunities, risks and actions [This data is not verified]

Long-term Insights Briefings (LTIBs) [19 documents]	Government department strategies (GDSs) [195 documents]
<p>Q1(a): What are the seven most frequently suggested opportunities for New Zealand mentioned across multiple sources?</p> <p>Based on the sources, the seven most frequently suggested opportunities for New Zealand are:</p> <ol style="list-style-type: none"> 1. Advancing opportunities for Māori and Te Ao Māori. 2. Utilising technology (digital, data, advanced). 3. Strengthening public participation and engagement. 4. Promoting economic growth, trade, and investment. 5. Improving overall wellbeing outcomes. 6. Enhancing Pacific peoples' opportunities and wellbeing. 7. Addressing national security risks. 	<p>Q1(b): What are the seven most frequently suggested opportunities for New Zealand mentioned across multiple sources?</p> <p>Based on the sources, the seven most frequently suggested opportunities for New Zealand include:</p> <ol style="list-style-type: none"> 1. Leveraging technology, innovation, research, and science. 2. Advancing Māori development, culture, te reo Māori, and kaitiakitanga. 3. Improving health and wellbeing outcomes. 4. Fostering collaboration and partnerships. 5. Pursuing economic opportunities, growth, and productivity. 6. Building skills, capability, and workforce development. 7. Protecting/restoring the environment, biodiversity, and conservation.
<p>Q2(a): What are the seven most frequently suggested risks for New Zealand mentioned across multiple sources?</p> <p>Based on the sources, the seven most frequently suggested risks for New Zealand mentioned across multiple documents include:</p> <ol style="list-style-type: none"> 1. Disinformation and misinformation. 2. Climate change impacts. 3. Ageing population. 4. Issues with public participation and engagement. 5. Cyber attacks. 6. Terrorism and violent extremism. 7. Transnational organised crime. 	<p>Q2(b): What are the seven most frequently suggested risks for New Zealand mentioned across multiple sources?</p> <p>Based on the sources provided, the seven most frequently suggested risks for New Zealand are:</p> <ol style="list-style-type: none"> 1. Health Risks (pandemics, infectious diseases, mental health, burden of disease, work-related harm). 2. Security Threats (terrorism, violent extremism, foreign interference, disinformation, cyber, maritime). 3. Vulnerability and Inequity (disproportionate impacts, social/economic disparities). 4. Natural Hazards (earthquakes, floods, storms, volcanoes, extreme weather). 5. Economic Risks (fiscal challenges, supply chain disruption, fraud, compliance). 6. Pests, Invasive Species, and Biosecurity Threats. 7. Climate Change Impacts (sea level rise, changes in hazard frequency/severity).
<p>Q3(a): What are the seven most frequently suggested actions for New Zealand mentioned across multiple sources?</p> <p>Based on the sources, the seven most frequently suggested actions or areas for New Zealand mentioned across multiple documents are:</p> <ol style="list-style-type: none"> 1. Improving public participation and engagement with government. 2. Supporting Māori and embedding Te Ao Māori in policy and practice. 3. Addressing the impacts of demographic change. 4. Addressing fiscal challenges and reforming the tax system. 5. Improving data use, flow, and equity. 6. Protecting the environment and promoting collaborative stewardship. 7. Improving health outcomes and strategies. 	<p>Q3(b): What are the seven most frequently suggested actions for New Zealand mentioned across multiple sources?</p> <p>Based on the sources provided, the seven most frequently suggested actions for New Zealand mentioned across multiple documents include:</p> <ol style="list-style-type: none"> 1. Collaborating and partnering across government, with Māori, Pacific peoples, communities, and internationally. 2. Improving health and wellbeing outcomes for all, addressing specific challenges like mental health, violence, and equity. 3. Implementing, monitoring, and reviewing strategies and action plans to ensure progress. 4. Providing information and raising awareness among stakeholders and the public. 5. Protecting the environment and conserving biodiversity, including managing threats to native species. 6. Managing risks and building resilience against various threats, including natural hazards, security, and health crises. 7. Investing in research, data, and evidence to inform decisions and improve understanding.

Notes on Table 2: Summary of AI responses above [This data is not verified]

1. AI responses to Q1 'opportunities' and Q3 'actions' have similar content. AI may struggle to distinguish between the two terms.
2. AI responses to Q2 'risks' mention climate change and security in both answers.

Table 3: AI responses to specific questions on Roche's three focus areas [This data is not verified]

Long-term Insights Briefings (LTIBs) [19 documents]	Government department strategies (GDSs) [195 documents]
FOCUS AREA 1: Social investment	
<p>Q1(a): Explain insights on social investment across multiple sources.</p> <p>Insights on social investment across the sources highlight its importance for improving wellbeing and outcomes, particularly for groups like Māori, Pacific peoples, and young people facing limited employment. Effective approaches involve targeted, tailored support informed by evidence. Social investment necessitates collaboration across government, sectors, and with communities, including whānau-centred and locally-led initiatives. It involves shifting policy and investment settings, valuing broader social outcomes, and leveraging data and analytics. Addressing systemic issues is crucial for success.</p>	<p>Q1(b): Summarise the social investment strategy for New Zealand across multiple sources.</p> <p>New Zealand's social investment approach, outlined in The Child and Youth Strategy 2024-2027, is a government plan focused on improving the lives of children and young people. This approach requires basing investment decisions on research, data, and evidence of impact. Key elements include setting targets for the public sector and identifying priorities for coordinated cross-government efforts that address the underlying drivers of outcomes. The strategy itself identifies a vision, outcomes, and key priorities to guide work and measure progress.</p>
<p>Q2(a): List the departments that discuss the specific term social investment, excluding references.</p> <p>The specific term "social investment" is not discussed by any of the government departments. [adapted] [#0]</p>	<p>Q2(b): List the departments that discuss the specific term social investment, excluding references.</p> <p>Treasury; DPMC; MSD; OT and MOH. [adapted] [#5]</p>
<p>Q3(a): List the departments that discuss the specific term poverty, excluding references.</p> <p>The specific term "poverty" does not appear in the main body of any of the departmental long-term insights briefings. [adapted] [#0]</p>	<p>Q3(b): List the departments that discuss the specific term poverty, excluding references.</p> <p>The department that discusses the specific term poverty in the sources is MSD. [adapted] [#1]</p>
FOCUS AREA 2: Use of AI	
<p>Q4(a): Explain insights on the use of AI across multiple sources.</p> <p>Based on the sources provided: Artificial Intelligence (AI) is highlighted as a transformative technology with increasing presence across various sectors in Aotearoa New Zealand. It is discussed in relation to automated vehicles, enabling community participation, biodiversity protection through data analysis, and revolutionising healthcare (precision health). Potential opportunities include improving efficiency, automating tasks, quickly analysing vast datasets, and personalising services. However, the sources also point to significant risks, particularly concerning data quality and bias potentially leading to poor decisions or reinforcing inequalities, ethical and legal considerations, and the need for robust governance and infrastructure. Collaboration and ensuring AI development aligns with community values are considered crucial.</p>	<p>Q4(b): Summarise the AI strategy for New Zealand across multiple sources.</p> <p>Based on the provided sources, New Zealand's strategy regarding Artificial Intelligence (AI) is mentioned in the context of the Disarmament and Arms Control Strategy. This strategy includes working towards norms for AI use in military applications as a way to achieve its goals.</p> <p>The sources do not provide a broader national strategy specifically focused on the development, regulation, or general application of AI across all sectors of New Zealand. Other strategies mentioned relate to digital transformation, data management, research, and various specific sectors like health, environment, and fisheries, but they do not detail a dedicated AI strategy.</p>
<p>Q5(a): List the departments that discuss the specific term AI, excluding references.</p> <p>PSC; DIA; DOC; StatsNZ; MPI and MOH. [adapted] [#6]</p>	<p>Q5(b): List the departments that discuss the specific term AI, excluding references.</p> <p>MBIE; MOE; MFAT and DIA. [adapted] [#4]</p>
FOCUS AREA 3: Economic growth	
<p>Q6(a): Explain insights on economic growth across multiple sources.</p> <p>Sources discuss several facets of economic growth. Labour productivity drives income, tax revenues, and government spending. Economic shocks create fiscal pressures, affecting spending and tax revenues. Tax settings, especially on inbound investment, significantly influence investment incentives, productivity, and economic performance, with high EMTRs potentially hindering investment. Attracting foreign investment can be a strategy, although direct productivity spillovers are debated. Technology, like automated vehicles, can improve business efficiency and productivity. The Māori economy has shown significant growth and contributes to productivity. Diversifying exports and understanding consumer demand supports economic wellbeing and productivity, particularly in the food sector. Improved data flow boosts innovation, productivity, and job creation.</p>	<p>Q6(b): Summarise the economic growth strategy for New Zealand across multiple sources.</p> <p>New Zealand's economic growth strategy is supported by various sector-specific plans. It aims to foster a growing economy and enhance prosperity and wellbeing. Key components include investing in transport and infrastructure to boost productivity, fostering the Māori economy to contribute to national resilience and growth, and leveraging the digital economy. Science and innovation are seen as crucial, supporting R&D and business growth. Strategies target primary sectors like aquaculture for sustainable growth and increased value. The approach also supports economic development through trade frameworks and aims to boost the economy via credible markets, clean energy, and climate innovation.</p>
<p>Q7(a): List the departments that discuss the specific term economic growth, excluding references.</p> <p>Treasury and StatsNZ. [adapted] [#2]</p>	<p>Q7(b): List the departments that discuss the specific term economic growth, excluding references.</p> <p>MPI; MBIE; MOT; Treasury; DIA; MFE and HUD. [adapted] [#7]</p>

Notes on Table 3: Summary of AI responses above [This data is not verified]

1. Social investment

- The LTIBs' 'insights' and the GDSs' 'strategy' failed to mention education or poverty.
- The LTIBs did not discuss 'social investment' or 'poverty' at all. In contrast, 5 departments' GDSs discussed social investment and 1 department's GDS discussed poverty.

2. Use of AI

- AI is becoming more topical (6 departments' LTIBs discussed it, but only 4 departments' GDSs did).

3. Economic growth

- It is becoming less topical (2 departments' LTIBs discussed it, but 7 departments' GDSs did).

The process

Lessons learned from the process

Box 1 outlines the method and Figure 1 illustrates the NotebookLM interface.

Overall we found NotebookLM to be useful and quick, but we did identify some issues and areas of concern. Many of these could be managed; however, we would be cautious to use the tool as it currently stands for decision making without checking all the references first. Particularly concerning are the connections or observations that NotebookLM may not find, and therefore would not bring to your attention.

Here are a few things we learned from using NotebookLM:

1. In your prompt, state the specific action/s you want.

NotebookLM does not allow users to directly set a word limit on its responses, however, we found we could request a maximum length (e.g. 100 words) in our prompt and NotebookLM would in most cases follow it. In addition, we added 'across multiple sources' to some questions to help ensure all sources in the uploaded notebook were treated equally.

2. Test and if necessary define key words.

A change in a word may make a big difference. For instance, we explored whether asking the same question using New Zealand vs New Zealander, or frequently vs commonly, delivered different responses (and it did). We also explored whether the term 'insights' had our intended meaning. For example, we asked NotebookLM to define the term 'insights' to help us develop an understanding of how it would interpret the term. However, to improve the accuracy of the response, it is best to define the word in your prompt, or ask the AI tool to use a pre-agreed definition.

We found a number of issues with the term 'department'. One AI response referred to 'Ministry of Finance' when the reference text referred to 'Minister of Finance'. Abbreviations of departments were not always consistent. We also came across situations where the AI response implied Crown agencies were departments (e.g. New Zealand Police, ACC and Kāinga Ora).

3. Be aware the order of your questions may bias results.

NotebookLM is programmed to learn from itself and thus may rely on responses to earlier questions. For example, during our testing phase, we noted that some early responses stated, 'Based on the sources provided...', whereas later responses stated, 'Based on the sources and our conversation history...'. For this reason, we tested our questions in advance and then made a clean data set using the refresh button for each question (see Figure 1 above).

4. Add disclaimers, the method and the date used.

AI is still an experimental tool, so a disclaimer should be made that AI has been used to generate research. The extent to which the research has then been independently verified by a human should also be disclosed. Furthermore the method that has been applied should be clearly stated so an independent individual could apply the same method and compare the results. This technology is moving fast, so when the tool was used is as important as what tool was used.

Box 1: Method

For this experiment, we chose NotebookLM as our AI tool, described by its makers Google as 'your powerful virtual research assistant rooted in information you can trust'.

To use NotebookLM, you first create a new data set (what is called a notebook). You then upload your source materials (in our case PDFs), and then use the AI tool to ask questions based on your uploaded sources.

We created two data sets and uploaded them into NotebookLM (<https://notebooklm.google>). Importantly, no McGuinness Institute publications were added to either data set.

Data set 1: Long-term Insights Briefings (LTIBs)

Type of source material: LTIBs are published by chief executive/s of a department and discuss a specific trend, risk and/or opportunity that affects or may affect New Zealand and New Zealand society (see Section 8 of the Public Service Act 2020).

Number of sources: 19 (published between September 2021 and August 2023)

Order uploaded: by oldest LTIB to most recent LTIB

Total number of pages: 1221

Data set 2: Government department strategies (GDSs)

Type of source material: GDSs are published by department/s, and, unlike LTIBs, are current Government policy. The McGuinness Institute uses a set of criteria to identify strategy documents (see the 2024 GDS Index to learn more: <https://www.mcguinnessinstitute.org/gdsindex>).

Number of sources: 195 (in operation as at 31 December 2024)

Order uploaded: by oldest GDS to most recent GDS

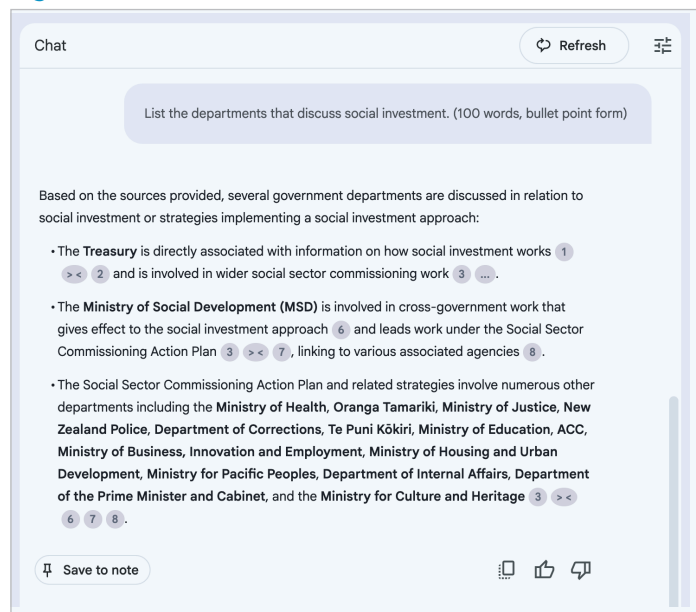
Total number of pages: 6948

See example of the interface in Figure 1.

The questions were determined in advance and applied to clean data sets, after preliminary experiments.

NotebookLM produced these responses on 16 May 2025.

Figure 1: NotebookLM interface



Disclaimer:

NotebookLM states at the bottom of its website page that 'NotebookLM can be inaccurate; please double check its responses'. There are a number of potential benefits and risks to using AI in research that this think piece does not discuss. Our purpose here is to apply the tool to large data sets and identify lessons for further research. Please note, the Institute did not verify the AI responses contained in Tables 2 and 3, but, if time allowed, this would be possible as NotebookLM automatically adds references. These are numbered and are specific to each question, so we removed the reference numbers as they were only useful to the owner of the notebook.

Endnotes

- 1 TVNZ. (2025). *Q+A with Jack Tame – Brian Roche: Public service too risk-averse*. [6.33min] Available at: <https://www.tvnz.co.nz/shows/q-and-a/clips/brian-roche-public-service-too-risk-averse> [Accessed 13 May 2025].
- 2 Public Service Commission (PSC). (2025). *Sir Brian Roche on reorientating the Public Service*. [online] Available at: <https://www.publicservice.govt.nz/news/sir-brian-roche-on-re-orientating-the-public-service> [Accessed 13 May 2025].
- 3 See for example the Institute's data set on Cabinet papers related to climate change.
McGuinness Institute. (2024). *Cabinet papers related to climate change*. [online] Available at: <https://www.mcguinnessinstitute.org/research-projects/climate-change-nz/cabinet-papers-related-to-climate-change> [Accessed 14 May 2025].
- 4 Department of the Prime Minister and Cabinet (DPMC). (2024). *New Zealand's National Risks*. [online] Available at: <https://www.dPMC.govt.nz/our-programmes/risk-and-resilience/national-risk-and-resilience-framework/new-zealands-national-risks> [Accessed 14 May 2025].
- 5 The Treasury. (2024). *Budget Economic and Fiscal Update 2024*. [online] Available at: <https://www.treasury.govt.nz/publications/efu/budget-economic-and-fiscal-update-2024> [Accessed 14 May 2025].