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The Secretary
McKeon Review
PO Box 4226
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29 March 2012

Dear Sir

McKeon Review: Strategic Review of Health and Medical Research

The Australian Academy of Technological Science and Engineering (ATSE)¹ welcomes this opportunity to provide some comments on ‘*What are the health and medical research strategic directions and priorities and how might we meet them?*’. In particular, ATSE wishes to comment on Term of Reference 5-*Likely future developments in health and medical research, both in Australia and internationally.*

While ATSE is not directly involved in medical research, about 10 per cent of its 850 Fellows are directly involved or have links to the area. In common with other Academies of Engineering around the world, ATSE has determined that the convergence of enabling technologies such as information technology, biotechnology, nanotechnology and cognitive science in healthcare is a significant component of the future strategic direction of healthcare. Accordingly ATSE has established a Health and Technology Forum to draw on the expertise of Fellows in providing robust and independent advice to government, industry and the community on the role of technology in healthcare. This joins existing forums in Energy, Water, and Education as strategic priority areas for ATSE.

ATSE has carried out a number of activities over the recent past related to Term of Reference 5. Thus ATSE in June 2008 produced an issue of its journal *Focus* devoted to “Biomedical Technology” with contributions from distinguished Australian experts². In the same month ATSE organised a meeting of experts from the Asia-Pacific region to discuss “Converging Technologies for Biosecurity”; this was reported in *Focus* of June 2009. Then in February 2010 another issue of *Focus* was devoted to “Disruptive Technologies in Healthcare” based on contributions from a meeting of experts held in Sydney in October 2010³. Copies of these are attached for your information.

ATSE has identified the mounting challenges of population growth and demographic ageing as strategic priorities for Australia. In particular the projected population of 36 million by 2050 will include 7.8 million people over 65 and 1.8 million over 85. This greatly increased cohort of elderly will lead to significantly increased healthcare costs due to higher levels of chronic illness, disability and degenerative diseases. There is a suite of emerging innovative technologies that offer the prospect of enhanced security, safety, diagnosis,

¹ The Australian Academy of Technological Sciences and Engineering (ATSE) is an independent body of 800 eminent Australian engineers and scientists driving technological solutions for a better Australia. ATSE was established in 1976 with the mission to promote the application of scientific and engineering knowledge to the future benefit of Australia. ATSE is one of four learned national Academies, which have complementary roles and work together both nationally and internationally.

² ATSE Focus 156 <http://www.atse.org.au/resource-centre/func-startdown/18/>

³ ATSE Focus 160 <http://www.atse.org.au/resource-centre/func-startdown/7/>

treatment and physical assistance to improve the quality of life for older people and to empower them to remain safely at home.

Over the period 2008 to 2010 a major study has been carried out on “Smart Technology for Healthy Longevity”⁴ funded by a grant from the ARC Learned Academies Special Projects scheme. This involved several workshops around Australia, visits and discussions with many experts over a range of disciplines. This was launched in June 2010. Further, ATSE organised two missions of 12 Australian experts to meet with experts in Europe in October 2009 and in Taiwan in October 2010. Before the missions none of the Australian team members had met but since then co-operation has started. Based on the report, a number of presentations have been made at conferences and seminars in Australia and the UK. The short guide of the ATSE report is attached for your information.

This has resulted in a substantial interest group of professionals in Australia focussed on application of a range of technologies in aged care. In Europe and parts of Asia and North America, a new discipline of gerontechnology has been recognised to cover this area and journals and international conferences are devoted to this topic. **ATSE sees substantial advantages in the creation of an Australian network in gerontechnology to engage with international activities.** However, while NHMRC and ARC have funded substantial networks in the past, there now is now no mechanism for setting up new networks.

The development of cross-disciplinary centres is the key to successful utilisation of enabling technologies in health care. An excellent example is the newly opened Centre for Neural Engineering at the University of Melbourne which brings together engineers and physical and life scientists across a range of disciplines to study bionics, computational neurobiology, sensors and imaging, and stem cells and disease models. **ATSE strongly supports the establishment of a Centre (or Centres) of Excellence in Gerontechnology within universities, with joint ARC/NHMRC funding support.**

The link between users and researchers is critical in developing new technologies in health care. The concept of research partnerships recently announced by NHMRC is excellent. The first partnership in dementia brings together 3 aged care providers, Alzheimers Australia and NHMRC in a Partnership Centre for 5 years at \$5 million per annum, funded equally by the users and the NHMRC. ATSE supports this approach and looks forward to seeing further research partnerships in areas of national concern.

From its recent study ATSE has identified the concept of elderly-friendly housing as a critical area for coping with the challenges of an ageing population. Europe has been particularly active in promoting this concept and there are now thousands of such homes. Special attention is being given to housing for dementia sufferers, against the rising tide of dementia among the elderly and a projected shortage of carers due to the changing demographics. This area has been identified as a major problem for Australia. **While a modest start on elderly-friendly housing has been made in Australia, ATSE sees a need for a the establishment of Centres of Excellence in Elderly-friendly Housing within universities involving medical researchers, design engineers, social scientists and architects, again with joint ARC/NHMRC funding support.**

⁴ Smart Technology for Healthy Longevity <http://www.atse.org.au/resource-centre/ATSE-Reports/Health-Technologies/>

I trust these comments are useful. For further information on the issues raised in this submission please contact Harriet Harden-Davies, Senior Policy and Project Officer, ATSE via email to harriet.hardendavies@atse.org.au or on 03 9864 0926.

Yours faithfully

A handwritten signature in cursive script that reads "Robin Batterham".

Robin Batterham
President