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Australian Government

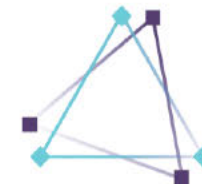


Bowerbird

Australian Language Engine

National Film and Sound Archives





Executive Summary

Problem Faced

The NFSA faces significant challenges in making its extensive collection of audio and audiovisual content searchable and accessible.

The main issues include:

- **Inaccessibility:** The collection contains linear content (audio and audiovisual) that is not transcribed or indexed, making it difficult to find relevant information.
- **Inaccuracy:** Existing AI models generating transcriptions (speech-to-text) are not tailored to Australian English and First Nations languages.
- **Resource-Intensive:** Manual transcription is time-consuming and resource intensive.

These challenges impact the NFSA's ability to provide access to its collection, hindering research, policy development, and public engagement.

Solution Overview

Bowerbird is a new Platform as a Service (PaaS) developed by the NFSA which integrates automated speech transcription and with a simple review interface. It is both an automated transcription service within NFSA's digital preservation environment and a web interface for one-off transcription tasks.

Bowerbird is tailored to Australian English and Australian placenames and idioms. It has transcribed over 100,000 hours of audio and audiovisual content with spoken word, making the collection significantly more searchable and accessible.

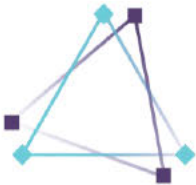
Key Features:

- Augmented transcription of audio and audiovisual content.
- Fine-tuning with Australian speech, accents, idioms, and place names.
- Integration of new data infrastructure with existing collection infrastructure.

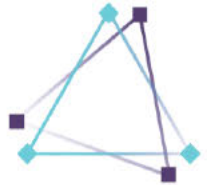
Benefits and Impact

The Bowerbird product generates several benefits and impacts:

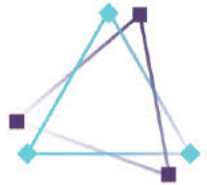
- **Efficiency Gains:** Automation of transcription, shifting the time and resources required for manual data capture and editorial review.
- **Improved Data Quality:** Provides more accurate and verifiable language data, increasing the potential for search, creative reuse and productivity.
- **Improved Decision-Making:** Provides more structured data and analytics.
- **Broader Impacts:** Enhances public access to Australian cultural content, supporting education, research, and public engagement.
- **Measurable Results:** Bowerbird processes thousands of files a day and in 2025 has already transcribed more than 10 linear years of content.



Target Audience and Stakeholders	Risks and Mitigation Overview	Use Case Status
The key users and stakeholders of the Bowerbird product include: NFSA curators, editors and digital specialists; researchers, education, entertainment and news media (industry) professionals; Australian cultural institutions, and the public. The product development involves consultation internally with NFSA staff and externally with peers, professionals nationally and internationally, software vendors, and cultural institutions s 22 Stakeholders have been engaged through regular meetings, presentations, demonstrations and feedback sessions.	The Bowerbird product addresses several key risks and mitigation strategies: • Transcription Errors: Mitigated by fine-tuning the model with language data drawn from Australians’ speech and implementing a human correction process. • Data Privacy Concerns: Addressed through fine-grained access control and adherence to privacy regulations aligned with curatorial and data ethics practices. • Technical Challenges: Managed by leveraging modern technologies and maintaining a robust provenance strategy to track and improve accuracy. • Removal of First Nations culturally restricted materials from the transcription pipeline.	Implemented Use case timeline Bowerbird is in active use at the NFSA



Additional Information	Lessons Learned	Contact information	
Transcripts improve collection discovery, increasing access to dominant modes of cultural heritage (spoken word) and unearthing hidden gems within collection items.	Key insights include: • Importance of Data Quality: Selecting the best model through rigorous testing and then fine-tuning the ML model with Australian language data is crucial for accuracy. • Human Correction Process: A robust human correction and editorial process was essential to ensure transcription quality (and therefore data quality). • Data Management: Managing large datasets and ensuring privacy and other ethical concerns are significant challenges that require careful planning.	Responsible Entity Name National Film and Sound Archive of Australia Area of Entity Digital Branch Use Case Website/s Web content under development, hosted at https://www.nfsa.gov.au/our-work/research	Open for Collaboration? Yes Use Case Contact s 22 s 22 s 22 @nfsa.gov.au Use Case Owner Keir Winesmith Chief Digital Officer keir.winesmith@nfsa.gov.au



Screenshot/s

**NATIONAL FILM
AND SOUND ARCHIVE
OF AUSTRALIA**

HOMETRANSCRIPTSABOUTFAQHELPMANAGEMYPROFILESIGN OUT

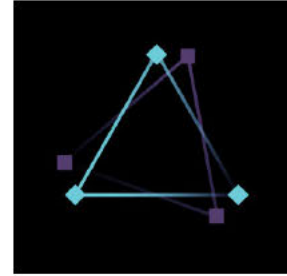
Script 375

<https://disco.nfsa.gov.au/bowerbird/scripts/375>

Download VTT | CSV | TextDeleteManage →

Filter transcriptAutoplay: YesSpeed: Normal

	TIME	SPEAKER	TRANSCRIPT	STATUS
▶ LISTEN	1s	Unknown speaker 1	Mate, I'm heading to Udonda for the weekend and I'm gonna grab a cold one from the Esky.	Open
▶ LISTEN	7s	Unknown speaker 1	Don't be a slacker and forget to bring your Akubra.	Open
▶ LISTEN	11s	Unknown speaker 1	I was stuck in traffic on the way to Pork Wakefield.	Open
▶ LISTEN	15s	Unknown speaker 1	What a snake hips move by that other driver.	Open
▶ LISTEN	18s	Unknown speaker 1	Nearly gave me a heart attack.	Open



Detailed Overview

Version Control

Version	Date	Author	Description of Changes
1.0	15 Apr 2025	NFSA	Version 1 created

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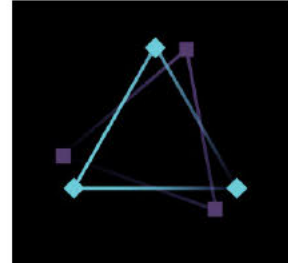
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Note: For details about category items in the detailed overview, see *APS AI Use Case Repository Guidance- Guidance for Use Case Owners and Editors*.

Responsible Organisation Category

Select the Classification of the Functions of Government - Australia (COFOG-A) 3-digit category that best identifies the functional area associated with your AI use case.

☐ 01 - General Public Services	Choose an item.
☐ 02 - Defence	Choose an item.
☐ 03 - Public Order and Safety	Choose an item.
☐ 04 - Economic Affairs	Choose an item.
☐ 05 - Environmental Protection	Choose an item.
☐ 06 - Housing and Community Amenities	Choose an item.
☐ 07 - Health	Choose an item.
☒ 08 - Recreation, Culture, and Religion	082 - Cultural services (including film production)
☐ 09 - Education	Choose an item.
☐ 10 - Social Protection	Choose an item.
☐ 11 - Transport	Choose an item.



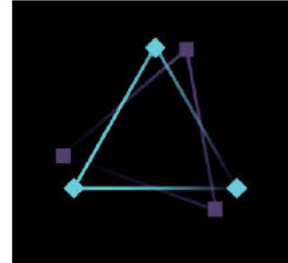
Scope of the Use Case

Use the dropdown menus below to identify the scope of your use case.

Geographical focus Choose the region for implementation from the dropdown list	National
Primary type of government interaction Choose the type of government interaction from the dropdown list	Government-to-citizens (G2C)
Cross-features - Sector Indicate if the use case describes a solution that can be used across sectors or in cross-sector scenarios (Yes/No).	Yes
Cross-features - Jurisdiction Indicate if the use case describes a solution that can be used across State/Federal borders or in cross-border scenarios (Yes/No)	Yes

Ethical Considerations

Accuracy, Fairness, Accessibility, Bias and Discrimination	The AI system is designed to improve accuracy, be more representative of spoken language in Australia, and limit bias. Efforts are made to ensure the system accurately transcribes Australian English and placenames derived from First Nations languages, and to address biases in the training data.
Privacy	Personal data is managed in accordance with privacy regulations. Access to transcriptions is managed with fine-grained controls to ensure sensitive personal information embedded in collection content or description information is protected.
Rights of Users	System users are informed about their rights, feedback mechanisms and AI decision challenges are managed through the NFSA online services, data provenance and documentation best practices.



Value of the Use Case

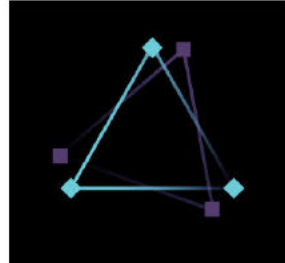
Identify the public value that the solution provides or is expected to provide. Select from the multi-select options.

Improved public service This category refers to solutions that enhance the services provided to end users, whether they are citizens or businesses.	☐ Personalised services ☐ Public (citizen)-centred services ☒ Increased quality of public information and services ☒ More responsive, efficient and cost-effective public services ☐ New services or channels
Improved administrative efficiency This category refers to solutions that increase efficiency, effectiveness, and quality while reducing costs within administrative processes, systems, and services.	☐ Cost reduction ☒ Responsiveness of government operation ☒ Improved management of public resources ☒ Increased quality of processes and systems ☒ Better collaboration and better communication ☐ Reduced risk of corruption and abuse of the law by public servants ☒ Greater fairness, honesty and equality enabled
Open government capabilities This category refers to solutions that enhance the level of openness, transparency, engagement, and communication within public organisations.	☒ Increased transparency of public sector operations ☐ Increased public participation in government actions and policymaking ☐ Improved public control of and influence on government actions and policies

AI Process Type

Select the types of tasks within government operations that the AI solution is performing or expected to perform

Supporting Decision Making- Tasks that support formal or informal agency decision-making on benefits or rights.	☐ Taking decisions on benefits ☒ Managing copyright and intellectual property rights
Analysis, monitoring and regulatory research - Tasks that collect or analyse information that shapes agency policymaking.	☒ Information analysis processes ☐ Monitoring policy implementation ☐ Innovating public policy



	☐ Prediction and planning
Enforcement - Tasks that identify or prioritise targets of agency enforcement action.	☐ Smart recognition processes ☐ Management of auditing and logging ☐ Predictive enforcement processes ☐ Supporting inspection processes ☐ Improving cybersecurity ☐ Registration and data notarisation processes ☐ Certification and validation processes
Internal management - Tasks that support agency management of resources, including employee management, procurement, and maintenance of technology systems.	☐ Internal primary processes ☒ Internal support processes ☒ Internal management processes ☐ Procurement management ☐ Financial management and support
Public services and engagement - Tasks that support the direct provision of services to the public or facilitate communication with the public for regulatory or other purposes.	☒ Engagement management ☐ Data-sharing management ☐ Governance and voting ☐ Payments and international transactions ☐ Supporting disintermediation ☐ Authentication of self-sovereign digital ID services ☐ Service integration ☐ Service personalisation ☐ Tracking of goods and assets along the supply chain

AI Technologies Utilised

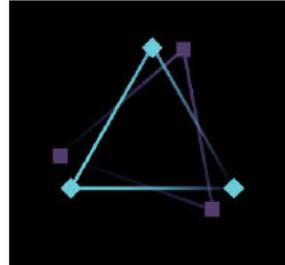
Select the types of AI technologies proposed / utilised to deliver the use case.

Reasoning or Knowledge Representation AI systems that store, structure, and process knowledge to make inferences, derive conclusions, or support decision-making.	☒ Knowledge Representation ☐ Automated Reasoning ☐ Commonsense Reasoning
Planning and Optimisation AI techniques that generate, refine, and optimise action sequences or resource	☐ Planning and Scheduling ☒ Searching ☒ Optimisation

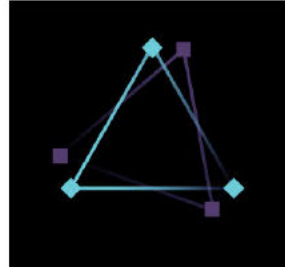


allocation to achieve specific goals efficiently.	
Learning and Adaptation AI systems that identify patterns, extract insights, and improve performance over time based on data.	☒ Machine Learning ☐ Deep Learning ☒ Generative AI
Communication and Natural Language Processing AI systems that process, interpret, and generate human language for interaction, comprehension, and automation.	☒ Natural Language Processing (NLP) ☒ Text Generation ☐ Text Mining ☐ Machine Translation
Perception through the Senses AI systems that process and interpret sensory data, such as visual, auditory, or tactile inputs, to understand and respond to their environment.	☐ Computer Vision ☐ Audio Processing
Integration and Interaction with the Environment AI systems that interact with physical or digital environments, including autonomous agents, robotics, and interconnected systems.	☐ Multi-agent Systems ☐ Robotics and Automation ☐ Connected and Automated Vehicles (CAVs)
AI as a Service AI capabilities delivered through cloud-based platforms, offering tools, models, and infrastructure for AI-powered applications.	☒ AI Services (e.g., cognitive computing, machine learning frameworks, bots) ☐ Infrastructure as a Service (IaaS) ☒ Platform as a Service (PaaS) ☐ Software as a Service (SaaS)
Additional Comments or Explanation:	Developing inhouse capability and capacity (PaaS) is cost-effective and ensures sustainability for the NFSA to run its own business inside. Software as a Service of this type is not on the market and may not be suitable (data sovereignty).

Technical Elements



Platform implementation	Internal facing. Key technical considerations include the machine learning and data management frameworks, hosting platform, security considerations, integrations with existing platforms/technology, and cost model.	
Model / Algorithm used	Provide details about the AI models and machine learning algorithms utilised. Briefly describe your approach to selecting these models and the different options considered.	
Data Sources Select the types of data sources used and provide relevant details.	☒ Internal ☒ Public	☐ Third-party ☐ Synthetic
Risk Assessment and Mitigation Details	Details: Audio and audiovisual items with spoken word (speech) from the NFSA collection including interviews, oral histories, documentaries, films etc. Currently 10 linear years processed (soon to be 20). This product enables the NFSA audiovisual collection to be more searchable.	
Security and Compliance Frameworks Select the security and compliance frameworks and measures implemented. Provide details or additional artifacts if relevant.	☐ Authority to Operate (ATO) ☒ System Security Plan (SSP) ☒ Security Risk Management Plan (SRMP)	☐ Information Security Registered Assessors Program (IRAP) ☐ Penetration Testing
	Details:	



	NFSA technologies are deployed within Federal cybersecurity and data stewardship guardrails.
Assurance and Government Frameworks	NFSA has AI principles based on Australia's AI Ethics Principles and the National AI Assurance Framework
Record maintenance	Comprehensive documentation practices for AI decisions, testing, and data assets are maintained to ensure transparency, accountability, and compliance with regulations.
Disengagement	Bowerbird is in service and will continue to be developed. N/A.
Performance Metrics and Results	KPIs include word error rate, real-time transcription, and user satisfaction. The current accuracy for transcription of Australian English is 82.43% (using our own informal corpus), with a word error rate of 17.5%.