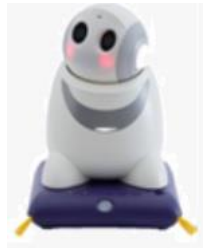


**Submission to the New Aged Care Act Rules Consultation Release 1 - Service List
on the Aged Care Bill 2024
by Prof. Rajiv Khosla
Human Centred Innovations Pty. Ltd.
<https://mymatilda.com.au>**

Our organisation welcomes the opportunity to be able to participate in the Committee's enquiry and report on the provisions of the Aged Care Bill 2024, particularly the use of Assistive Technology in addressing the needs of vulnerable or disadvantaged older Australians, and the impact of the Bill on the aged care sector, including providers, workers, and recipients of care.

Human Centred Innovations Pty. Ltd. has played a pioneering role in the research, development and deployment of social robots like MATILDA in Australia since 2009 [<https://www.youtube.com/watch?v=meWoJr1lDy4>] through Research Centre for Computers, Communication and Social Innovation launched at La Trobe University and Human Centred Innovations.



MATILDA stands for M= Measures and Monitors, A = Anthropomorphic, Affectionate and Affordable, T = Talks and Tracks, I = Intelligent, L = Listens and Learns, D = Delivers person-centred services, A = Acts on what it learns

Our organisation's work was recognised, reported and promoted by Department of Foreign Affairs and Trade (DFAT), AUSTRADE and Federal Government from 2011 to 2015 in several countries in Asia Pacific and South East Asia.

Human-Centred Innovations Pty Ltd (<https://mymatilda.com.au>) - a commercial vehicle was set up in later half of 2016 to translate research into practice. We have more than 35 refereed research publications and have filed several patents. We have ongoing research projects with several Universities in Melbourne, Hong Kong and Japan. MATILDA has been deployed in Australia, Hong Kong and Japan.

MATILDA is an evidence based **low cost Australian innovation** and was also part of Federal government initiative in March 2011 to bring aged care robotics in Australia. Today MATILDA is commercially available in Australia. We have evidenced through actual deployments in aged care, home care, disability, education, social enterprises and hospitality sectors. We have more than 35 refereed research publica on in AI and social robotics. A sample can be found on this link

<https://drive.google.com/file/d/1w0cn4Xdn42-rvBE489GEzBi3ykZYVd1Z/view>

We were also part of Department's Expert Forum for Enabling Technologies for Aged Care in June 2011 <https://vimeo.com/199976920> .

Some aspects of MATILDA's journey can be found on this link <https://mymatilda.com.au/matildas-journey/>

In the last 15 years we have played a leading role in Australia and globally in research, development and deployment of social robots like MATILDA with anthropomorphic features.

We have evidenced through actual deployments in aged care, disability, education, social enterprises and hospitality.

We are an Australian innovation. Our vision is to bring social benefits and impact wherein technology co-exists with humans with different abilities in a way so as to enhance (not take away) human qualities of communication, kindness and compassion.

- by addressing health care and social issues facing our seniors ranging from social isolation, dementia and chronic disease through smart, safe and affordable multi-modal social robots like MATILDA from hospital to home care.
- by empowering people with special needs, autism and disability and those children who are victims of family violence with life-long support system like MATILDA to build self-esteem, learn life skills in a non-judgemental manner for living independently at home and improve their employability in workplaces and social enterprises.
- by supporting social and emotional development as well as STEM/STEAM education of children in early learning centres and introducing digital technology in a social context in schools through MATILDA.
- by employing AI services in MATILDA in a socially responsible manner in above sectors social enterprises, and business process automation to improve productivity and employability.

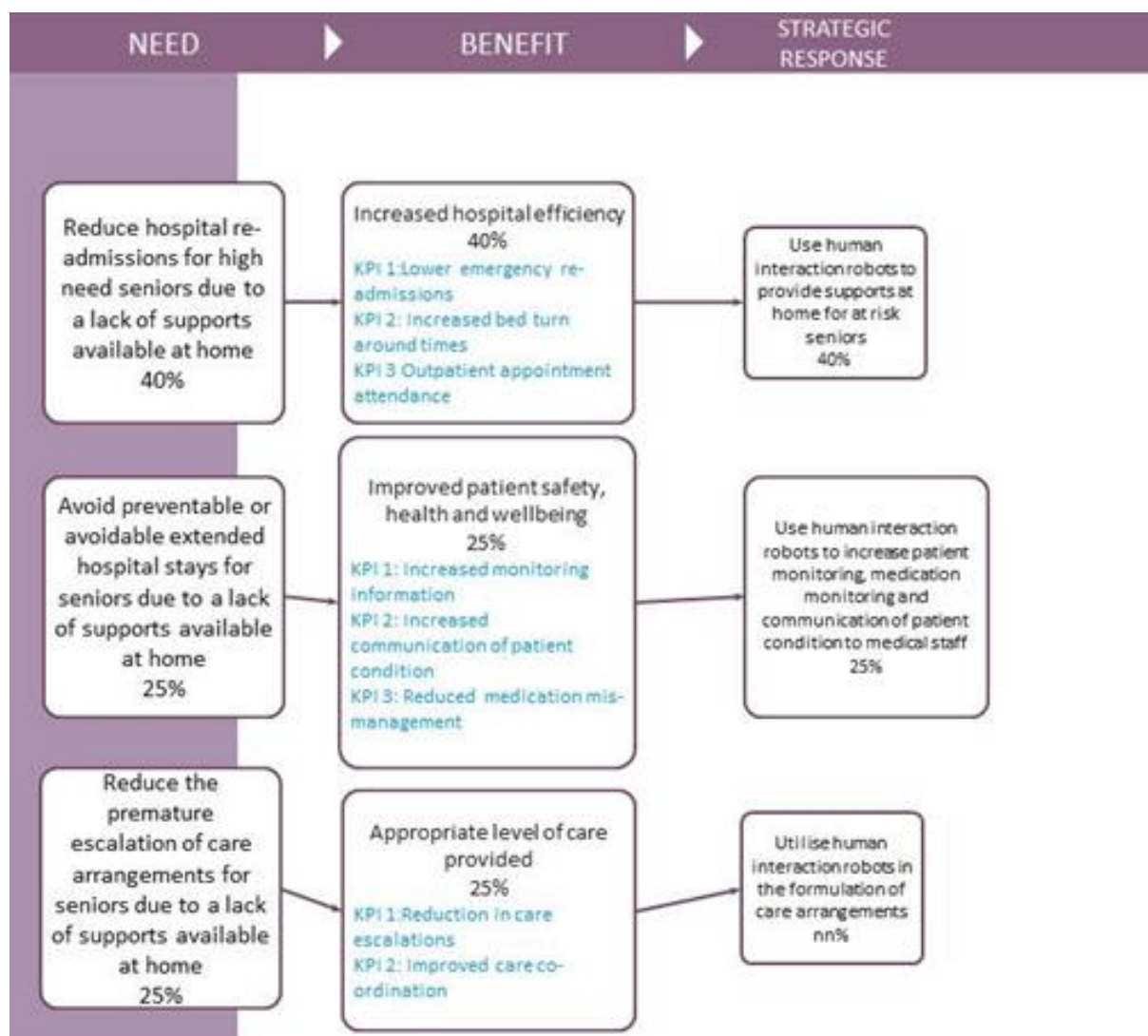


Figure 1: Use Cases of MATILDA social robot in hospital to home care (extract from proposed project with Northern Health, Melbourne)

We continue to explore the potential to improve the quality and affordability of health care services with the use of social robots. In particular, in context of hospital to home care we would like to draw your attention to the benefits and strategic use cases of social robots like MATILDA in Figure 1 above.

COMMENT:

The integration of social robots like MATILDA into health care offers a promising avenue for preventing frequent readmissions, providing care and monitoring services at home and improving the quality of life for older adults and thus merits the inclusion of social robots, such as Matilda, in the service list under Assistive Technology.

In addition to above addressing challenges such as loneliness, cognitive decline, and physical limitations, patient recovery and visitor management other evidence-based outcomes are:

1. Enhanced Social Engagement and Companionship:

- Combating Loneliness: Social robots can provide much-needed companionship, especially for those living alone or with limited social interaction.

[Beyond Blue in its booklet titled 'What works to promote emotional wellbeing in older people', published in 2015 identified MATILDA's ability to engage and improve emotional well being of older people (Page 86 of the booklet)

<https://drive.google.com/file/d/12dvCZSIhc15TQR7zmVJD68x35wtUtaoB/view?usp=sharing>

The Productivity Commission studied MATILDA as part of the mental health enquiry in 2019.]

- Personalized Interaction: Robots can be programmed to engage in conversations, play games, and participate in activities tailored to individual preferences.
- Emotional Support: They can offer a listening ear and provide emotional support, helping to reduce feelings of isolation and depression.

2. Patient Recovery and Visitor Management

Subject to authorisation from the hospital staff, MATILDA can be used by family members to connect and make a video call to the patient using their smart phone thus mitigating the need to visit the hospital and reducing the workload of the hospital staff. The nurses and doctors can similarly use their smart phone (MATILDA shown in the nursing station is optional) as shown in Figure 2 below to connect with the patient remotely from anywhere in the hospital (or when the patient is in their home also) thus optimising resources and time.



Figure 2: MATILDA enabled remote patient and visitor management

2. Cognitive Stimulation and Mental Health Benefits:

- Cognitive Exercises: Robots can engage users in cognitive exercises, such as memory games and problem-solving activities, to help maintain mental sharpness.
- Improved Mood: Social interaction with robots has been shown to have positive effects on mood and overall well-being.
- Reduced Risk of Cognitive Decline: Regular cognitive stimulation can help reduce the risk of cognitive decline and dementia.

3. Physical and Functional Support:

- Reminders and Assistance: Robots can provide reminders for medications, appointments, and daily tasks, helping to improve independence.
- Physical Therapy: They can assist with physical therapy exercises, providing gentle guidance and encouragement.
- Mobility Support: Some robots can even assist with mobility tasks, such as opening doors or retrieving items.

4. Cost-Effective and Scalable Solution:

- Reduced Caregiver Burden: Robots can help alleviate the burden on caregivers by providing companionship and assistance with daily tasks.
- Long-Term Cost Savings: By reducing the need for more intensive care, social robots can potentially lead to long-term cost savings for the healthcare system.
- Scalability: Robots can be easily deployed and scaled to meet the needs of a growing aging population.

5. Improved Quality of Life and Well-being:

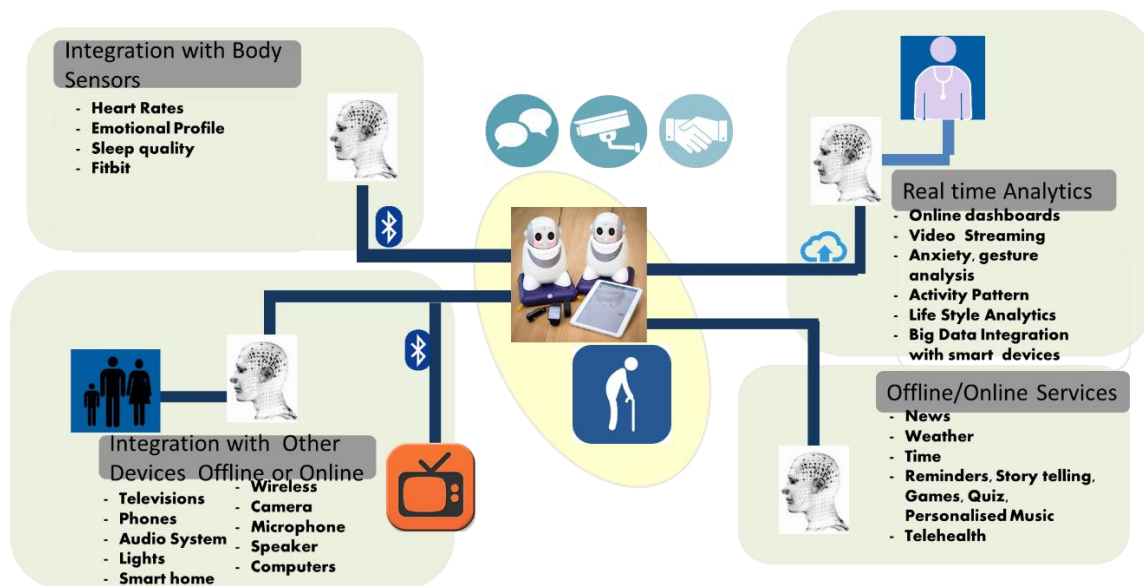
- Increased Independence: Social robots can help older adults maintain their independence and quality of life for longer.
- Enhanced Sense of Purpose: Engaging with robots can provide a sense of purpose and fulfillment.
- Improved Overall Well-being: By addressing social, cognitive, and physical needs, social robots can contribute to a higher overall quality of life.

In Residential Aged Care opportunities exist with MATILDA to:

- Engage, enable and empower residents with lifestyle-centred multilingual services in the common room or in the resident's room offline or online.
- Improve emotional well-being
- Support carers in providing diversion therapy programs in the common room including playing bingo, quizzes, casting exercises and movies as well as having conversations with Matilda in 50+ languages.
- Schedule and deliver caregiving services using voice, face recognition and webapp

- Allow Carers to operate Matilda’s services using a webapp on their phone from anywhere in the aged care.
- Enhance variety & novelty of services
- Reduce social cost of care
- Facilitate social connectivity by facilitating family members to connect with the residents using Matilda’s phone call or video call services
- Help in capacity building

In Home Care opportunities exist with MATILDA as shown in Figure below



Home-based aged care and dementia support

https://drive.google.com/file/d/1tyZ45H4H_bQhCl_GesrppK2iY6ZMRyLs/view?usp=sharing - 2014-16

[Alzheimer Australia CEO on Vimeo](#) -2015

<https://vimeo.com/250098945> - Ex-CEO Dementia Australia

<https://vimeo.com/693895829>- Day in life of John- 2021

Residential aged Care – diversion therapy programs (group based and 1-to-1), emotional well-being of residents in dementia care units

<https://vimeo.com/693874922> - 2010

<https://vimeo.com/250105396>- Diet conversation- 2011

<https://vimeo.com/250100470> - Multi-lingual services – 2013-14

MATILDA deployment feedback from stakeholders and users in aged care, mental health, AI and disability services, dementia, autism, etc

<https://drive.google.com/file/d/1Y0HRdPvrDTJINDSuVubDR3Ib1-b31xq6/view?usp=sharing>

While social robots offer promising benefits in aged care, our organisation is mindful of several potential challenges and concerns such as:

Technological Limitations

- Limited Emotional Intelligence: Robots may struggle to understand and respond appropriately to complex human emotions.
- Technical Difficulties: Malfunctions, breakdowns, or software issues could disrupt care and cause frustration.
- Privacy Concerns: Data privacy and security issues may arise, particularly when robots collect personal information.

Ethical Considerations

- Depersonalization: Overreliance on robots could lead to a sense of isolation or depersonalization for residents.
- Job Displacement: Concerns about job displacement for human caregivers may arise.
- Ethical Dilemmas: Difficult ethical questions may emerge, such as how to handle situations involving life-or-death decisions.

User Acceptance and Resistance

- Fear of the Unknown: Some older adults may be resistant to new technology or fear being replaced by machines.
- Cultural Barriers: Cultural differences or beliefs may influence acceptance of robots in aged care.
- Lack of Training: Caregivers may require adequate training to effectively use and integrate robots into their work.

Cost and Accessibility

- High Costs: The initial purchase and ongoing maintenance of social robots can be expensive.
- Accessibility: Ensuring that robots are accessible to all residents, regardless of physical or cognitive abilities, can be challenging.

Regulatory and Legal Issues

- Liability: Determining liability in case of accidents or harm caused by robots can be complex.
- Regulations: Ensuring that the use of robots in aged care complies with relevant regulations and standards is essential.

It is crucial that the new Aged Care Act has provisions to ensure that the use of social robots in aged care is beneficial and ethical.

RECOMMENDATION:

It is recommended that Government gives consideration to:

the inclusion of social robots, such as MATILDA, in the services list for Remote Hospital to Home care patient management to reduce frequency of readmissions and for visitor management under Assistive Technology.

Submitted by:

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Human Centred Innovations Pty. Ltd.