

ROBOTICS MARKETS TO REACH \$63 BILLION BY 2020

In the final part of this Rotacaster mini-series, we focus on automation and robotics and the changing face of manufacturing in Australia ...

Robots are moving out of the cage and into our homes and workplaces, working side-by-side with people as manufactures and companies continue to focus on automation and robotics.

The industrial robotics market is set to grow at 6.9 percent CAGR to \$44.4 billion by 2020, whilst the service robotics market is set to grow at 21.5 percent CAGR to \$19.4 billion over the same period.

Currently robots fall into two categories, the lighter mobile service robots that are used for simple functions and smart interactive electronic pedestals, or larger stationary



industrial robots with complex physical task capability with little or no mobility.

Rarely are we seeing them with both. While service robots move into our homes and workplaces functioning side by side with people their ability to undertake even the most complex of tasks is becoming commercially viable for both consumer and business landscapes.

A great example of this is ReThinks' "Baxter" robot. This robot represents a big step forward in affordable technology, which can work with people without risk of injury. He can already memorise a broad range of tasks. However, imagine if Baxter could also move about with the same care and finesse as a person, undertaking different tasks in different locations within your workspace?

This is becoming a reality as Clearpath Robotics announces they will be collaborating with Rethink Robotics to provide Baxter with multi directional mobility solutions reinforcing that mobility is now a focus in the robotics industry.

Automated Guided Vehicles (AGVs) are another good example of manufacturing



adopting automated applications to consistently and predictably transport loads to locations that might otherwise be serviced by lift trucks, conveyors or manual cart transport.

AGVs are getting more prominent as the need to reduce variances found in human delivery operations increases.

According to Transparency Market Research (Global Mobile Robotics Market Industry Analysis), mobility promises to be the next frontier in flexible robotics.

Kuka Robots believes unlimited freedom is key if we are to bridge the gap between today's industrial robots and tomorrow's service robots. (KUKA youBot – promoting corporate science and teaching)

While we can actually replicate much of human mobility most activity within the home and workplace is undertaken on level surfaces making this technology beyond the need of most enterprises.

The current approach to horizontal mobility is to use fixed drive wheels and swivel castors. Although this can be effective on light or less complex robots the inability to move directly sideways or diagonally without rotating limits the use of swivel castors.

Autonomous 360° capability and fluid mobility similar to that of a human will be an essential element in allowing larger more sophisticated robots to work freely and interactively amongst people.

Until more recently the ride quality and load capacity of these types of wheels had failed to provide a viable solution for heavier more complex robots.

Rotacaster Wheel has developed a floor capable omni-wheel and German company Kuka has been doing some amazing things using Mecanum wheels, both opening the door to full 360° mobility for both

industrial and service robotics. These could well be the enablers to this next wave of robotic mobility.

Mecanum wheels are currently more capable of extremely heavy loads, Omni-wheels provide greater flexibility in application as they can both emulate the functionality of a mecanum wheel, while acting independently providing a direct alternative to the swivel caster and ball transfer units offering true freedom in horizontal multi directional movement.

Rotacaster Wheel has recently achieved success internationally with their selection to provide wheels for Festos' Robotino (Germany), Zuta Labs' Robotic Printer (Israel) and Esclatecs' Estel Wheel Chair (Spain).

"It was obvious in the number of AGV manufacturers exhibiting at Promat and Automate 2015 compared to past years, the potential for growth in this sector alone, and the importance of autonomous mobility for robots. This is going to be an exciting space to watch," said Rotacasters' CEO Peter McKinnon.

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