Natural Hazards Research Australia

Call for Request for Proposal

Chatbot Feasibility Study

Request for Proposal due **5:00 pm AEST, 6 May 2025**

to research@naturalhazards.com.au

Reference number: 25Q2-INT-01

Australian Government

Overview

Natural Hazards Research Australia (herein the **Centre**) is Requesting for Proposal (RFP) the provision of a:

Chatbot Feasibility Study

Prior to submitting a response, the **Respondent** must comply with the following mandatory conditions for participation. The **Respondent** must:

- be a legal entity recognised under Australian law at the closing date and closing time
- hold a valid Australian Business Number (ABN)
- be covered by the following insurances:
  - public liability insurance
  - professional indemnity insurance
  - workers compensation insurance
  - cyber insurance.

Project brief	The Centre seeks to develop a *Chatbot Feasibility Study* aiming to assess the feasibility of integrating a **Large Language Model** (**LLM**) powered chatbot, using **Retrieval-Augmented Generation** (**RAG**) to enhance research-project related information accessibility across the Centre. The project is expected to explore the following options: - **External RAG service**: an externally managed RAG service with no Centre commissioned development works (e.g., Microsoft Copilot). - **Mixed RAG service**: using an external embedding model / LLM service via an Application Programming Interface (API), with Centre-hosted vector database and Centre-developed RAG service. - **Internal RAG service**: the set-up of an internal, Centre-run server hosting an isolated, distilled DeepSeek LLM service, along with a Centre-hosted vector database and Centre-developed RAG service. The feasibility study should investigate opportunities and risks associated with RAG use within the Centre, along with outlining the anticipated costs/time for equipment, development and operation over a 3-year, 5-year and 7-year time horizon for each option.
Proposed Budget	$50,000 to $80,000 AUD
Estimated duration	4 months (80 business days)
Centre contact	For questions regarding this RFP, please email research@naturalhazards.com.au.

Statement of Requirements

1. Key dates and times

The following table outlines the key dates and times expected:

Activity	Details	Date / Time
Opening date	-	8 April 2025
Opening time	-	9:00am AEST
Closing date	-	6 May 2025
Closing time	-	5:00pm AEST
Questions closing date	Questions will be permitted until the closing date	28 April 2025
Questions closing time	Questions will be permitted until the closing time on the questions closing date.	5:00pm AEST
Agreement execution date	The anticipated Agreement execution date	2 June 2025
Agreement term	The Agreement will remain in force for a period from the date the Agreement is entered into until the end of the Agreement term.	4 months (80 business days)

2. The Requirement

The Centre is seeking to develop a:

→ **Chatbot Feasibility Study**

aiming to assess the feasibility of integrating a **Large Language Model** (**LLM**) powered chatbot, using **Retrieval-Augmented Generation** (**RAG**) to enhance research-project related information retrieval across the Centre.

The feasibility study should investigate opportunities and risks associated with RAG use within the Centre, along with outlining the anticipated costs/time for equipment, development, deployment and operation over a 3-year, 5-year and 7-year time horizon for each option.

Background

Natural Hazards Research Australia (herein the Centre) is Australia's research and implementation centre for natural hazard resilience and disaster risk reduction. The Centre began on 1 July 2021 and is now working closely with the Australian government and other partners across Australia to deliver a strategic research agenda for the nation. The Centre aims to enhance capabilities within the natural hazards and disaster risk reduction ecosystems, with 'data management and science' a key component. Enhancing data access is a critical component of data management, and the Centre seeks to leverage cutting-edge technologies to further enable this capability.

As data volumes grow, user-friendly data querying presents a significant opportunity to enhance accessibility and engagement. Artificial intelligence (AI) enhanced chatbots, more specifically using **Retrieval-Augmented Generation (RAG)**, could enable users to efficiently query datasets and better interact with research findings in an intuitive, conversational format. This technology has the potential to streamline workflows, reduce manual data retrieval efforts, improve decision-making by delivering context-aware responses and deliver an overall increase in engagement with the Centre's collection of research outputs.

While the use of RAG presents several attractive opportunities, adopting AI-powered tools within the Centre also introduces challenges and risks, particularly around **data residency, data privacy** and **data security**. The Centre aims to align with the Commonwealth, and other respected national authorities, on aspects of data management, particularly:

1. Data Availability and Transparency Act (Cth) 2022,
2. Intellectual Property Laws such as the Copyright Act (Cth) 1968,
3. The Privacy Act (Cth) 1988, and
4. The Australian Code for the Responsible Conduct of Research 2018.

As such, the external storage and use of intellectual property (IP) or personal and sensitive information, often referred to as 'content' or 'context' for AI, through using a third-party RAG service must align with these acts and codes of conduct.

Another critical consideration is **response accuracy**—natural hazards and disaster risk reduction research requires high precision and AI-generated answers must align with validated scientific findings to prevent misinformation or misinterpretation. Currently, AI-generated query responses may falsify purportedly 'factual' information – commonly referred to as hallucinations. The combined risk of third-party data storage and use, along with hallucination, may restrict the use cases for AI within the Centre to specific contexts.

Given the opportunities, risks and constraints discussed above, the Centre would like to evaluate the feasibility of RAG implementation within our information and technology systems. The work's main objectives are to:

- provide a background of RAG as a technology
- outline any non-technological issues or constraints
- identify potential use cases
- develop at least three options for implementation
- compare these options using SWOT analysis and cost/time estimates.

Supplier requirements

The **Supplier** should demonstrate:

1. Information technology (IT) systems development experience (particularly cloud-based)
2. RAG service development experience
3. Organisation-wide RAG roll out experience

Chatbot Feasibility Study requirements

Technical requirements

The **Supplier** ensures that the **Chatbot Feasibility Study** technically:

1. provides a background into LLM and RAG technologies within the context of the Centre and its research works, including:
    a. summarising the technologies involved
    b. identifying the common uses in IT systems (using past projects if applicable)
    c. general strengths and limitations of RAG use for natural hazard research works
    d. data security considerations (e.g., prompt injection attacks)
2. outlines non-technological issues or constraints for the use of AI tools in the Centre,referencing the following:
    a. Data Availability and Transparency Act (Cth) 2022,
    b. Intellectual Property Laws such as the Copyright Act (Cth) 1968,
    c. The Privacy Act (Cth) 1988,
    d. The Australian Code for the Responsible Conduct of Research 2018
    e. Terms of use for common LLM / RAG services
3. identifies potential use cases within the Centre (e.g., inquiries and reviews database)
4. investigates at least the following options:
    a. External RAG service: an externally managed RAG service with no Centre commissioned development works (e.g., Microsoft Copilot)
    b. Mixed RAG service: using an external embedding model / LLM service via an Application Programming Interface (API), with Centre-hosted vector database and Centre-developed RAG service
    c. Internal RAG service: the set-up of an internal, Centre-developed embedding/LLM service (e.g., a self-run server hosting an isolated, distilled DeepSeek model) along with a Centre-hosted vector database and Centre-developed RAG service

5. compares each option for RAG implementation, including:
    a. strength, weakness, opportunity and threat (SWOT) analysis (or equivalent)
    b. anticipated costs/time for equipment, development, deployment and operation over a 3-year, 5-year and 7-year time horizon.

Documentation requirements

The Supplier ensures that the **Chatbot Feasibility Study:**

6. is documented in a report for a non-technical audience, including:
    a. contents page with hyperlinked sections
    b. IEEE referencing
    c. appendix containing supporting works (e.g. detailed cost/time estimate breakdowns).

Collaboration requirements

The **Supplier** ensures a collaborative approach, which:

7. works with the **Centre** to track and assure quality, including status update meetings, progress reports and final presentation.

3. Deliverables

Core deliverables

- **Chatbot Feasibility Study** project report

Additional deliverables

- milestone deliverable presentations and handover
- quarterly progress reports
- final presentation of project report and results

4. Approach

Suppliers are expected to undertake the **Requirement** using a collaborative approach to assist in the transfer of deliverables to the Centre and to ensure the deliverables meet the Centre's needs. **Respondents** are encouraged to outline their approach to ensuring effective collaboration between themselves and the **Centre**.

Response

5. Responses to RFP

The **Respondent**(s) responding to this RFP are required to submit their draft project proposal (less than or equal to 10 pages) clearly addressing the **Statement of Requirements** set out in this document to research@naturalhazards.com.au.

Submissions should include a:

- Statement of capability, including previous client referees and/or testimonials, demonstrating the ability of the company and proposed project team to undertake the work.
- Project team summary, including role, expertise and indicative full-time equivalent workload[1].
- Work plan, including achievable timelines and key performance measures, which will be used to monitor progress towards achievement of the **Requirement**.
- Proposed budget, including all expenses, for the achievement of the **Requirement**.
- Statement of acceptance of the terms and conditions of the proposed **Agreement**. If such arrangements are not acceptable, details of any changes must be included within the submission as **Contractual Arrangements**.

1 Total (cumulative) contribution over the life of the project – this means the total FTE per person over the life of the project. The maximum total FTE for each person is 1.0. Add up the FTE of all personnel for the cumulative contribution.

6. Evaluation

After the closing date, the Centre will review submitted RFPs against the **evaluation criteria** below. The **evaluation criteria** provides an indication of those matters that should be included in the RFP and supporting material – details are provided in the table below.

The Centre reserves the right not to offer the work, or only allocate a proportion of the available funding, if a proposal does not meet the Centre's needs. The Centre reserves the right to invite any other specific researchers as it sees fit to submit proposals before or after the closing date.

Table 2: Evaluation criteria

Criterion	Description	Weighting
Capability	The capacity and capability to deliver the **Requirements** in an Australian environment, evidenced by certifications, previous projects, previous client referees and/or previous client testimonials. The **Respondent** should have full-stack web development service offerings without, or with very limited, engagement of subcontractors.	40%
Approach	A demonstrated understanding of the **Requirements**, and a proposed project approach and methodology that is appropriate, feasible and robust. The **Respondent** reasonably justifies use of technologies, products or approaches not considered within the RFP, including mitigation of associated risks.	30%
Value for money	The **Respondent's** response outlines an efficient, effective, economical and ethical use of **the Centre's** resources. This considers financial and non-financial costs and benefits of each application including, but not limited to: → the proposed budget for **the Requirement,** → the quality of the application and activities represented by the assessment → fitness for purpose of the application in contributing to **the Centre's** objectives and plans → the **Respondent's** relevant experience and performance.	30%

Table 3: Scoring scale

Criterion	Description	Score/20
Outstanding	Highly convincing and credible. The submission demonstrates outstanding capability, capacity and experience relevant to, or understanding of, the criterion. Comprehensively documented and fully substantiated.	18-20
Above required standard	Convincing and credible. The submission demonstrates above average capability, capacity and experience relevant to, or understanding of, the criterion. Well documented and substantiated.	15-17
Meets required standard	Standard and credible. The submission demonstrates average capability, capacity and experience relevant to, or understanding of, the criterion. Adequately documented and substantiated.	10-14
Below required standard	Below average and lacking credibility. The submission demonstrates below average capability, capacity and experience relevant to, or understanding of, the criterion. Documentation exists but is missing detail and some claims are unsubstantiated.	6-9
Well below required standard	Well below average and unconvincing. The submission demonstrates significant flaws in capability, capacity and experience relevant to, or understanding of, the criterion. Documentation exists but is missing significant elements and is mostly unsubstantiated.	1-5
Not observed	The submission did not provide documentation, or the information provided was insufficient to make an evaluation.	0

Agreement

A copy of the Short Form Research Services Agreement, the proposed form of contract for the purposes of this project, can be found here.

This **Agreement** should be reviewed by applicants as part of the RFP submission.

If the **Respondent** has **Contractual Arrangements** to any of the terms and conditions set out in the proposed form of **Agreement**, details and justification of the proposed changes must be included in the RFP submission. Decisions regarding **Contractual Arrangements** for will be at the sole discretion of the **Centre**.

The **Centre** reserves its rights to make amendments to the contract.

Selection as a shortlisted or preferred **Supplier** does not give rise to an **Agreement** (express or implied) between that **Supplier** and the Centre for the supply of goods or services. No legal relationship will exist between the Centre and the shortlisted or preferred **Supplier** until such time as a binding **Agreement** in writing is executed by both parties.

Glossary

Table 3: Request for Tender Glossary

	Term	Definition
A	**Agreement**	A binding document or contract between one or more legal parties outlining terms, conditions, and obligations enforceable by law within a specific context.
C	**Centre**	Refers to National Hazards Research Australia.
	Chatbot Feasibility Study	The Chatbot Feasibility Study is a service intended to investigate the potential use of Large Language Models and Retrieval Augmented Generation technologies to enhance data accessibility throughout the Centre.
	Contractual Arrangements	Refers to a formal request submitted by the Respondent to modify specific terms or conditions of the proposed Agreement, such as the term or Requirements, subject to review, negotiation, and mutual agreement by the Centre.
	Closing date	Refers to the date at which the Centre no longer accepts submissions, as defined in Section 1: Key dates and times.
	Closing time	Refers to the time at which the Centre no longer accepts submission on the closing date, as defined in Section 1: Key Dates and Times.
	confidentiality	Ensuring that Sensitive Data is accessible only to those authorised to view it.
D	**data privacy**	The practice of protecting Personal or Sensitive information from unauthorised access, misuse, or disclosure.
	data residency	Refers to the physical or geographic location where data is processed and stored, often subject to the laws and regulations of that specific jurisdiction.
	data security	Measures taken to protect data from unauthorized access, alteration, or destruction.
	de-identified	Personal information is de-identified if it is no longer about an identified individual or an individual who is reasonably identifiable. De-identification involves two steps. The first is the removal of direct identifiers. The second is taking one or both of the following additional steps: → the removal or alteration of other information that could potentially be used to re-identify an individual; and/or → the use of controls and safeguards in the data access environment to prevent re-identification[2].

2 Office of the Australian Information Commissioner (OAIC) (2018), *De-identification and the Privacy Act*, De-identification and the Privacy Act | OAIC.

E	**encryption**	The process of converting data into a coded format to protect it from unauthorized access.
	ethical data use	The practice of using data in a way that aligns with ethical standards and organisational values.
	Evaluation criteria	The criteria by which the submissions of the Respondent to the Centre will be evaluated by the assessment panel.
	extensible	The quality of being designed to allow the addition of new capabilities or functionality.
I	**interoperability**	The purposeful design or ability of different systems and organisations to exchange and use data seamlessly.
	integration	Refers to the process of connecting different systems, applications, or components to work together seamlessly by enabling data exchange, functionality sharing, and interoperability through APIs, middleware, or other communication mechanisms.
L	**LLM**	Abbreviation for Large Language Model. LLMs are a type of AI system trained on massive text datasets to understand, generate, and manipulate human language in a wide range of contexts.
M	**metadata**	Data that provides crucial context about other data, such as its source, format, or usage. Metadata is commonly used to link access rights and provenance information to data assets.
O	**Opening date**	Refers to the date at which the Centre accepts submissions, as defined in Section 1: Key dates and times.
	Opening time	Refers to the time at which the Centre accepts submission on the opening date, as defined in Section 1: Key dates and times.
P	**Personal information**	Personal information includes a broad range of information, or an opinion, that could identify an individual. What is personal information will vary, depending on whether a person can be identified or is reasonably identifiable in the circumstances. For example, personal information may include: → an individual's name, signature, address, phone number or date of birth → sensitive information → credit information → employee record information → photographs → internet protocol (IP) addresses → voice print and facial recognition biometrics (because they collect characteristics that make an individual's voice or face unique) → location information from a mobile device (because it can reveal user activity patterns and habits)[3].
	privacy	The right of individuals to control the collection, usage, and sharing of their personal data.

3 Office of the Australian Information Commissioner (OAIC) (2018), *What is personal information?*, What is personal information? | OAIC.

R	**RAG**	Abbreviation for Retrieval Augmented Generation. RAG is a technique which leverages Large Language Models to combine information retrieval with text generation by first fetching relevant external documents and then generating a response based on both the retrieved content and the original query.
	Respondent	An individual, organisation, or entity that submits a formal bid in response to the RFP, proposing to supply goods, services, or undertake specified work in accordance with the tender requirements and evaluation criteria.
	Requirement	Refers to the description of the services described in Section 2. The Requirement.
	RFP	Refers to the invitation of Respondents to participate in the procurement via a Request for Proposal (RFP).
S	**security**	Measures taken to protect data from unauthorized access, alteration, or destruction.
	semi-structured data	Semi-structured data does not adhere strictly to a formalised schema, but still contains elements of organisation that make it easier to parse (e.g. XML, JSON, CSV and PDF).
	Sensitive information	Information or an opinion about an individual's: → racial or ethnic origin → political opinions → membership of a political association → religious beliefs or affiliations → philosophical beliefs → membership of a professional or trade association → membership of a trade union → sexual orientation or practices → criminal record, that is also personal information → health information about an individual → genetic information about an individual that is not otherwise health information → biometric information that is to be used for the purpose of automated biometric verification or biometric identification → or biometric templates[4].
	Supplier	A party specified in an Agreement as a Supplier or provider of goods or services.

4 Office of the Australian Information Commissioner (OAIC) (2018), *What is sensitive information?*, What is personal information? | OAIC.