Excerpt from Fortnightly Report to the Minister – 18 September 2024

AI Summit post-event demonstrations	Callaghan Innovation and Microsoft are continuing to present the AI Activator and GovGPT at a range of events. On 17 September 2024 the initiatives were presented at a Microsoft AI event which focused on solutions for the New Zealand Government. On 20 September, Callaghan Innovation will also host an information session on GovGPT for interested public sector agencies. This event is invitation only and includes attendees such as representatives from the Ministry of Social Development, the Department of Internal Affairs, Worksafe and other agencies.
	In response to the significant interest in GovGPT received during the AI Forum, Callaghan Innovation is hosting two dedicated live stream panel discussions on September 30 to increase public engagement with the tool. At present, the tool will likely be made available publicly later that week on Callaghan Innovation's "sandbox" online environment (accessible on the organisation's website).
	Callaghan Innovation has partnered with Engineering NZ to deliver 'AI Innovation Awareness & Adoption' events to construction businesses in Wellington and Auckland in early October 2024. 'AI in AEC' is part of the AI Blueprint for NZ co-developed by Callaghan Innovation with the AI Forum NZ, industry sector associations and construction businesses.

Excerpt from Memo: AI Activator and GovGPT supporting information

Date:	5 September 2024	Priority:	Routine
Security Classification:		In Confidence	
Contact for telephone discussion (if required)			
Name	Position	Telephone	1st contact
Stefan Korn	Chief Executive	9(2)(a) -	✓

Govt GPT Key Messages and FAQ

Vision for GovGPT:

An AI-enabled, multi-lingual "digital front door" for New Zealanders to find answers to all questions about Government business support and service across a range of agencies and information sources. Through GovGPT businesses can easily and quickly find information to support their growth journey.

Key Messages:

- The proof-of-concept tool (dubbed 'GovGPT') demonstrates a practical use of Generative AI to support easy access to information that is stored across multiple government websites.
- Whilst the GovGPT tool is currently at pilot stage, it clearly shows the potential benefits of this technology for the New Zealand business community.

What are the aims and objectives of the GovGPT tool?

- The GovGPT tool collates publicly available government information for businesses, in an easy-to-access format, underpinned by AI technology.

What can the GovGPT tool actually do in its current form?

- Currently, users of the pilot can ask questions either by typing or speaking (with multiple languages including English and text based Te Reo Maori), which the AI

model will then answer based on publically available information from a range of Government websites.

- The model is conversational which means that it responds in natural language (i.e. in the way a person would respond), enabling more intuitive and engaging interactions by understanding and maintaining context throughout the conversation

- It provides accurate and referenceable information about New Zealand's public services using the Retrieval Augmented Generation (RAG) techniques. It will also point out to users when it does not have information on a specific question or domain.

- The limitations of the current model are that it can only provide definitive answers based on the information indexed, and the model currently struggles with displaying government web pages directly (because of the huge variety of different systems and technologies used by various agencies). These limitations will disappear as GovGPT gets productionised.

What technology underpins the GovGPT tool (technical specifications)?

- GovGPT is based on "Azure OpenAI" and the "GPT-4o" large language model. This technology is owned by Microsoft.

- Callaghan Innovation and Microsoft collaborated to develop GovGPT, however any number of platforms could have been used to develop a similar product. (e.g. AWS, Meta or Google)

- 9(2)(b)(ii) - Commercial information

- The tool does not record personal data about its users, nor is there personal data in the sources it's trained on. With the availability of the Azure data centre in New Zealand in late 2024 / early 2025 all information will be stored in New Zealand.

What stage of development is the GovGPT tool at, and what is the future of the tool?

- This is a pilot project intended to show the use case for the technology and its application to public-facing government information.

- Callaghan Innovation's current plan is to make GovGPT available in a "sandbox/lab" environment on Callaghan Innovation's website in October, where the public can access and try-out GovGPT. During this period Callaghan

Innovation will collect information about usage and feedback from those who have used it. In the future, the tool could be supplied via a dedicated website, or a mobile app.

- At this stage, the information indexed is only government business-facing information, and there are no current plans to expand this.

What is the cost of the GovGPT tool?

- The pilot was developed at no cost (within resourcing of Callaghan Innovation and computation credits and expert advice from Microsoft).
- To launch the tool to the public will require further funding. Costs include charges for the AI model usage, infrastructure (computation, storage, and networking), scalability, and additional tools like monitoring, security, and support.

What information has been indexed by the pilot tool?

- Information from the following websites only has been indexed by the current tool:

Ministry of Primary Industries – Funding and rural support	Funding and rural support	NZ Government (mpi.govt.nz)
Work and Income – business support	Start your own business - Work and Income
Te Puni Kokiri – Māori Enterprise	Pakihi Māori – Māori Enterprise (tpk.govt.nz)
New Zealand Trade and Enterprise	https://www.nzte.govt.nz/page/raising-growth-capital-with-nzte#raising-capital-faqs
New Zealand Trade and Enterprise	Co-funding and investment services - myNZTE
Business.govt.nz	Home — business.govt.nz
Companies Register	Help centre	Companies Register (companiesoffice.govt.nz)
RDTI	rdti.govt.nz
Callaghan Innovation	Home	Callaghan Innovation
Hon Judith Collins KC	https://www.beehive.govt.nz/minister/hon-judith-collins-kc
central government organisations	https://www.publicservice.govt.nz/system/central-government-organisations

- This is all publicly available information, and there is therefore no privacy risks associated with its use in this pilot.

What future engagement with the rest of the Government is planned?

- The pilot is not intended as the primary way to engage with government and is intended only as a showcase. All information used was publicly available.
- Further engagement across government would be important before such a tool was launched to the public.

![Callaghan Innovation Te Pokapū Auaha logo]

Ministerial Aide Memoire: Information for Gov GPT Demonstration

Date:	28 August 2024	Priority:	Routine
Security Classification:	In Confidence	Briefing no:	A-24-001

	Action sought	Deadline
Hon Judith Collins Minister of Science, Innovation and Technology	Note	29/08/2024

Contact for telephone discussion (if required)			
Name	Position	Telephone	1st contact
Stefan Korn	Chief Executive	9(2)(a) - ▮▮▮▮	x

Minister's Office to complete:	☐ Approved	☐ Declined
	☐ Noted	☐ Needs change
	☐ Seen	☐ Overtaken by Events
	☐ See Minister's Notes	☐ Withdrawn
Comments:		

Purpose

1. This paper provides you with background information on the "GovGPT" AI proof of concept that Callaghan Innovation has developed. The information in this brief will support the demonstration of that tool on 29 August at 3pm.

Background

2. We have built an AI proof of concept tool - GovGPT – to demonstrate the ease of AI application development and immediate applicability to improve and streamline access to

government information. GovGPT is an AI-based conversational companion, that can provide fast, accurate and useful information on key topics relevant to NZ companies[1]. The tool can be viewed as a 'digital front-door', designed to support businesses (or the general public) to obtain government information quickly in a conversational style interaction (rather than having to find the correct government website and navigate to the right page).

3. The motivation to develop GovGPT was threefold:

- **Time saving and ease of access for businesses.**
  Our customers are frequently complaining about the difficult in navigating government websites and the time that is wasted to find accurate information about a specific business need. Customers also raise challenges about their difficulty to understand "government speak", legal, accounting or technical details frequently found on government websites.

- **"If Government can implement AI quickly, so can you" - showcasing "no-code" or "low-code" solutions to NZ businesses.**
  The technology underlying GovGPT is easier to access and use than it has ever been to develop IT applications. The past six months have seen rapid advancement of AI platforms and software development "co-pilots" that enable a "low code" or "no code" development philosophy. There is a paradigm shift of software development underway and it means these technologies and applications are available at a fraction of the cost of traditional IT systems and can be used by people without a software development background.

- **Changing New Zealanders' reluctance to embrace AI**
  The 2024 Edelman Trust Barometer indicates that 52% of New Zealanders reject the growing use of AI (compared to just 35% globally)[2]. The GovGPT proof of concept highlights the substantial cost savings and usability advantages of AI-based applications compared to traditional information channels (such as websites). Once fully built out and made available publicly, GovGPT would

  i. cut down on navigation time to find information

  ii. overcome technology aversion and accessibility barriers as the tool is conversation based and interactions can text-based or voice-based

  iii. enables multi-lingual enquiries in most common languages including Te Reo Māori[3];

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[1] The tool could provide information about all data stored on Government websites but has been limited for the proof of concept version to a select number of websites (see Appendix 1 for a list of currently indexed websites).

[2] Source: https://www.edelman.com/sites/g/files/aatuss191/files/2024-03/2024%20Edelman%20Trust%20Barometer%20Key%20Insights%20Around%20AI.pdf

[3] Full speech availability of te reo Māori is currently still in development but is expected to be available soon

iv. dynamically adjust the reading age of its output so that specialist terms, acronyms or "Government speak" can be explained by the tool in simple language; and

v. provide specific and accurate reference links to the information provided by government departments on their websites.

4. The information and data used by GovGPT is extracted from across multiple Government websites. GovGPT then uses a technique called "Retrieval Augmented Generation" (RAG) to provide reliable responses in everyday conversation style through a generative AI language model.

5. We have developed this proof of concept in partnership with Microsoft and Whāriki Māori Business Network. We are planning to present GovGPT at the Callaghan Innovation stand at the AI Summit on 11 September 2024. We would like to offer you the opportunity to mention GovGPT in your keynote address.

GovGPT live demo

6. We will demonstrate the latest version of GovGPT to you on Thursday 29 August. The demonstration will include:

- Seeing the tool on a handheld device (mobile phone) or potentially laptop s9(2)(g)(i)

- Engaging with the different options available in the user interface (text / voice);

- The opportunity to ask the development team and Microsoft representative any questions about the technology or project.

7. It is important to note the current limitations of the proof of concept:

- GovGPT makes use of Open AI functionality that is "bleeding edge" and not yet fully publicly available. Consequently, our tool is subject to some stability, performance and usability challenges that will disappear over the next few weeks and months as it moves into more of a production environment.

- 9(2)(b)(ii) - Commercial information

- Callaghan Innovation's main use case was to make it as easy as possible for NZ businesses to find out all business-related information from the NZ government. E.g. how to register a business, apply for R&D grants or tax incentives , find out what support is available for exporters, etc. All of the information used by GovGPT is publicly available and no other information is accessed by the tool;

- Most of the tool's multi-lingual capabilities to understand and respond in the world's common languages is restricted to text-based conversations. More training is required for voice-based conversations in te reo Māori.

8. While the proof of concept has been narrowly focused on purpose, GovGPT could be used in the future to:

9(2)(f)(iv) - Confidential advice to Government

Lessons learnt from this project

9. GovGPT was fast and inexpensive to build. The tool was developed using a "low code" or "no code" development philosophy. The proof of concept required approximately 100 person-hours to develop from end-to-end. Relative to other language-based AI tools of its functionality, this is a very low labour cost and fast implementation time by a very small team who also had day jobs at Callaghan Innovation.

10. While the tool has been developed using Microsoft based technology (as most of Government runs on Microsoft infrastructure) and Open AI's large language model, it could have been built with similar platforms available from other providers such as Google, Meta or Amazon Web Services as well as other large language models.

11. The current advancements in AI and supporting technologies are happening at such a rapid pace that implementations of systems and tools can happen (and should happen) in less than 3 months. We are intentional in not using custom modifications for GovGPT at the moment because it is highly likely that the next version already includes many of the improvements and will be available in a few weeks. This new approach to developing and deploying solutions has significant implications for the future of IT project implementations.

Next steps

12. If there are no concerns about deploying this tool on the Callaghan Innovation website, we will continue development and make GovGPT available publicly. We intend to use operational funding for a 3-month deployment on our website to collect usage data and overall costs to run the tool.

13. Out of scope

14. Callaghan Innovation would be delighted to provide further information or follow-up briefings on any aspects of this work or opportunities that are of particular interest to you.

Appendix 1 – Currently indexed websites for GovGPT

Website	URL / Hyperlink
Ministry of Primary Industries – Funding and rural support	Funding and rural support	NZ Government (mpi.govt.nz)
Work and Income – business support	Start your own business - Work and Income
Te Puni Kokiri – Māori Enterprise	Pakihi Māori – Māori Enterprise (tpk.govt.nz)
New Zealand Trade and Enterprise	https://www.nzte.govt.nz/page/raising-growth-capital-with-nzte#raising-capital-faqs
New Zealand Trade and Enterprise	Co-funding and investment services - myNZTE

Business.govt.nz	Home — business.govt.nz
Companies Register	Help centre | Companies Register (companiesoffice.govt.nz)
RDTI	rdti.govt.nz
Callaghan Innovation	Home | Callaghan Innovation