

Speech-to-text AI

How implementation of ambient AI has streamlined clinical documentation & improved productivity

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Background

- Singapore's healthcare system is under growing strain: an ageing multimorbid population, rising healthcare costs, and a shrinking workforce – a burning platform for transformation.
- Healthcare systems, including the National University Health System (NUHS), must prepare their workforce to overcome these challenges, while ensuring professional and personal fulfillment for the providers, enhancing outcomes and experience for the patients, and maintaining manpower and financial sustainability for the system.
- Clinical documentation and electronic medical record tasks have become a leading source of administrative burden and burnout amongst healthcare providers¹.



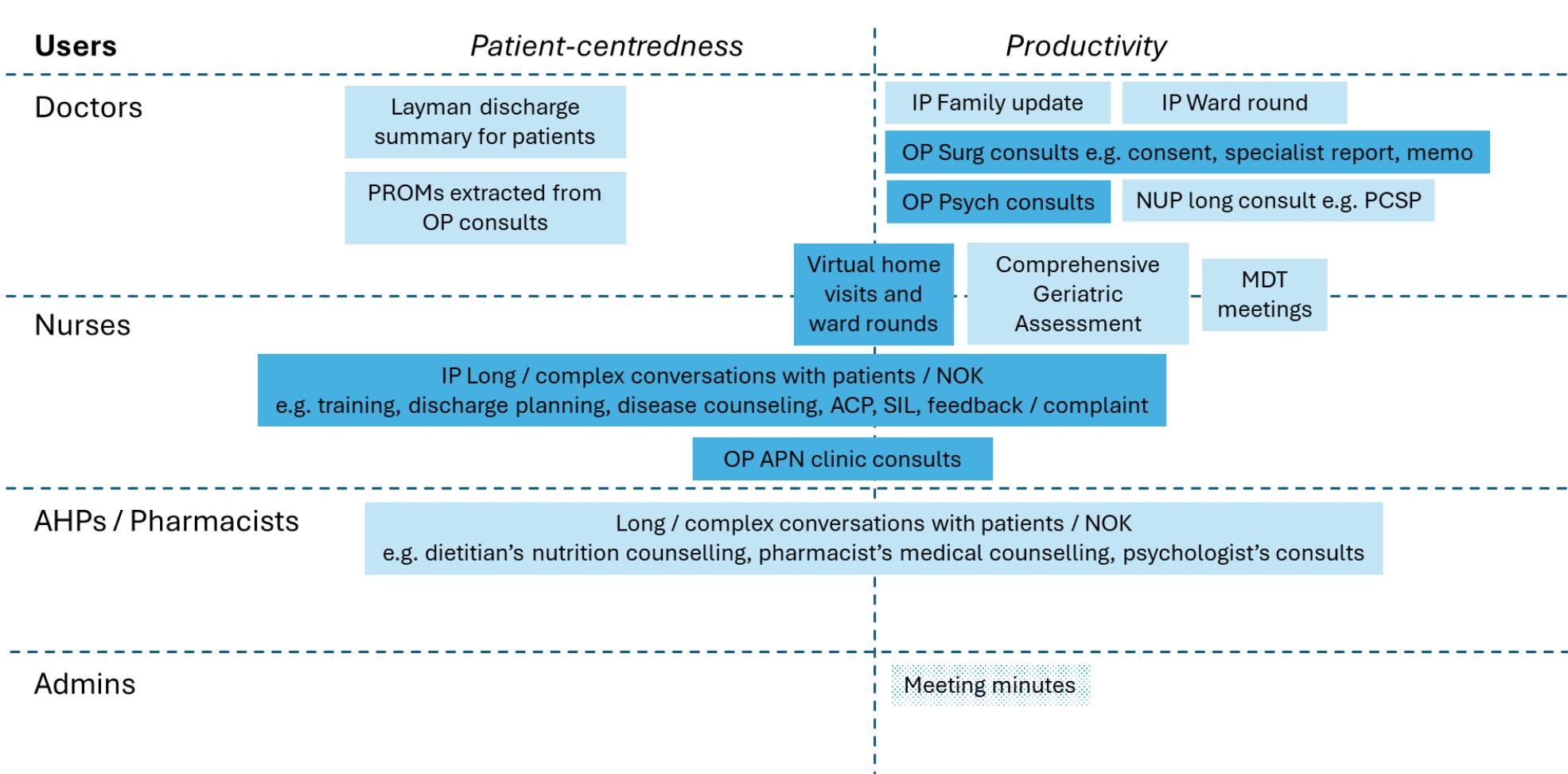
- MediVoice, a speech-to-text transcription tool leveraging on ambient AI technology, was developed to alleviate the need for direct documentation, and enhance healthcare professional-patient encounters.
- MediVoice uses OpenAI Whisper API (subsequently, AWS Amazon Transcribe) for automatic speech recognition and Claude 3.5 Large Language Model.
- Launched on 1 September 2024, it is now available to NUHS users as a web application.



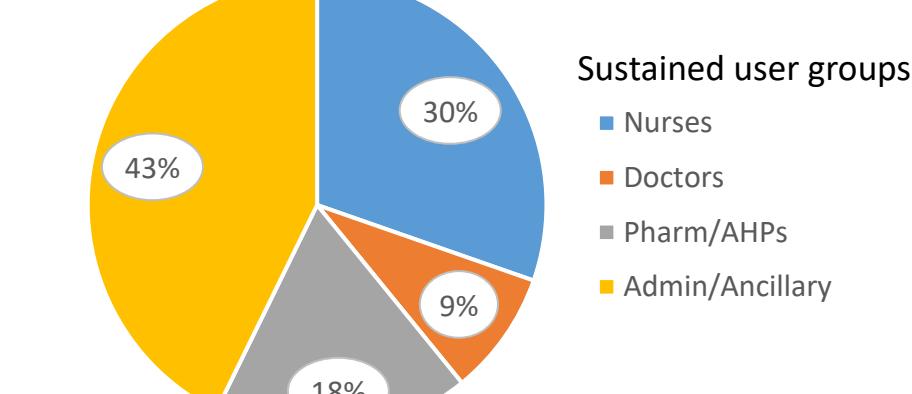
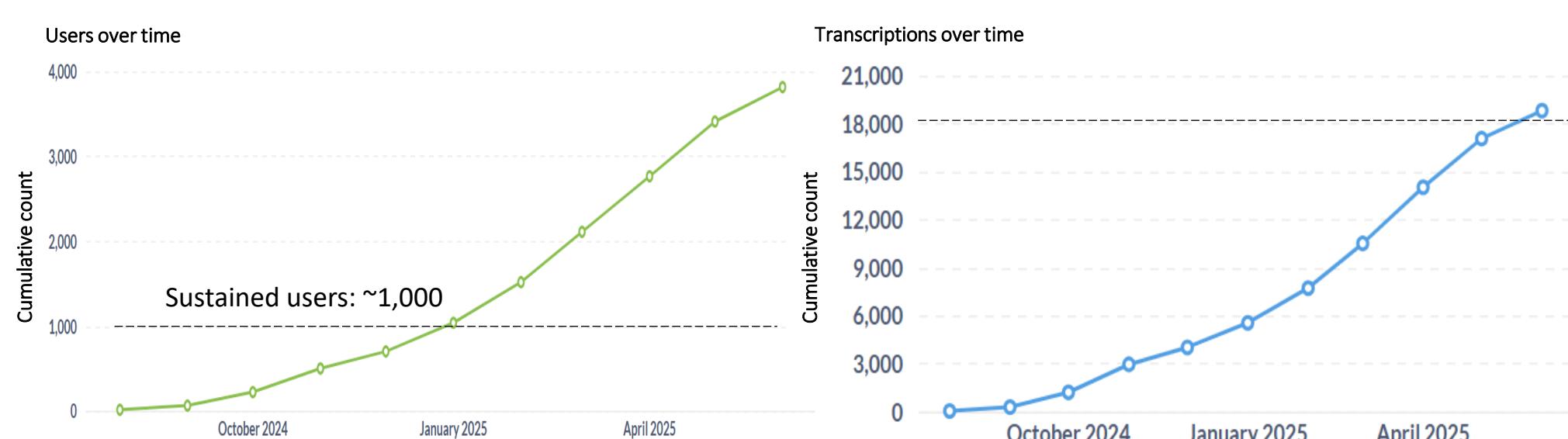
Scan to view a
MediVoice demo

Methodology

- Multiple pilots were conducted with 50 users spanning clinical use cases in the inpatient and ambulatory care setting (Comprehensive Geriatrics Assessment, Family Conferences and Updates, Patient disease counselling, Service and Quality recovery, History taking), and involving specialties in Internal Medicine, Surgery, Oncology and Psychiatry.
- Both medical and nursing professionals were involved in initial testing with a focus on rapid cycle feedback (agile methodology) and seeking current care's process inefficiencies where the largest improvements could be had with ambient AI implementation.
- Productivity gains were tracked using time motion studies, with metrics including quality and accuracy of transcriptions, time savings, and user satisfaction sampled with surveys.
- Both a top-down and groundswell approach, with strong senior management support and dedicated AI user champions, were pivotal in securing last-mile technology adoption, and the eventual scaling of MediVoice for successfully tested use cases.



Result



As of 1 August 2025, MediVoice has attracted **1,048 sustained users** (318 nurses, 92 doctors, 190 pharmacists and allied health professionals, 448 administrative and ancillary staff) with more than **19,000 transcriptions** generated across NUHS.



For **inpatient care setting**, MediVoice had **word error rate ~6% for total transcribed words**, with turnaround time of 3.9 minutes for a 15-minute conversation. In average, **13 minutes of nursing documentation time is saved** per 8-hour nursing shift.



For **ambulatory care setting**, MediVoice had been proven to **reduce 47 minutes (22%) of documentation time** in a 3-hour Hand Surgery clinic amounting to roughly **\$540,000 cost saving per year**. Time savings were more significant for patient conversations lasting > 15 minutes.



A user satisfaction survey revealed that **more than 90%** of surveyed staff felt MediVoice lightened their clinical workload.



A **community of AI practice** was started, with users beginning to actively contribute new use cases and share personalised prompts in an NUHS public library.

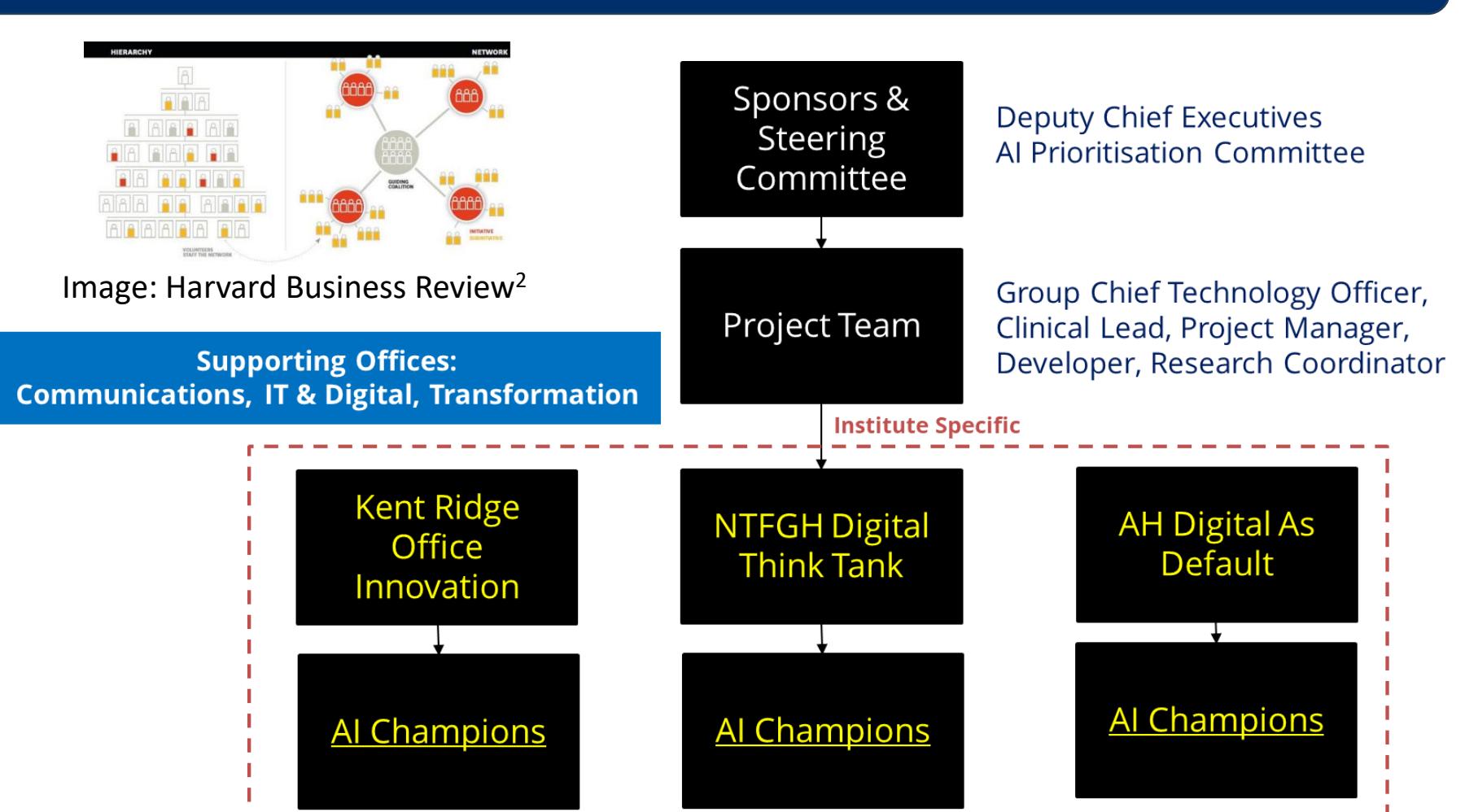
Conclusion

- The MediVoice journey is a successful example of how healthcare workforce-led technology-powered practice change with agile implementation has been successful in enabling more productive and cost-effective healthcare delivery.
- Change management is key in supporting successful adoption of new practice and need to be engineered both through both top-down and bottom-up approaches, facilitated by the organisational structure and culture.
- The adoption of AI at scale in healthcare is a shared responsibility, from its design, deployment, to wider use, ensuring its continued value-add to enable better health outcomes and equity in health.
- Beyond productivity gain to achieve manpower and financial sustainability, an equally, if not more important narrative is about thriving in an increasingly brittle, anxious, nonlinear, and incomprehensible (BANI) world. It is about people, purpose, and possibility.

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References:

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