

Advanced technology – the key to industry transformation

By Bruce Kohn

Advanced technologies embracing the latest global digital platforms and devices hold the key to the transformation of manufacturing that both the Government and the NZ Manufacturing Alliance are calling for in this era of the Covid pandemic.

Their importance to growth of the sector that makes up 11% of the economy and employs 10% of the workforce is emphasised by the adoption of Industry 4.0 as a mantra of the World Economic Forum, a concept based on adoption of new-wave technologies to spark economic growth.

The aim is to lift productivity in manufacturing and at the same time raise profitability through lower-cost structures on the assumption that in the post-Covid world, constraints on margin pricing to consumers will be extreme.

Support for the concept within New Zealand is reflected in decisions by the Employers and Manufacturers Association (EMA), the Callaghan Institute and BRANZ to explore means of encouraging the business community to make maximum early use of these technologies.

The coverage of these technologies can be split into three categories:

Operation

The planning and execution of processes which lead to the production of goods and services, with the end goal of converting raw materials and labour into goods and services at the lowest cost.

Supply chain

The planning and management of

raw materials and inventory for a company's goods and services, all the way from the point of origin to the point of consumption.

Product lifecycle

The sequence of stages that every product goes through, from conceptualisation to its eventual removal from the market, with these stages ranging from design, engineering and manufacturing to customer use, service and disposal.

Achieving economic growth

Relevant in a New Zealand context is that analytical technology necessary to implement efficiency shortcomings identified through specialised business monitoring programmes is now available at affordable levels. The often-heard 20th century complaint that use of the most advanced technology is unaffordable relative to the comparatively small scale of the New Zealand market has little relevance.

The contribution it can make to lift productivity, streamline processes and improve the efficiency of logistics operations is seen by many business leaders as a crucial element for achieving economic growth.

The following quotes sum up opinions on New Zealand productivity before responses to Covid-19 were inflicted on the nation's economy. Prime Minister Jacinda

The contribution that analytical technology can make to improve the efficiency of logistics operations is seen as a crucial element for achieving economic growth

Ardern: "New Zealand has a productivity problem. It is a handbrake on the economy and we need to fix it." Former Air New Zealand chief executive Christopher Luxon: "New Zealand needs to tackle its productivity disease." Shamubeel Eaqub, economist: "Poor productivity has plagued New Zealand for 40 years."

These opinions take on even more significance against the background of the billions of dollars of national debt now being accumulated to deal with social, employment and business viability issues.

Supply chain productivity

Manufacturing's contribution to GDP in 2017 at 12% was down 1% on a decade earlier. Its productivity growth between 2005 and 2015 was only 0.2% compared with the country's average gain of 1%. Employment in the sector was 241,000, up nearly 20,000. Significant, however, was that while these employees earned on average some 15% more than employees in other sectors, they worked the highest average hours per week to achieve it.

International studies and experience come into play. Research by global IT companies shows that companies which focus on improving their supply chain productivity outperform their competitors with a 50% average cost advantage. The reason is that supply chain costs are one of the largest costs in profit and loss assessments.

For manufacturers, the tighter control and efficiency that can be generated by greater use of artificial intelligence (AI) through



Mark Singh, chief executive of Auckland IT company Kaptura

analytics provides for asset optimisation, elimination of losses and greater productivity.

The current buzzword, underlined by global IT research company Gartner, is 'visibility' – instant visibility of business performance enabled by technological advances. Gartner says: "Supply chain visibility has emerged as a key foundational capacity." And the potential productivity gains are not confined to industry – many new applications are as applicable to public service administration.

The role of AI

Mark Singh, chief executive of Auckland IT company Kaptura, which specialises in the supply of advanced supply chain technology, says an example of the efficiency that can be gained through AI is a German product that does analysis of contract procurement bids according to the procurer's set criteria.

The AI system grades those

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AS Colour rolls out new ecommerce solution during lockdown

Despite being caught in the grips of a global pandemic, global clothing designer and manufacturer AS Colour was the first company ever to implement Manhattan Associates' warehouse management solution (WMS) remotely under the Covid-19 lockdown.

AS Colour designs and manufactures quality basics aimed at consumers, wholesalers and fashion retailers. Its Auckland distribution centre (DC) was unable to operate during the Alert Level 4 lockdown from 25 March to 26 April.

However, along with other retailers across the globe, the company experienced a huge spike in online orders during this time. This motivated them to push forward with their plan to roll out the Manhattan SCALE WMS, as it would ultimately help AS Colour to better manage ecommerce orders in the future once restrictions eased.

"After we were forced into lockdown, more people were heading for the ecommerce space to buy goods. But with many lines of distribution brought to a halt in New Zealand, we saw an overflow of orders once restrictions eased,

which put a lot of pressure on our DC to catch up," says Lawrence Railton, managing director and founder of AS Colour. "This fluctuation in ecommerce demand is exactly the type of situation that drew us to implement Manhattan's WMS technology in the first place, as it would prepare us for any future shifts in the market."

Mr Railton says they wanted their warehouse system to have the flexibility and agility necessary to adapt and grow alongside their business, which was the defining factor in choosing Manhattan for this project. "When rolling out the new system, we really had to use remote working to our advantage, which in the end allowed us to launch the new system two weeks ahead of schedule and save plenty of money on travel and overheads in the process.

"Even under remote conditions,

Manhattan's expertise, motivation, and ongoing support ensured that the project was running smoothly, and that any issues were resolved quickly and efficiently," he adds.

Meeting changes in demand

In lieu of the usual in-person deployment processes, AS Colour worked remotely with Manhattan Associates to successfully design, implement and deploy the Manhattan SCALE WMS. Manhattan SCALE is an advanced system designed to optimise operations by boosting warehouse productivity and employee engagement, as well as meeting changes in demand across all types of distribution, including ecommerce.

"We were thrilled to see how well this project turned out for AS Colour, which is reflective of their decision to

prioritise business innovation, even during a pandemic," says Raghav Sibal, managing director, Australia and New Zealand, for Manhattan Associates.

"The ever-changing nature of ecommerce and consumer demands means that businesses need to have agility and scalability built into their systems and processes in order to seize new opportunities while still maintaining operational efficiencies. This is something our WMS works to achieve by being designed to meet consumer demands, now and into the future."

With four other DCs globally, AS Colour plans to implement Manhattan SCALE to all other facilities in the future, the first being its new 18,000 sq m facility in Melbourne, which is set to go live and begin receiving inventory by mid-October.

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which meet requirements and those which do not. For public service entities and major companies with large procurement budgets, analysis of bids, especially those that are complex and complicated, may be reduced to hours, not days. It is in use by such global giants as Airbus and Audi.

Recent research surveys in the US and Europe have shown that priorities for industry investment are warehouse automation, predictive analytics, the Internet of Things (IoT) and cloud logistics.

Warehouse automation gets the lead position in advantages that can be gained from AI technology because of its use in cutting delivery times and improving

overall margins. Analytics and cloud logistics are the technologies that can readily integrate into efforts to achieve best results from supply chain automation.

Among the latter is a featherlight glove scanner which enables warehouse workers that are picking, packing, storing and shipping to give instant readouts to a central management of the work they are doing and items they are dealing with – product, packaging, storage and movement. Manual pencil and paper recording are done away with.

Product tracking and temperature control on land, sea and air transport have become increasingly sophisticated with bluetooth, sensors and GPS combining to

offer exporters and importers 'smart tech' to monitor their freight consignments. A telepresence robot provides security monitoring of business premises and reduces offshore travel through personal interaction with clients and offshore offices.

Working smarter, not harder

The final words go to BNZ economist Paul Conway, who says: "New Zealand's key economic challenge is to move from a model

of economic development based on 'working harder' to one based on 'working smarter'. This would not only deliver improvements in incomes and work-life balance, but it is also essential to our efforts to combat climate change.

"Rebuilding large swathes of our economy following the pandemic and adjusting to virtually no inward migration means that now is the time to seriously advance this agenda. Digital technologies have a key role to play in this transition."



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