Executive Summary

In order to foster the development of medical engineering and technology within the State, the Centre of Intelligent Information Processing Systems (Department of Electrical & Electronic Engineering) and the University Department of Pathology propose to establish the Australian Research Centre for Medical Engineering (ARCMG) as a category B Centre within UWA. This proposal has the strong support of the Executive Deans of Engineering & Mathematical Sciences and Medicine & Dentistry.

The establishment of ARCMG has the external backing of the Medical Engineering Research Institute (MERI) and its proponents. MERI is profiled in Appendix A. MERI intends to be structured and to operate along similar lines to the Lions Eye Institute as a non-profit organisation which will foster and facilitate medical engineering research in Australia. With the Centre MERI will make WA a focal point for medical engineering. MERI envisages that it will be a conduit for appropriate research programs and funding into the Centre. The unique combination of management and research expertise of the Board of MERI will provide significant support for the establishment of ARCMG. It must be clearly understood that State Government funds that are directed into ARCMG will remain in ARCMG and will not be channelled into MERI. Reference to ARCMG in this proposal should be read in the context of the proposed relationship between ARCMG and MERI.

The new Centre also has the support and will collaborate with a number of other medical research groups, including the Lions Eye Institute, the Australian Neuromuscular Research Institute and the Department of Radiology at Sir Charles Gairdner Hospital. In collaboration with the other research groups, ARCMG will create a synergistic research relationship between medical advancements and engineering expertise, providing innovative technology for medical research institutes, hospitals and the health industry. It is expected that ARCMG will apply for funding from the WA State Government for a grant under the Centre of Excellence for industry support scheme. As part of its mission MERI wishes to support the establishment of ARCMG as a Centre of Excellence.

The impetus for establishing a collaborative medical engineering research centre springs from the increasing needs of medical researchers and the health industry to develop advanced systems, technologies and products for diagnostic and treatment techniques. As medical technology becomes more sophisticated, engineering innovation is playing an increasingly crucial role in its design and applications. Medical engineering research in Western Australia is presently fragmented into isolated research groups, and research efforts are lagging behind the needs created by advances in medical knowledge. Without a driving force of engineering expertise, medical research is at risk of becoming limited in the scope of its technological capabilities.

ARCMG will be managed by a Director who is responsible for the strategic allocation of resources in the Centre, its performance, including accountability to the University of Western Australia and the Centre’s major policies. An Advisory Committee of Management will be responsible for the strategic direction of the Centre and will ensure that all proposals and projects are directed in accordance with the Centre’s objectives.

A number of internationally known research leaders from the University are involved in the formation of the Centre and include: Professor Yanni Anticulez, AM, Department of E & E Engineering, Clinical Professor Lesley Gaia, Department of Radiology, SCGH; Professor Ian Constable AO, Lions Eye Institute; Professor Byen Kukulas AO, Australian Neuromuscular Research Institute, Clinical Professor Barry Marshall, Department of Medicine, SCGH; and Professor John Papadimitriou, University Department of Pathology. The Director of ARCMG is Professor Yanni Anticulez, Department of E & E Engineering and the Deputy Director, Professor John Papadimitriou, Department of Pathology. The Director will report to the Vice Chancellor through the Executive Deans of Engineering & Mathematical Sciences and Medicine & Dentistry.

The potential benefits from the establishment of ARCMG are: combination of ARCMG and MERI as a unique national forum for medical engineering research in Western Australia; a focal point to increase the collaboration between medical research groups; increased leverage of funding and increased investment into the State; integration of medical engineering facilities and expertise will reduce costly duplication within the State; development of new devices, systems and techniques to improve the diagnosis and treatment received in Western Australian hospitals; improved training and access to expertise and appropriate technologies for clinicians in rural and remote areas.

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areas; and conversion of medical research outcomes into practical applications for the health and medical industry.

ARCME will enhance the reputation of the University as a research university and will be seen as actively participating in major medical research initiatives which are underpinned by engineering. It will also bring the University closer to industry and will form a unique multi-disciplinary centre in Western Australia. The Centre will attract to UWA expertise that otherwise will not be available for its research and postgraduate programmes. The research carried out in ARCME will increase the number of PhD and Masters research postgraduate enrolments, and the equipment base of the University will be greatly enhanced.