

# ADVANCED MANUFACTURING GROWTH CENTRE

## MEMBER PROFILE



LAING O'ROURKE

Laing O'Rourke began in 1848 in England, and is a name most people would likely associate with construction.

"We call ourselves a construction company probably just out of tradition," explains Dr Nathan Kirchner, Future Robotics Lead at Laing O'Rourke.

"Our concept of construction does not fit in, really, to construction as I think about it."

Kirchner, who is part of Laing O'Rourke's Engineering Excellence Group, works from an office that might not fit most people's concept of construction. It has virtual reality consoles, a collection of robots, and an ideas-lab feel that is right at home in Sydney's tech hub, Ultimo.

**The company aims to lead its industry into the modern age. As the Global Future Technologies Director of the EnExG or Engineering Excellence Group, Andrew Harris, sees it, the \$15 trillion global construction sphere is "the last great undisrupted sector" and "still constructs buildings the same way they were erected 5000 years ago."**

The sector's mindset is changing, and companies are looking to update their manufacturing ideas in this transition. Concepts such as digital engineering and visualisation, and using RFID to trace components, are increasingly being used, helping to enable mass customisation within finished projects.

Laing O'Rourke see this new approach as a step into DFMA: (Design For Manufacturing and Assembly), and is seeing more work done off-site, transported where it is needed, and then assembled together. This is boosting productivity and quality, and increasing sustainability, for example through reduced waste and fewer vehicle movements per project.

"The only thing we really [need to] do on-site, in terms of construction, is earthworks; you can't lift the dirt somewhere else to process it," says Kirchner.

"A large chunk of what we do remains in factories. We will make bits and pieces, although our bits and pieces can be 90 metres in diameter and 60 metres in height, and then we will bolt them together. Laing O'Rourke still manufactures more than any other construction company."

However, offsite and modular techniques are becoming more popular for companies looking for the benefits listed above and to reduce impact on the communities around our construction sites, from infrastructure to residential projects.

In addition, processes that the automotive industry adopted, such as 3D printing, have become very interesting within building. Examples include Shanghai's WinSun, which is printing structures out of recycled materials, and Perth's Fastbrick Robotics, which is using additive manufacturing-influenced techniques to automate bricklaying.

**Laing O'Rourke has developed advanced manufacturing solutions such as FreeFAB wax for construction scale 3D printing of wax moulds for precast concrete, delivering speed and design flexibility benefits.**

The company believes Australian manufacturing will benefit from an evolution toward something more collaborative, with specialised solutions and IP brought to market through a team approach. Laing O'Rourke believes the Advanced Manufacturing Growth Centre is important partner within this paradigm, facilitating links between corporates, government, and SMEs.

“**The triadic relationship, that facilitator relationship, is amazingly powerful,**” he says.



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