



**Submission to the
Senate inquiry into the
future sustainability of Australia's
strategically vital steel industry
and its supply chain**

February 2016

Introduction

The University of Wollongong (UOW) is a comprehensive, research intensive institution. The University currently employs over one thousand FTE academic staff involved in research-related roles. Over 1600 higher degree research students are currently enrolled at UOW and in 2014, 290 PhD and Masters (Research) students graduated. UOW has consistently delivered research of outstanding quality and impact, as evidenced by our placement in the top 2% of QS and Times Higher Education world university rankings. The dissemination of our research to user communities, including industry, is one of UOW's key goals and we have a justifiably strong reputation for our engagement with industry.

UOW has a specialised Innovation and Commercial Research team driven by the belief that research can have an immense impact on innovation through relevant engagement with business, industry, government and the community at large. The team works with these external partners in developing state of the art technology solutions and assists researchers seeking to commercialise their research. In addition to the Innovation and Commercial Research team, UOW's Commercialisation Managers work closely with researchers to identify ideas which have real commercial potential. UOW also works with businesses and investors to protect and commercialise the latest in UOW's technologies.

The University began in 1951 as a division of the then NSW University of Technology established to train metallurgists, mechanical and electrical engineers and industrial chemists for the Port Kembla Steelworks. The Australian Research Council (ARC) Research Hub for Australian Steel Manufacturing Research at UOW is extending and refining something the university has been doing for the past 60 years. UOW's strong historic links with the steel industry put it in a prime position to work with the national industry, and we welcome the opportunity to comment on the future sustainability of Australia's steel industry.

The Australian Research Council Research Hub for Australian Steel Manufacturing

Based at UOW, the Australian Research Council Research Hub for Australian Steel Manufacturing (the hub) is a research hub bringing together the best and brightest scientists and engineers from Australia's steel manufacturers and research institutions to drive industry innovation in product development and improve global competitiveness. The hub conducts research and development programs that address manufacturing techniques and best-practice pathways for bringing new ideas to market. The hub was established in September 2014, and is supported by industry and university investment of more than \$17 million and ARC funding of \$5 million over five years.

UOW researchers, in a long-standing collaboration with hub partner BlueScope Steel Ltd, are drawing on expertise in microbiology, surface engineering, and molecular dynamics to make paints and coatings for steel sheeting that prevent bacterial growth. Product innovations include a project to develop a self-cleaning, anti-microbial organic coating for painted sheet steel to prevent the build-up of mould, algae and other bacteria on roofs, particularly in humid environments.

Supporting partners in the research hub include Arrium, Bisalloy Steels, Cox Architecture, Australian Steel Institute, Lysaght, University of Queensland, University of NSW, University of Newcastle, Swinburne University of Technology and RMIT.

The Sustainable Buildings Research Centre

The Sustainable Buildings Research Centre (SBRC) based at UOW's Innovation Campus has been working closely with BlueScope since its inception on the development and evaluation of new steel sustainable building products. A key example of collaboration has been SBRC's major role in the research and development effort on a new roofing product known as the Building Integrated Photovoltaic Thermal (BIPVT) system, a new roofing system that incorporates thin-film solar panels and aesthetically pleasing designs that can produce energy, heating and cooling for new Australian buildings.

The first prototypes of the BIPVT system were used to great effect in construction of the Illawarra Flame house, a retrofit project built by a team of UOW and Illawarra TAFE students that went on to win the international Solar Decathlon China 2013. BlueScope was also the major external funding sponsor of the team. BlueScope is now in the process of determining whether to further develop this product and take to market.

SBRC is also heavily involved in Program B 'Product Development' of the Steel Research Hub. The key focus of that work is around development of steel-intensive, mid-rise, apartment building systems and products.

Potential further initiatives to assist industry and its workforce:

- *Initiative 1: Expanding the research of the Australian Steel Research Hub*
An emerging initiative from the steel research hub is focussed on expanding opportunities for 'steel in mid-rise buildings'. UOW and Bluescope wish to advance this research through the erection of a 'prototype' building to translate research into a test/demonstration building in Wollongong.

- *Initiative 2: Retraining Vouchers at UOW College*
Provision of 100 vouchers (valued at \$10,000 each) for retrenched Bluescope workers to undertake available Certificate III, Certificate IV or Diploma courses. Pathways into UOW courses are available post UOW College.
- *Initiative 3: iMake at the Wollongong Science Centre*
UOW has recently scoped the 'iMake' model for implementation at the existing Wollongong Science Centre on the Innovation Campus. This initiative involves a refurbishment and augmentation of the facility to form a STEM-focussed centre for education, teaching and research engagement for everyone from school children to small businesses along with well-equipped prototyping facilities.
Modelled on internationally successful 'maker spaces', individuals and SME's who can find their capacity to explore the full potential of new technologies limited by financial constraints or level of technical understanding could use the facility to explore and develop new ideas. iMake will provide a fully equipped space in which individuals and groups can become familiar with new technologies (such as 3D printing, scanners, laser tools) in a supportive and supportive environment on a 'try before you buy' approach.

In considering the sustainability of the steel industry it is not only important that steps are taken to address any anti-competitive behaviours and market distortions that may exist in the sector in the short term but also that investments are made to support the expansion of steel into new markets and new products and the transition of existing "steel industry dependent" businesses.

Supporting and expanding investment in research and development activities such as those in new product development through the steel research hub, sustainable buildings research centre and materials science research underway at the UOW's Australian Institute for Innovative Materials are essential for the medium to long term viability of the Australian steel industry. The combination of continued public investment in research and engagement in initiatives such as iMake will contribute to expanding the range and applications of steel products by helping to drive innovation and foster new ideas.

New business ideas developed through iMake may also be eligible to join iAccelerate, UOW's start-up business incubator program which has been supported by the New South Wales government to help drive the ongoing economic transformation of the Illawarra. As part of participation in the iAccelerate program new businesses or businesses who are investing in the development of new product lines are enrolled in a robust education program, formalised business acceleration monitoring and one-to-one mentoring.

Start-ups who have been supported through the iAccelerate program are setting a new benchmark for businesses in the Illawarra and businesses who have graduated from the program are growing and employing people in the region.

By drawing together elements that will support the viability of the steel industry in the Illawarra and nationally through research, providing education and training opportunities for former BlueScope employees, and through initiatives being pursued such as the iMake SME prototyping facility and iAccelerate business incubator, the University of Wollongong considers this to create an environment that with the support of Commonwealth and state governments, will support the viability of the steel industry while helping other elements of the Illawarra economy transition to new opportunities.

Please note that UOW has other significant project plans in the areas of healthcare, medical devices and finance that would provide substantial employment opportunities in the Illawarra. However these projects require funding to be undertaken and further details can be provided upon request.