Cultural and Linguistic Diversity Services Challenge

2022 NSW Small Business Innovation & Research program

Background

The NSW Small Business Innovation and Research (SBIR) program is a NSW Government initiative that provides competitive grants to small and medium-sized enterprises (SMEs) to find and commercialise innovative solutions to well-defined challenges identified by NSW Government agencies. This document sets out the Cultural and Linguistic Diversity Services Challenge for the 2022 SBIR program.

Challenge summary

NSW Health is seeking Artificial Intelligence (AI) powered solutions to support the delivery of health services to Culturally and Linguistically Diverse (CALD) communities.

Technology solutions might include, but are not limited to:

- AI technology for real-time video translation of ongoing video consultations
- AI technology-powered chatbots and multilingual voiceovers
- A customisable video translation solution to use with existing media content
- The ability to build and customise glossaries and libraries for medical terminology and its CALD translations
- The ability for testing, reporting and modification by clinicians.

Challenge details

NSW Health is committed as a leader in providing health care services for people from CALD backgrounds. There are currently systems and processes in place to support public health staff to deliver CALD services to NSW's diverse communities, for example, multicultural health services and dedicated contracts for each local health district.

However, some local health districts have a high proportion of English as a Second Language (ESL) speakers, putting pressure on their ability to provide sufficient CALD services to patients and families. For example, the South Western Sydney Local Health District (SWSLHD) has one of the largest diverse communities in Australia and is facing the challenge of effective and cost-efficient delivery of CALD services.

Medical interpretation services are in high demand and the wide variety of languages is particularly challenging for midwifes and nurses when communicating with families and patients outside of the acute care setting. There is a real need for technological solutions to provide medical information, consultations, treatment, prognosis and ongoing management in an accurate, responsive and equitable manner for CALD communities.

SWSLHD has trialled AI initiatives to tackle the CALD service delivery gaps, including translating pre-prepared videos into multiple languages and handheld video translation devices, but has had limited

success due to limitations in reference directories. The rapid advance in AI capability could implement AI-assisted CALD services with potential user cases including:

- Improving health literacy in the CALD communities
- Real-time translation of video consultations
- Multilingual voiceovers for health services
- Remote diagnosis to manage patients safely at home
- Health surveillance and community services.

Solution requirements

The solutions should deliver cost-effective technologies or methodologies to deliver CALD health services.

Proposals must:

- Demonstrate the scientific basis of the technology to address the problem
- Demonstrate that the technology and method can:
    - Provide AI chat text functions, audio and video transcription, translation and voiceover into 20 CALD languages
    - be customised by public health staff to ensure health literacy is incorporated into the development of the translation or voiceover
    - create and maintain a dictionary of around 2,500 medical terms related to nursing and midwifery and translate these into 20 CALD languages, with an option for Auslan (the terms will be in a selected discipline of maternity)
    - distinguish between different dialects and translate and speak in these dialects to address the large communities with ESL background. Examples include the provision of voiceover into different Arabic or Chinese dialects (Mandarin and Cantonese) where tonal differences exist
- Demonstrate compliance with or a commitment to implementing NSW Government AI policy and the ability to meet compliance requirements if the application is successful, including the NSW AI Ethics Policy Framework, AI Assurance Assessment, Ethical Policy Statement, ICT Assurance Framework and Mandatory Ethical Policy for the use of AI
- Address or have a plan to address the privacy by design and security by design principles in accordance with the NSW Information Privacy Commission
- Demonstrate the ability for AI customisation, data portability and integration with existing investments, systems or technologies in ICT by NSW Health.
- Emphasise usability and accessibility of its functions

NSW Health remains responsible for all AI-informed decisions and will monitor them accordingly and have effective tools to edit AI behaviour. Public health staff will retain the ability to audit AI behaviour.

Applicants may propose a single technology or device, or an integrated suite of technologies and devices.

Benefits of the solution

Medical transcription had a US$1.5 billion market in 2021 and this is expected to grow to US$5 billion by 2028. The service has a wide array of end users in the NSW Health system, including hospitals, clinics, clinical laboratories and academic medical centres.

The COVID-19 pandemic drove a structural shift to digital technologies, telemedicine and remote delivery of health services, complementing initiatives such as Hospital in the Home in NSW and Australia. There is a growing demand for customised AI solutions for CALD services in health and technology. Solutions can also be extended to other non-health fields.

Technologies, if successfully developed, have the potential to create a sovereign capability, driving the creation of jobs and new businesses in NSW, as well as offering significant export potential.

How to apply

Applications to the NSW 2022 SBIR Program will be made through the smartygrants platform, Online applications forms can be found at https://chiefscientist.smartygrants.com.au/SBIR2022Round.

For more information, please visit chiefscientist.nsw.gov.au/sbir