

Mega Cities - Pushing the Boundaries of Industry

As the population of many nations continues to grow, top urban centres are becoming more densely inhabited. This spiked concentration has created megacities across the globe, and more are on their way.

Australia will soon see megacities of its own: urban areas exceeding 10 million inhabitants. By the middle of the century, it is expected that the population of all Australia's major cities will have doubled. Melbourne will be the first to reach megacity status at this point, while Sydney will be the country's second-largest city, with about 8 million residents.

How will Megacity Infrastructure Impact Australian Industries?

Infrastructure in megacities must be specifically designed to serve massive numbers of people and work within a more technologically advanced society. It must be bigger, smarter, and more complex than what can currently be found in Australia's major cities.

This means that as these cities grow, a large number of upgrades will need to take place, creating projects and labour demand throughout many industries.

Transportation

The transportation infrastructure in megacities needs to be able to support a large number of people and automobiles. Some of Australia's capitals are already expanding their roads, railways, and public transport systems to do just that. The Sydney light rail expansion and the WestConnex highway project are prime examples.

Such developments are creating a major opportunity for the rail industry, as megacities are highly dependent on public transport. Not only will rail lines expand, but the very nature of rail travel will also be more advanced.

Hyperspeed Trains

Virgin Hyperloop One has proposed the development of a hyperloop train connection from Sydney to Melbourne, a project worth \$40 billion. The driverless hyperloop pods will float above tracks via magnetic levitation and move at speeds up to 1080 kilometres per hour.

These hyperspeed trains will make it easier for workers to comfortably commute from further than ever before. Passengers traveling between Sydney and Melbourne will be able to make the trip in just 55 minutes.

Connecting Megaregions

Hyperspeed rail lines and other advanced forms of public transport could prove extremely useful if Australia's development results in the formation of megaregions: urbanized areas that stretch over more than one metropolitan city.

Workers will be commuting throughout these massive zones, and public transport options will be critical for minimising roadway congestion.

The Future of Freight

Megacities don't just have more people, they also have more businesses and industrial facilities. This means that transportation infrastructure will need to accommodate a high volume of freight moving in and out of the cities as well. To relieve strain on roads and passenger railways, megacities may develop alternative routes dedicated to cargo shipments, such as underground rail lines.

Energy and Environment

Bigger cities have bigger energy needs. This means that the capacity of energy infrastructure will need to expand majorly. But with concerns about environmental responsibility, megacities will need to make sure that their energy systems are sustainable and efficient.

New Energy Sources

Today's forward-thinking cities are already making an effort to phase out use of fossil fuels by leveraging new forms of energy. These include:

- Solar power
- Hydropower
- Hydrogen
- Algae fuel
- Liquefied natural gas (LNG)



Megacities will require the construction of systems that can convert, gather, and store these new power sources. Additionally, they'll require new types of transportation methods and distribution networks to be created.

Maximising Water Efficiency

Megacities need massive amounts of water to supply 10 million+ citizens, but in the age of global warming, water will be more precious than ever. Australia's largest cities will need to be capable of sustainably collecting, treating, and recycling their own water.

More water treatment plants will be needed, and local architecture will need to incorporate features that enable harvesting and reuse of stormwater and wastewater.

Getting Smart to go Green

Because megacities are so interconnected, "smart" tech systems can easily be integrated into local infrastructure. These can be used to better manage a city's energy use.

Energy production and supply can be controlled by monitoring a city's demand in real-time. Buildings with smart management systems will be able to use only the energy they need by using sensors to automatically control things like lighting and temperature.

Healthcare and Education

The populations of tomorrow's megacities won't just be larger, they will also have different demographics. By the middle of this century, Australia will have twice as many seniors as it does today, and a smaller proportion of younger people. This will have a big impact on both healthcare and education.



Keeping Millions Healthy

Megacity hospitals will be expected to service more people, and far more of those patients will be at an age where health problems are common.

To keep up, these hospitals will need smart tech systems and best-in-industry tools. Innovations like cutting edge medical imaging systems, health tracking devices, and even surgery-performing robots will all be a part of megacity healthcare. The manufacturing sector will be counted on to produce products that save lives and lengthen lifespans.

Skill-Driven Education

A megacity's growing dependence on technology means that STEM skills (science, technology, engineering, and mathematics) will be highly valued in the job market. Educators will need to help youths develop these skills and prepare them to work with computers, robots, automated machinery, and other advanced tools.

An education system that creates workers fit for the most in-demand roles will be essential for a megacity to thrive. Because of the lower number of working-age citizens in the future, employers will be fiercely competing for qualified talent. This trend can already be seen in Australia's current trades sector, where engineers and other technically-skilled professionals are commanding high salaries and generous benefits.

Construction and Development

The high population of megacities creates a strong demand for high-density housing. In order to meet this demand, cities will need to redevelop their residential infrastructure to hold a higher capacity. Consequently, growing megacities will have an abundance of construction and development projects.

Building Innovation

Manufacturing advancements are already bringing us more efficient ways of building. With prefabrication and modularised components, construction projects can be completed faster and more affordably. This advantage will be essential to megacity building endeavors.

Also a must for megacity construction will be Building Information Modelling (BIM) software. Such programs are becoming increasingly relied upon for construction planning, as they help architects design buildings that are more energy efficient, optimally functional, and in sync with their surrounding environments.

As science, technology, and manufacturing methods progress, innovations within the construction sector will only continue to accelerate.

The Green Niche

The priority on sustainability and energy efficiency within megacities will result in a greater demand for sustainable building materials and green building practices. Manufacturers and contractors that specialise in this area will have an abundance of business.

Communication

Communication infrastructure will need to be fortified and expanded as Australia's capitals expand into megacities. It will need to be able to sustain smart tech systems that are integrated throughout cities, and support internet usage by millions of private citizens and businesses.

Increasing Access

For megacities to thrive, strong internet access will need to be expanded to reach people who are living outside of megacities, within megaregions and beyond.

The nature of work is changing so that many professionals no longer have to physically commute to work, but can instead work from home if they have an adequate internet connection. Countless employers located within megacities will have employees who work remotely, and they will depend upon robust, widespread communications infrastructure to facilitate their productivity.

Preparing for Tomorrow's Megacities, Today

As places where both workers and business are present in staggering numbers, Australia's megacities will be hotspots of economic productivity. Many industries are poised to benefit, and demand will increase for a variety of skilled workers.

Megacities will need qualified talent to plan, build, maintain, and manage their complex infrastructure. From construction supervisors to mechanical technicians and civil engineers, many professions within the trades sector will be in great demand.

Additionally, megacities will have a major need for the production of innovative products and materials. Those who work in manufacturing will find themselves at the helm of many exciting projects that will help megacities grow more advanced.

Australia's capitals are already preparing for their growth into megacities. Therefore, many of these opportunities are already available. Professionals with the right skills can find careers that will be promising even decades from now.

Core Talent:

T: (02) 8203 5499

E: gary.montgomery@coretalent.com.au

W: www.coretalent.com.au