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Executive Summary

The retail industry is undergoing an unprecedented technological transformation. Automation has progressed from a competitive advantage to a business necessity, with the global retail automation market projected to reach a value of \$US 44.3 billion by 2029, growing almost 10% annually.¹ Driven by recent advancements in AI, the automation levels of the retail sector could grow from 40% today to up to 65% in the next four years.²

Using case studies from the Australian retail landscape, this essay examines how supply chain automation has evolved and how cost and productivity savings can be reinvested for further growth.

The following points will be emphasised:

1. Since the COVID-19 pandemic, retail automation has skyrocketed, delivering both financial and non-financial benefits
2. Rapid technology advancements, including artificial intelligence, have created new frontiers for retail automation
3. Freed labour from automation must be redeployed to strategic areas
4. Operational cost improvements should be reinvested into customer value

The discussion concludes that retailers and suppliers must utilise the correct automation solutions for their business needs while ensuring workforce transformation and customer experience remain paramount.

¹ <https://www.globenewswire.com/news-release/2024/10/23/2967822/0/en/Retail-Automation-Market-Size-Share-Growth-Analysis-Trends-Driving-Industry-Expansion.html>

² <https://www.precedenceresearch.com/retail-automation-market>

How Automation Is Transforming Australian Retail Through Improved Financial, Sustainability, and Safety Outcomes

The retail landscape underwent a drastic shift when COVID-19 lockdowns expedited online shopping, reminding brands of the critical importance of D2C channels. On another front, rising labour costs intensified the pressure on retailers to improve their profit margins. In response, the industry turned to robotic fulfillment centres, which allow businesses to keep up with e-commerce demands through improved productivity while lowering costs.

Woolworths is an outstanding example, emerging as the leading supermarket during the pandemic. Since 2018, they have invested almost \$AU 1 billion in omnichannel stores and automation,³ with last year's results reporting 15% of sales being made online, a massive increase from 5% in 2008.⁴

Analysts predict that automating a fulfilment centre can reduce costs by about 60% and improve efficiency in 70% of routine tasks.⁵ One effective approach to achieving this is by incorporating Automated Guided Vehicles (AGVs) into operations, as seen in Figure 1 below.

Figure 1: An AGV in action at Amazon Australia's Kemps Creek automated facility⁶



AGVs reduce the space required in a warehouse to pick inventory, while being faster, more resilient, and flexible than human labour. This increases speed and efficiency in warehouse operations, such as storing inventory and picking and

³ <https://www.woolworthsgroup.com.au/au/en/our-newsroom/latest-news/2021/woolworths-group-starts-build-of-next-generation-supply-chain-hub-at-moorebank.html>

⁴ https://www.accc.gov.au/system/files/Woolworths_Final.pdf

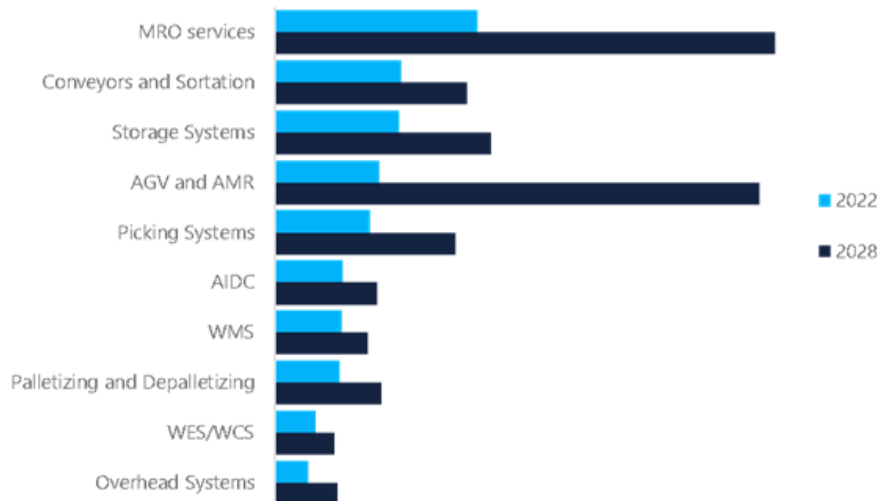
⁵ <https://www.morganstanley.com/ideas/retail-technology-trends-2024>

⁶ <https://www.smh.com.au/business/companies/amazon-s-robot-army-is-headed-to-melbourne-20230808-p5dups.html>

packing orders for delivery. For smaller businesses, AGVs can even be rented on a per-unit-per-period basis, unlocking cost consistency and predictability.

AGVs are one of the fastest growing examples of warehouse automation technology, along with maintenance, repair and operations (MRO) services and conveyor and storage systems. Figure 2 shows how AGVs are expected to grow, along with other warehouse automation technologies, by 2028.

Figure 2: Global Warehouse Automation Growth by Technology⁷



In Australia, there has been an industry-wide rush in the retail sector to adopt technology to automate warehouse operations for both financial and non-financial benefits. For example:

- Mars Wrigley partnered with Toll to build a distribution centre (DC) in Melbourne's west, equipped with 17 AGVs. The robotics system allows for an additional 31,000 pallet spaces (or over 700 million Mars bars).⁸
- Officeworks' Derrimut semi-automated customer fulfillment centre increased productivity by 30% and throughput capacity by over 100%.⁹
- Arnott's Group opened a \$AU 65 million automated DC in Western Sydney, which now houses almost four times its previous capacity. The DC is also fitted with 2,464 solar panels, generating 1,500 GWh of renewable energy to reduce its carbon footprint.¹⁰
- Coca-Cola Europacific Partners invested \$AU 17.4 million into an automated storage and retrieval system which opened up 12,000 additional pallet spaces in its Mentone DC. Combined with their other automated production line

⁷ <https://www.researchandmarkets.com/reports/5174357/warehouse-automation-market-by-technology>

⁸ <https://supplychainchannel.co/toll-and-mars-open-automated-dc-in-truganina-featuring-driverless-forklifts/>

⁹ <https://www.afr.com/companies/retail/retailers-lead-the-way-on-productivity-push-20230607-p5deoy>

¹⁰ <https://www.australianmanufacturing.com.au/arnotts-group-opens-65-million-automated-distribution-centre-in-western-sydney/>

infrastructure in Moorabbin, it allows them to cut their annual CO2 emissions by 830 tonnes.¹¹

Automation also drives non-financial targets relating to sustainability, carbon reductions and improved safety. Amazon, usually seen at the forefront of retail robotic innovation, accounts for safety incident metrics when measuring the success of automation. They reported 15% lower incident rates at robotic sites versus sites that didn't utilise the technology, due to decreased human error.¹²

The importance of safety improvements is a view that's shared widely in the industry. A survey of industrial robotic leaders showed that 86% believe automation will positively impact workplace safety as it evolves.¹³

As well as incident reduction, a safer environment lowers the risk of employee malaise and turnover. 90% of workers using automation reported higher job satisfaction, and 80% found more time to deepen relationships with customers and other stakeholders.¹⁴ This shows that automation can not only protect workers but also transform their roles from repetitive tasks to higher-value interactions.

However, while automation delivers a range of benefits, it does incur high upfront costs and has a high failure rate. For example, Australian retailer Booktopia invested in a \$AU 12 million robotic warehouse facility, initially forecasting distribution improvements. Even after completing the new facility, the company suffered a 22% revenue fall in the first half of FY2023.¹⁵ Their shift to an automated model actually reduced inventory levels, resulting in longer delivery times and unhappy customers.¹⁶

This underscores that businesses looking to explore warehouse automation must find the right solution to fit their objective. They must also consider seeking out an experienced partner who can focus on delivering a custom solution rather than automating for automation's sake.

The Digital Evolution of Retail Automation

A common misconception is that supply-chain automation is merely warehouse infrastructure. Modern automation, however, extends beyond physical systems to encompass software solutions and digitised manual processes. The impact can be

¹¹ <https://www.cocacolaep.com/au/news-and-stories/ccep-reveals-state-of-the-art-can-line-in-victoria-to-boost-manufacturing-in-southern-states/>

¹² <https://www.aboutamazon.com/news/operations/amazon-introduces-new-robotics-solutions>

¹³ <https://www.mckinsey.com/industries/industrials-and-electronics/our-insights/unlocking-the-industrial-potential-of-robotics-and-automation>

¹⁴ <https://hbr.org/sponsored/2023/04/how-automation-drives-business-growth-and-efficiency>

¹⁵ <https://www.itnews.com.au/news/booktopia-in-administration-after-troubled-automated-warehouse-move-609381>

¹⁶ <https://powerretail.com.au/booktopia-hits-record-low/>

substantial. Implementing an AI demand forecasting solution can lean out inventory levels by 20-30%, thus improving free cashflow and warehouse capacity by 7-15%.¹⁷

Standout examples of digital automation in Australia include:

- Kmart is using robots and Radio-Frequency Identification (RFID) technology to count inventory 10 times faster, improving inventory accuracy.¹⁸
- Arnott's Group, Asahi Beverages, Kellogg's, and several other retail giants use AI-driven demand forecasting and trade promotion optimisation, automating scenarios and saving time on revenue management.¹⁹
- IKEA use a "demand sensing" AI forecasting tool and machine learning to improve stock integrity, allowing a leaner warehouse and improved availability. This has maximised customer purchasing potential and reduced operational costs.²⁰
- Woolworths uses an automated staff rostering system, RT3 (right team, right task, right time), to ensure labour is efficient yet lean.²¹

While these examples demonstrate successful automation adoption in Australian retail, this represents a beginning of enormous innovation. Generative AI particularly will spur further advancements.

Glimpses of the future of Australian retail automation can be found overseas. Amazon's planned expansion of drone-based fulfillment to northern England, promising deliveries in 60 minutes or less, highlights the direction of innovation.²²

Figure 3: A package being loaded into one of Amazon's automated delivery drones²³



¹⁷ <https://www.mckinsey.com/industries/industrials-and-electronics/our-insights/distribution-blog/harnessing-the-power-of-ai-in-distribution-operations>

¹⁸ <https://www.afr.com/companies/retail/retailers-lead-the-way-on-productivity-push-20230607-p5deoy>

¹⁹ <https://www.complexica.com/software/decision-cloud>

²⁰ <https://assets.kpmg.com/content/dam/kpmg/au/pdf/2024/australian-retail-outlook-2024.pdf#page=40>

²¹ <https://www.afr.com/companies/retail/retailers-lead-the-way-on-productivity-push-20230607-p5deoy>

²² <https://www.aboutamazon.com/news/transportation/amazon-first-drone-delivery-uk-prime-air-location>

²³ <https://www.aboutamazon.com/news/transportation/amazon-drone-delivery-photos>

Last-mile delivery will likely remain a focal point for technological advancement, particularly given Australia's unique geographic challenges. The country's vast size and sparse population outside of metro areas creates high variable costs. However, companies with limited financial resources and lower risk tolerance must prioritise enhancing their existing omnichannel fulfillment systems through emerging AI and data processing technologies.

Significant capital investment isn't always required. Even more accessible, low-code options, such as an Application Programming Interface (API), can help retail businesses automate simple supply chain tasks. APIs can help streamline operational activities like raising purchase orders, creating contracts, and tracking merchandise.

While more than two-thirds of enterprises have adopted low-code options to improve their supply chains, the remaining third still has a significant opportunity for improvement.²⁴

Workforce Transformation and Redeployment

Automation has helped many Australian companies to improve profits, workforce efficiency and productivity, safety and sustainability. However, automation is no longer a competitive edge but a baseline to succeed in today's retail landscape. Companies that transform the benefits of automation into long-term strategic advantages will shape the success stories of the future.

One of the ways companies can do this is by using automation to free up staff to focus on high-value tasks. Bunnings exemplifies this, having used stock replenishment technology to save and redeploy 2.4 million hours of staff time since 2020.²⁵

It's also worth noting that companies require skilled employees to operate automation technology. Businesses face a choice between retraining staff on a new expertise or hiring external talent. Research from McKinsey notes the former costs less than 10% of their annual salary, while replacing staff with an automation-proficient external hire can cost 20-30%.²⁶

The reinvestment is worthwhile, as it demonstrates commitment to people, not just technology. Fostering career development for staff to become champions of automation drive more efficiency, as workers encouraged to invent and simplify will identify further opportunities to automate. The result is a virtuous cycle of innovation.

²⁴ <https://kpmg.com/xx/en/our-insights/ai-and-technology/supply-chain-trends-2024.html>

²⁵ <https://company-announcements.afr.com/asx/wes/b9abb2c7-fe6d-11ed-b1c2-c23e55714225.pdf>

²⁶ <https://www.mckinsey.com/industries/retail/our-insights/automation-in-retail-an-executive-overview-for-getting-ready/>

While not everyone can transition to advanced projects, staff can still add value in key business areas. Last mile is a prime example of strategic redeployment, where customers often use AI assistants to check order status. 49% of Australian consumers are frustrated by ineffective smart chatbots,²⁷ and 53% of customers expressed they would switch in favour of competitors that don't use AI for customer service.²⁸ Businesses can protect customer loyalty while enhancing employee satisfaction by moving menial labour into meaningful interactions.

Reinvest in Customer Value

Automation is clearly valuable for businesses. But how can it benefit consumers?

Customer sensitivity to million-dollar corporate profits has never been higher, as seen by the ACCC's inquiry into the grocery sector. With 83% of Australians feeling the cost-of-living pressures,²⁹ companies must direct operational savings into customer value or risk losing consumer trust. This matters even more now, as online shoppers have access to transparent price comparison tools.

Industry leaders are already demonstrating this customer-obsessed approach:

- IKEA reinvested \$125 million from automation gains to reduce prices across 3,000 products, offering customers discounts up to 20%. This saw unit sales increase by 23% in 2024 as a direct result.³⁰
- Metcash's IGA endorsed a maximum pricing standard across three states,³¹ reported the same day as the opening of their new \$AU 300 million Melbourne automated distribution centre.³²
- Coca-Cola European Partners has been marking products with recommended prices since the pandemic lockdowns, aiming to help retailers support customers suffering from CPI pressures.³³

Not every retailer will want to pursue lowering prices, but they can create customer value through personalised experiences. Modern loyalty programs provide bespoke promotional offers, with 49% of Australian consumers preferring to shop where they are presented a tailored experience, and 40% of consumers purchasing more.³⁴ As

²⁷ <https://retailtechnnovationhub.com/home/2024/7/18/ey-research-consumers-return-to-stores-for-personal-service-even-as-retail-technology-boosts-online-shopping>

²⁸ <https://www.gartner.com/en/newsroom/press-releases/2024-07-09-gartner-survey-finds-64-percent-of-customers-would-prefer-that-companies-didnt-use-ai-for-customer-service>

²⁹ <https://www.accc.gov.au/system/files/supermarkets-inquiry-2024-2025-interim-report.pdf> page 30

³⁰ <https://www.ikea.com/au/en/newsroom/corporate-news/ikea-australia-sees-visitation-increase-to-stores-and-online-and-51-3-million-profit-in-fy24-pub8b505030/#:~:text=In%20FY24%2C%20IKEA%20Australia%20achieved,more%20visitors%20to%20IKEA%20Australia>

³¹ <https://www.greatlakesadvocate.com.au/story/8819362/iga-talks-shop-over-cheaper-prices-at-supermarket-probe/>

³² <https://bigrigs.com.au/2024/11/14/iga-supplier-opens-new-300m-distribution-centre-in-melbourne/>

³³ <https://www.betterretailing.com/coca-cola-reduces-rpps-across-price-marked-range/>

³⁴ <https://ecommercenews.com.au/story/new-report-finds-49-of-aussies-prefer-personalised-shopping>

brick-and-mortar stores already automate pricing using electronic shelf labels, soon smart analytics will automate promotional offers.

Retailers can leverage the valuable insights beyond automated bespoke promotions. Sharing the data with suppliers can help evolve branding, product development, and even schedule manufacturing for a win-win. Collaborating will minimise common pitfalls including waste and margin erosion, while driving conversion through improved products and customer value.

Conclusion

With Australian companies already implementing a mixture of robotic infrastructure and automation software, it is no longer a question of if and how to automate the supply chain, but rather how best to maximise both financial and non-financial benefits.

Success stories across the industry highlight three critical lessons. First, automation must be implemented thoughtfully, with clear goals and experienced partners to avoid costly missteps. Second, the human element remains crucial, and companies that invest in workforce transformation and labour redeployment see better results than those focused solely on technology. Finally, the true power of automation emerges when efficiency gains are reinvested into customer value, whether through competitive pricing or enhanced shopping experiences.

As AI and emerging technology advances, Australian retailers and suppliers will face opportunities and challenges. The organisations that will thrive will automate holistically, balancing innovation and employee development while ensuring customers are still centric to their strategy.

Automation is not just a tool for efficiency, but a catalyst for endless transformation.