Materials Accelerator – opportunities for investment and participation

Bridging the gap between basic research and commercialisation
The Materials Accelerator

This is a unique concept in the New Zealand manufacturing sector.

- It aims to transform New Zealand manufacturing companies through an innovative alliance to translate research into export dollars.
- It is a new model for research in New Zealand, bringing companies and researchers from five universities and three Crown Research Institutes together right at the start of the research process through a one-stop shop approach using a Research Pull/Industry Push approach.
- Specific industry needs will drive research priorities, enabling faster commercialisation of new technologies and applications with the end-goal of helping New Zealand manufacturers develop high-value materials and enter new export markets.

The partners

The Materials Accelerator brings together scientists and engineers from five universities and three Crown Research Institutes. It is hosted by The University of Auckland, with its Light Metals Research Centre (LMRC), Centre for Advanced Composite Research, Plastics Centre of Excellence, and six other University of Auckland centres playing a key role in a materials development programme that aims to transform New Zealand’s manufacturing sector through partnerships between research and industry.

LMRC, which has an international reputation for research-driven product and process improvement, particularly in the smelting and environmental fields, is committed to the Accelerator programme through the appointment of its Director Professor Mark Taylor as the Accelerator’s Deputy-Director.

The Accelerator is building on existing linkages between research organisations and industry with industry sector associations – Plastics New Zealand, Light Alloy Manufacturing, the Composites Association of New Zealand, the Packaging Council of New Zealand, and the NextSpace (Virtual Manufacturing) Cluster.

Leading New Zealand companies such as FrameCad Solutions Ltd spearhead the commercialisation process through their routes to market and innovative cultures.
Why this approach?

“In pursuing economic growth in a small economy like New Zealand we urgently need to adopt a ‘NZ Inc.’ approach to innovation and commercialisation,” says Professor Ralph Cooney, Science Leader for the programme.

“The Materials Accelerator has the potential to turbo-charge the development of high-technology exports. The creation of a virtual prototyping and testing and evaluation facility will accelerate commercial product development and greatly reduce the cost and risk for firms.”

Funding

Supported by funding of NZ$9.6 million over four years, the Materials Accelerator is expected to generate economic growth and skilled jobs across the manufacturing sector, which accounts for approximately one-third of our exports and three of our five-largest technology companies.

Focus

The Materials Accelerator aims to bridge the gap between basic research and commercialisation in the New Zealand manufacturing sector using an alliance approach.

The focus is on working with companies to develop high-value export products that incorporate multiple materials, such as plastics, metals, composites, ceramics, conducting polymers, bio-materials, and coatings. Some technologies will be sufficiently advanced to be commercialised within the next four years. Other technologies that have potential for outstanding returns (but are medium-term commercialisation prospects) will also be supported.

The Manufacturing Materials Network

The heart of the Materials Accelerator is the Manufacturing Materials Network, consisting of more than 100 researchers and experts from eight research organisations and several industry and other partner organisations, as well as a number of participating companies. Their expertise spans light metals and alloys, polymers and conducting polymers, composites, biomaterials, and fibres, materials interfaces, industrial design, modelling, and process control, including virtual prototyping.

How can companies participate?

The process starts with a conversation and moves to Joint Technology Planning with a company, during which two or three R&D projects are identified that could lead to exceptional growth in export sales. From there, the group explores scope, resourcing and time-frame, and the terms of engagement. A collaborative R&D agreement will be drawn up, with the company’s contribution depending on total project costs.

The programme

The programme will focus on developing high-value products incorporating multiple materials, such as plastics, metals, composites, ceramics, conducting polymers and coatings. The benefits are expected to flow across a wide range of industries, including turnkey construction, aerospace, electronic devices, food and beverage processing, and the marine sector.

The benefits

The Materials Accelerator is designed to generate economic growth and skilled jobs throughout New Zealand’s manufacturing sector.

It is a new model for collaborative research involving companies right at the start of the process with the intention that their needs will drive research priorities, enabling faster commercialisation of new technologies and applications.
Materials Accelerator – Overview

Research

- Using leading New Zealand companies to pull basic research through to finish product with market ready technology platform out of this pull process
- Bridging science and engineering
- Interdisciplinary teams
- Working from macro- to nano-structures
- Plastics, polymers, composites, metals, ceramics, biomaterials, nanomaterials, surfaces and interfaces
- Developing multi-materials solutions
- State-of-the-art equipment

Researchers

- Eight research centres and groups (c.100 researchers) at The University of Auckland, plus
- Research partners at five universities and three Crown Research Institutes (CRIs) (c.50 researchers)

Current platforms

Each of the three platforms – Turnkey construction, Aerospace and Electronic devices- has the potential to develop other high-value opportunities for other New Zealand companies.

Leading the team

Professor Ralph Cooney
Director
Professor Cooney is a distinguished researcher of 40 years’ standing, specialising in materials chemistry, with particular expertise in conducting polymers and molecular spectroscopy.

Professor Mark Taylor
Deputy Director
Professor Taylor spent 20 years in the aluminium smelting industry before returning to The University of Auckland in 2003 as Director of the Light Metals Research Centre.

Auckland UniServices Ltd

Auckland UniServices Limited is the largest research and development company of its kind in Australasia and a wholly owned company of The University of Auckland.

UniServices manages The University’s intellectual property and is responsible for all research-based consultancy partnerships and commercialisation.

UniServices supports the Materials Accelerator by managing commercial aspects of its projects with NZ partner companies in the multi-materials space, where advances in functionalising materials are raising the value of NZ products in global markets.

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