

Technological disruption and Infrastructure

Innovation and technology tends to be more the focus of venture capital and private equity, rather than infrastructure, but increasingly, infrastructure investors need to be worried about the potential for future technological changes to adversely (or positively) impact their investments.

Infrastructure investors should be focused on technological change, not just because of the current rapid pace of progress, but also because today's infrastructure pricing (with extremely high price multiples). These multiples mean that today's investors, more than previous generations, are attaching high valuations to cash flows that won't be received for decades.

History is littered with historical examples of disruptive technological change impacting infrastructure assets.

Shannon Airport, in Ireland, with its 3,200 metre runway, was the busiest airport in Europe in the 1950s and 1960s. The concept of duty free shopping – a major profit centre for Australian airports – was 'invented' at Shannon. However, the invention of the 747 and other longer range aircraft, reduced the need for refuelling stops, and spelt the end of Shannon's commercial standing as the primary gateway to Europe for transatlantic travel.

Canals in the 18th and 19th centuries were a major part of inland transport infrastructure for the UK, Europe and US. They are another example of infrastructure laid waste by technological progress. Canals used to be one of the dominant transport modes, but now, with the exception of the Panama and Suez Canals, have largely been relegated to economic irrelevance.

While the monopoly characteristics of these assets would have appeared strong at their peak – this would have been of little comfort as competition from new technologies sentenced them to long-term decline.

Today's infrastructure investors need to keep a weather eye for potential technological disruption. This isn't easy, as technological progress is not smooth or linear, and spill-overs from new technologies into markets are hard to predict.

I won't try and predict the major technological disruptions of the new next twenty or thirty years – if the last twenty or thirty years are anything to go by – there will be changes that we can't possibly conceive. However, here are a few things that I think infrastructure investors should be thinking about:

- Driverless cars. If the rumours about Google testing driverless cars are anything to go by, driverless cars might be mainstream earlier than we think. Driverless cars have the potential to radically reshape traffic patterns and, hence, impact assets such as toll-roads. However, in my view the more significant impact will be on carparks. If you can park your car at home for free (and, what's more that's the natural time for it to recharge its battery from your roof-top solar panels!) why would you pay to park at work or the airport? For airports, car parking is a very significant source of returns.
- Cheap batteries. Cheap batteries have the potential to transform electricity networks as we know them (discussed in detail below). Rather than needing to generate electricity when it is demanded, electricity from cheap (and environmentally friendly) sources such as solar and wind could be stored for later use. Batteries have the potential to transform how energy, both for home/business/industrial use as well as for transportation, is sourced. This has extremely widespread potential implications – think of the scale of the supply chains built around the coal, oil and gas industries. If cheap batteries trigger a further shift to renewable energy this will impact ports, pipelines, storage facilities as well as electricity transmission and distribution networks.
- Telecommuting. A substantial proportion of the workforce work in offices. This necessitates substantial public and private transport infrastructure to move people to and from CBD offices each day. It also underpins the value of inner city real estate (as people highly value the time saved on commuting). If people were able to productively work remotely, there would be significant time and cost savings. However, a wholesale shift to



telecommuting would have substantial impacts on many infrastructure assets where value is dependent on commuter activity, business travel, or whose value is underpinned by land.

The speed and extent of the above changes is impossible to predict. But for investors that attach substantial value to cash flows decades from now, they are impossible to ignore