

## Emerging technologies and innovation – who will deal with them?

R Farrelly<sup>1</sup>, K Neaylon<sup>1</sup>

<sup>1</sup>Centre for Pavement Engineering Education, Melbourne, VIC

As practicing engineers or managers, we need to keep an eye on contemporary and emerging developments in our field, primarily to provide competent and cost-effective solutions for the communities we live in, and at the very least to remain relevant and employable.

Some emerging technologies and innovations in the road pavement discipline that are discussed in this paper are:

- pavement responses to a hotter and wetter climate associated with climate change
- the world economy and its effect on the local economy
- connected and autonomous vehicles
- bitumen availability and bitumen alternatives
- nanomaterial modified bitumen
- substitution for or sustainability of raw materials.

We need staff well prepared to deal with the introduction of new technologies in an informed manner, to manage risks and to maximise community benefits. It would seem relevant continuing professional development is now becoming a survival skill rather than just nice-to-have.

Austrroads commissioned a BIS/Oxford Economics report (2018) *Australia and New Zealand Road Capability Analysis 2017-2027*, which indicated that:

- road agencies are already experiencing skills shortages
- the existing roads workforce will be under threat from rising activity in other sectors
- the demand for new or expanded skills will accelerate
- much needs to be done to place our workforce capability on a sustainable path.

There is often a barrier between innovation and implementation, and this barrier can only be bypassed using knowledgeable people. The paper closes with a discussion of our preparedness, and what are our choices.