



# ROBOTICS

## Rise of drones and unmanned aerial vehicles

*The robotics and unmanned aerial vehicle (UAV) sectors have witnessed remarkable ADVANCEMENTS in recent years, REVOLUTIONISING INDUSTRIES ranging from manufacturing to healthcare, agriculture, and beyond. This report provides a comprehensive overview of the current landscape, market trends, and emerging technologies shaping the future of robotics and UAVs.*

### IN BRIEF:

- The global robotics market is poised for significant growth, with projected revenue reaching US\$42.82B by 2024. Service robotics is expected to lead, with a forecasted revenue of US\$33.50B in the same year.
- The Australian robotics market is projected to reach AU\$1.012 billion in revenue by 2024. Within this sector, service robotics is expected to lead, with an anticipated market volume of AU\$884.50 million in 2024. The market is forecasted to grow at an annual rate (CAGR 2024-2028) of 2.18%, resulting in a market volume of AU\$1.103 billion by 2028.
- Australia's robotics industry has carved a niche in automation tailored for both "factory" and "field" applications, particularly in sectors such as mining, construction, and agriculture & forestry.
- Drones and robotics technologies are expanding their applications in healthcare and energy sectors.

<sup>1</sup>The global robotics market is poised for substantial growth, with projected revenue reaching US\$42.82 billion by 2024. Service robotics is expected to lead the market, forecasted to reach US\$33.50 billion in the same year. This segment is anticipated to maintain a steady annual growth rate, with a Compound Annual Growth Rate (CAGR) of 11.25% from 2024 to 2028, resulting in a market volume of US\$65.59 billion by 2028.

<sup>2</sup>In terms of regional comparisons, the United States is expected to lead in revenue generation, with an estimated value of US\$7.84 billion in 2024. Globally, countries are increasingly investing in robotics technologies to boost productivity and efficiency across various industries, highlighting the growing significance of robotics in shaping the future of automation and innovation.

The robotics sector has experienced a surge in investments driven by heightened demand. According to the International Federation of Robotics, this increased demand can be attributed to investments in new car production facilities and the modernisation of industrial facilities.

These investments reflect a growing recognition of the value and potential of robotics in enhancing manufacturing processes and driving efficiency across industries.

“All uncrewed industries – from robotics to UAVs – remain tied to much human intervention. The key to scaling all these uncrewed verticals is to remove the human aspect as much as possible. This is where the massive efficiencies kick in. Typically, removing human intervention supports the safety of the industries as well.” states Yoav Amitai, CEO of Elsieht.

<sup>3</sup>The Asia-Pacific region is expected to command a substantial market share, primarily driven by the widespread adoption of robotics. Specifically, countries like South Korea and China are leading in the adoption of robotics, fuelled by their substantial electronic and automotive manufacturing industries.

This deployment underscores the pivotal role of robotics in enhancing manufacturing processes and driving innovation across key sectors in the region.

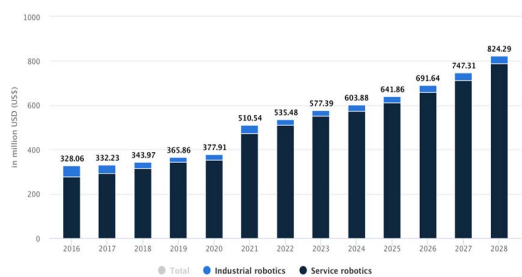


EXHIBIT 1 - THE ROBOTICS MARKET AS OF 2023  
REVENUE BY SEGMENT FOR AUSTRALIA

Australia’s robotics industry has carved a niche in automation tailored for both “factory” and “field” applications, catering to sectors that typically haven’t been served by robotics companies in other regions. According to our findings, the mining sector, which accounts for 29% of Australia’s robotics companies, stands out prominently.

Additionally, the Construction sector and Agriculture & Forestry sectors boast robust representation, with 20% and 19% of robotics companies catering to each respectively.<sup>4</sup>

In Australia, the robotics industry comprises 466 suppliers, with a diverse breakdown of roles: 57% are integrators, 19% are robot manufacturers (including drones), 15% are component suppliers, 7% are distributors, and 3% are advisors.

Aside from the robotics sector itself, the top industries served by these suppliers are metal & machinery (47%), logistics (42%), and food & beverage (30%).

In addition to manufacturing, notable sectors with a strong presence in Australia’s robotics industry include mining (29% of suppliers), energy (24%),

construction (20%), agriculture & forestry (19%), and recycling (17%).

**ROBOTICS IN AUTOMOTIVE (EMERGENCE OF COBOTS)**

<sup>5</sup>A growing necessity in automotive manufacturing revolves around collaborative robots, also known as cobots. With an increasing demand for customised vehicles, car manufacturers are encountering smaller batch sizes, emphasising the importance of swift retooling in manufacturing processes.

Consequently, cobots are gaining prominence in the automotive industry. Unlike traditional robots, cobots can be programmed by individuals without coding expertise, fostering human-machine collaboration for enhanced operational flexibility. This adaptability enables cobots to perform a variety of tasks based on instructions provided by humans, facilitating agile production processes.

While traditional industrial robots have historically dominated the industry, cobots have surged in popularity. In the automotive sector alone, their collective global sales value reached approximately 3.8 billion in 2022.<sup>6</sup>

**“AUSTRALIA’S ROBOTICS INDUSTRY IS LEADING IN SECTORS SUCH AS MINING, CONSTRUCTION, AGRICULTURE & FORESTRY.”**

**ROBOTICS IN HEALTHCARE**

<sup>7</sup>The expansion of the worldwide healthcare robotics market has been propelled by swift technological progress, the aging demographic, heightened surgical activity, and the quest for superior, cost-efficient, minimally invasive treatment.

<sup>8</sup>The size of the Australian Robotic Surgery Service market reached \$51 million in 2022 and is projected to grow at a compound annual growth rate (CAGR) of 20.8% from 2022 to 2030, reaching \$233 million by 2030.

Australia’s increasing health expenditure, attributed to factors like an ageing population and advancements in medical technology, drove this growth. In 2020, the country’s total health expenditure amounted to AUD 183.7 billion, equivalent to 9.5% of its GDP.

<sup>3</sup>Mordor intelligence. (2019). Mordorintelligence.com. <https://www.mordorintelligence.com/industry-reports/robotics-market> EXHIBIT 1 - Statista Market Insights (Revenue by Segment for Australia in the Robotics market as of 2023)  
<sup>4</sup> First overview of Australian robotics industry published. (2023). HowToRobot. <https://howtorobot.com/expert-insight/first-overview-australian-robotics-industry-published>  
<sup>5</sup> Fairchild, M. (2022, February 10). Top Industries Using Robots. HowToRobot. <https://howtorobot.com/expert-insight/top-industries-using-robots> <sup>6</sup> USCCG. (2024, January 17). Robots, Cobots and Their Impact on Automotive Assembly. USC Consulting Group. <sup>7</sup> Future of Healthcare Fund Spotlight Series -April 2022. (n.d.). <https://www.australianunity.com.au> <sup>8</sup> Australia Robotic Surgery Services Market Analysis Report [2022-30]. [www.insights10.com](http://www.insights10.com)

Robot-assisted surgery utilises computer-controlled robotic arms to guide cameras, imaging tools, and miniature surgical instruments. Surgeons control the robot from a console in the operating theatre, akin to a video game, through a master-slave robotic system where the robot responds solely to the surgeon’s commands without autonomous movement.

The advent of 5G internet connection enables remote surgery, allowing surgeons to operate the robot from a separate ‘clean’ room or even from a different hospital, potentially enhancing standard of care across geographies.

The adoption of robotic surgeries in Australia has been steadily rising, positioning the country among the top adopters globally.

<sup>9</sup>The Australian government has undertaken initiatives to support the growth of robotic surgery, including investment in new technologies and training programs for healthcare professionals. These measures are expected to bolster the robotic surgery service market nationwide.

### ROBOTICS IN UNMANNED AERIAL VEHICLES (UAVS)

The Australian government supports the drone industry’s growth with initiatives like the Emerging Aviation Technology Partnerships Program, backed by grants to meet residents’ needs.

“Due to the vast distances between cities, drone flights offer significant benefits, potentially transforming lives by delivering medical supplies, prescriptions, organs for transplant, and inspecting pipelines and mining sites.”states Amitai. “Critical to this transformation is the capability to fly beyond visual line-of-sight (BVLOS), which expands application possibilities. For example, Sphere Drones recently earned BVLOS certification, highlighting this capability’s importance.”

In early 2002, Australia emerged as the pioneer in regulating Unmanned Aerial Vehicles (UAVs). The Civil Aviation Safety Authority (CASA) serves as the principal government body overseeing UAV flight operations in the country.<sup>10</sup>

The regulatory framework for UAVs is delineated in the Civil Aviation Safety Regulations Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019, which outlines the statutory guidelines governing UAV operations.

However, despite the rapid expansion of the drone industry, there is a scarcity of comprehensive reviews outlining the progressive evolution of drones in terms of their capabilities, types, designs, applications, and research domains.

Such reviews are essential for selecting or outfitting drones for specific purposes, understanding their societal impact, and staying informed about ongoing research and advancements in the field.

### AI IN UAVS

In 2023, the industrial robots segment dominated the global market, accounting for 60.51% of the share, while service robots comprised 39.49%.

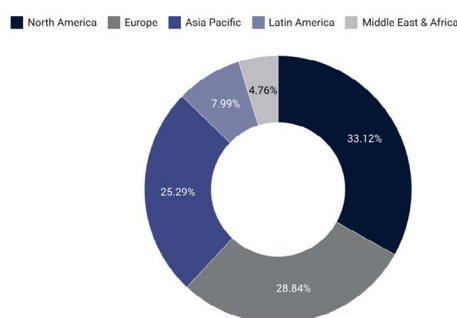
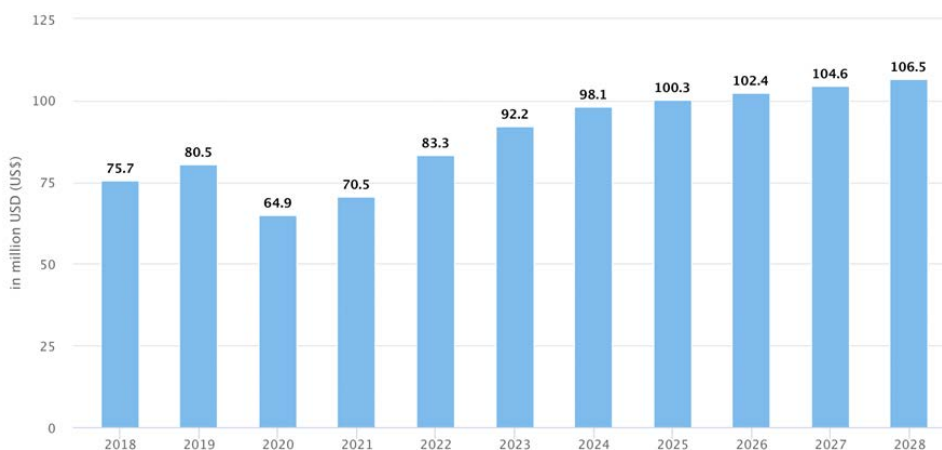


EXHIBIT 3 - ARTIFICIAL INTELLIGENCE (AI) ROBOTS MARKET SHARE, BY REGION, 2023 (%)

### EXHIBIT 2 - REVENUE FOR DRONE MARKET IN AUSTRALIA AS OF 2024



<sup>9</sup> Australia Robotic Surgery Services Market Analysis Report [2022-30]. [www.insights10.com/report/australia-robotic-surgery-services-market-analysis](http://www.insights10.com/report/australia-robotic-surgery-services-market-analysis)

<sup>10</sup> Iryna Heiets, Kuo, Y.-W., La, J., Richard C.K. Yeun, & Wim J.C. Verhagen. (2023). Future Trends in UAV Applications in the Australian Market. MDPI, 10(6), 555-555. <https://doi.org/10.3390/aerospace10060555>

EXHIBIT 2 - Statista Market Insights (Revenue for Drone market in Australia as of 2024)

EXHIBIT 3 - precedentresearch.com (Artificial Intelligence (AI) Robots Market Share, by Region, 2023 (%))

By 2030, activities related to AI and robotics are projected to contribute 26% to the global GDP.<sup>11</sup>

AI in Robotics Statistics reveal that AI-driven robotics technology is expected to generate over 12.5 million jobs globally. By 2025, AI-based retail robots are projected to save 1.2 billion labour hours annually.

Furthermore, by 2030, AI and robotics are anticipated to contribute approximately AU\$24 trillion to the global economy.<sup>12</sup>

AI drone technology, through advancements in artificial intelligence, is fundamentally reshaping the landscape of unmanned aerial operations.<sup>13</sup>

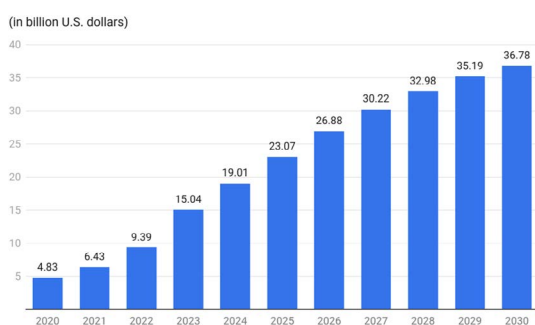


EXHIBIT 4 - GLOBAL MARKET SIZE OF THE ARTIFICIAL INTELLIGENCE (AI) ROBOT MARKET FROM 2020 TO 2030

Sophisticated algorithms now enable drones to autonomously perform a myriad of tasks, transforming them from mere aerial vehicles into intelligent agents capable of decision-making, environmental adaptation, and executing complex missions.

The integration of AI software has significantly expanded drone capabilities, making them pivotal in various industries and applications.

“Continuous connectivity is crucial for high-bandwidth real-time video and telemetry in unmanned systems. This enables their effective use in homeland security, crowd management, disaster response, and first responder applications by providing officials with a comprehensive view of ongoing situations,” said Amitai.

AI algorithms enable drones to operate independently, minimising the need for human intervention. These drones can execute complex tasks, make decisions, and adapt to changing environments without the need for pilots, thereby increasing efficiency and expanding operational capabilities.<sup>14</sup>

Through AI-powered computer vision, sensor data

processing, and object detection, drones gain a comprehensive understanding of their surroundings. They can detect obstacles, recognise objects and people, and respond appropriately, ensuring safe and effective operations.

AI algorithms optimise flight paths, autonomously navigate around obstacles, and prevent collisions even in GPS-denied areas. Advanced technologies such as SLAM (simultaneous localisation and mapping) and reinforcement learning enable drones to explore and map new environments independently.<sup>15</sup>

AI integration allows drones to rapidly process large volumes of data in real-time, facilitating smart decision-making for tasks such as search and rescue, surveillance, and infrastructure inspection. This provides drones with critical real-time analytical capabilities.

## TYPES OF UAVS

### UNMANNED AERIAL VEHICLES

<sup>16</sup>Unmanned Aerial Vehicles are categorised according to various factors like Size, Weight, and Power (SWAP), which encompass metrics such as maximum flight duration, altitude capability, computational performance, and communication range. Likewise, High Altitude Platforms (HAP) offer enhanced and extended communication capabilities with double the payload capacity.

Balancing between these two altitude platforms involves a fundamental trade-off, considering factors like storage capacity and coverage area optimisation.

EXHIBIT 5 - CLASSIFICATION OF UAVS BASED ON WINGS AND ROTORS



UAVs are typically classified based on their aerodynamic design, which determines their flying principle. Heavier UAVs rely on propulsive thrust to achieve flight. They are broadly categorised into two types: rotor and wing.

**Rotor UAVs** utilise multiple rotors and attached

<sup>11 & 12</sup> Elad, B. (2024). AI in Robotics Statistics 2024 By Industry, Robot Type And Market Size. [online] Coolest Gadgets. Available at: <https://www.coolest-gadgets.com/ai-in-robotics-statistics/#>

<sup>13</sup> AI and Drones: Advancements and Applications in Unmanned Aerial Vehicles. [online] visionplatform. Available at: <https://visionplatform.ai/artificial-intelligence-drones/>

<sup>14 & 15</sup> AI in Drones: Benefits, Use Cases and Challenges for Businesses. [online] Appinventiv. Available at: <https://appinventiv.com/blog/ai-in-drones/#:~:text=AI%20algorithms%20let%20drones%20operate>

<sup>16</sup> Ahmed, F., Mohanta, J. C., Keshari, A., & Yadav, P. S. (2022). Recent Advances in Unmanned Aerial Vehicles: A Review. Arabian Journal for Science and Engineering, 47. <https://doi.org/10.1007/s13369-022-06738-0>

EXHIBIT 4 - Statista Market Insights (Global Market Size of the Artificial Intelligence (AI) Robot Market from 2020 to 2030).

EXHIBIT 5 - ResearchGate (Classification of UAVs based on wings and rotors)

propellers to generate the necessary thrust for vertical lift-off.

Conversely, **wing-type UAVs** rely on their wings to generate aerodynamic lift for upward motion. Wing-type UAVs are further classified into three sub-categories: flapping-wing, fixed-wing, and flying-wing.

Additionally, drones are categorised based on their mass and flight capabilities. UAVs with heavier mass have the capacity to carry larger payloads and perform multiple tasks autonomously.

Fixed-wing and rotor-type UAVs typically have greater mass and larger structures. In terms of aerodynamic efficiency, fixed-wing UAVs often offer longer flight times compared to rotor-type UAVs.

#### UNMANNED SURFACE VEHICLES (USVs)

Another type involves **USVs (Unmanned Surface Vehicles)**, USVs are robotic boats capable of functioning without human crews. Initially designed for military purposes and intricate tasks, these vehicles range from small hobby boats to colossal oil tankers.

<sup>17</sup>The majority of USVs are equipped with advanced technologies such as GPS tracking, ISR systems, IEEE robotics, sonar, and various sensors enabling autonomous navigation. Additionally, certain USVs can be remotely operated by a human controller.

<sup>18</sup>The primary military function of unmanned surface vehicles is to act as mobile targets at sea for military training and testing defence systems.

These vessels boast attributes of power, stability, speed, stealth, and agility. Additionally, they find utility in various other roles including mining operations, protection forces, anti-piracy efforts, counter-terrorism operations, and observation and reconnaissance missions.

In marine applications, USVs provide a flexible and efficient solution for diverse tasks. They can be outfitted with an array of sensors and payloads tailored to the specific requirements of each application and are capable of operating autonomously for extended periods. This capability makes them well-suited for tasks such as surveying expansive water areas, monitoring environmental conditions via environmental sensors,

and gathering data from inaccessible locations.

Moreover, USVs are gaining traction in naval applications such as anti-submarine warfare, imaging systems, and mine detection, showcasing their versatility and expanding utility in maritime operations.

#### UAVS IN AGRICULTURE SECTOR

<sup>19</sup>UAV technology has found applications in agriculture for various tasks, including monitoring pests and diseases, targeted spraying of pesticides and fertilisers, identifying crop damage, conserving natural resources, assessing soil condition, and managing water usage.

These drones utilise infrared mapping techniques, such as the normalised difference vegetation index (NDVI), to provide early detection of crop stress and health issues on agricultural land.

<sup>20</sup>By 2028, the agricultural drone systems market in the Asia Pacific region is expected to experience a substantial growth of over 300%, reaching a value of AU\$2.9 billion. This significant increase is forecasted from the AU\$647 million recorded in year, 2020.

As drones and other emerging technologies become increasingly commonplace, there will be exciting advancements as unmanned technology continues to mature.

“THE  
AGRICULTURAL  
DRONE MARKET IN  
THE APAC REGION  
IS EXPECTED  
GROWTH OF OVER  
300%, AU\$2.9 BILLION  
BY 2028”

*Department of Agriculture and Fisheries*

Similar to the evolution of mobile phones, drones are expected to become more sophisticated, user-friendly, and integrated into everyday agricultural practices. Research conducted in the US indicates that the use of agricultural drones is significantly impacting farmers’ bottom lines.

Significant developments are anticipated in the drone industry, particularly regarding the sensors and scanners that will be mounted on future technology.

#### Automated underwater vehicles (AUVs)

Unmanned and automated vehicle technology is rapidly advancing in marine and underwater environments as well.

AUVs are equipped with technology to capture images of the seabed, fish, and surrounding areas, aiding researchers in oceanography and habitat research.

AUVs also play a role in the oil and gas industry for

<sup>17 & 18</sup> CSMI. (2022, December 8). What is an Unmanned Surface Vehicle (USV) - CSMI. CSMI Technology Services. <https://csmi.com/what-is-an-unmanned-surface-vehicle/>

<sup>19</sup> Iryna Heiets, Kuo, Y.-W., La, J., Richard C.K. Yeun, & Wim J.C. Verhagen. (2023). Future Trends in UAV Applications in the Australian Market. MDPI, 10(6), 555-555. <https://doi.org/10.3390/aerospace10060555>

<sup>20</sup> Drones. Department of Agriculture and Fisheries, Queensland. <https://www.daf.qld.gov.au/news-media/campaigns/agtech/action/future/drones>

inspection activities, as well as in defence for search operations. While automated drone technology is still relatively new in agriculture, some automated drones are already being utilised for data collection, automated seeding, and pollination without the need for operators.

### UAVS IN ENERGY SECTOR

The solar, wind, oil, and gas energy industries rely heavily on inspections to uphold safety standards and ensure efficient operations. However, these inspections can often be time-consuming and costly.

Drones offer a solution by providing swift and cost-effective aerial inspections of utility facilities, allowing for the instant identification of damage to critical infrastructure such as wind turbines and solar panels.

The market for UAVs in the energy sector is projected to grow substantially, and soaring to US\$ 2.99 billion by 2031. This growth trajectory reflects a robust CAGR of 22.8% during the forecast period from 2024 to 2031.

Using drones, abnormalities and damage can be quickly detected, enabling timely intervention to prevent potential problems from escalating.

The data collected by drones allows for thorough monitoring of progress and the creation of detailed orthomosaics, elevation data, and 3D maps, facilitating comprehensive assessment and management of infrastructure integrity.

In the wind energy sector specifically, the demand for drone inspections is driven by the need to monitor a large number of turbine blades for signs of deterioration and damage on a regular basis, ensuring optimal performance and safety.

### UAVS IN COMMERCIAL SECTOR

The use of drones is rapidly increasing, especially in the commercial sector, driven by the growing trend of online shopping in densely populated cities. Major retailers and logistics companies are intensifying their efforts to integrate drones into their operations to tackle the challenge of “last mile” deliveries.

Drone delivery services enable retailers to offer exceptionally quick delivery times while reducing the reliance on human labour. These dedicated aerial vehicles fly directly from distribution centres to customers’ locations, fulfilling individual orders efficiently.

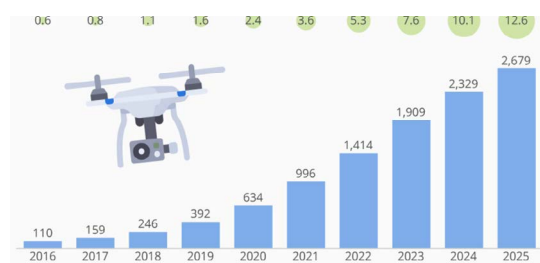
“Given the nature of commercial drones and UAVs, it’s essential to have clear regulatory standards to

address airspace safety and privacy concerns. From air traffic management to remote ID labels, Australia needs to prioritise regulatory standards to keep pace with technology,” says Yoav Amitai.

“Current government initiatives are not quite matching the rapid advancements in drone capabilities.”

<sup>21</sup>In 2023, the commercial drone market in Australia was valued at AU\$ 1.16 billion, with a projected compound annual growth rate (CAGR) of 15.3% from 2024 to 2030.

EXHIBIT 6 - PROJECTED WORLDWIDE MARKET GROWTH FOR COMMERCIAL DRONES



This growth trajectory is attributed to the expanding utilisation of drones across diverse industries including agriculture, delivery and logistics, energy, and more.

As drones find increased application in these sectors, the market is experiencing rapid expansion. One of the key advantages of drones in urban logistics is their ability to bypass traffic congestion, thereby enhancing safety and enabling swift deliveries between locations.

**“WALMART ARE ON THE FOREFRONT OF DRONE DELIVERY WITH 350,000 DELIVERIES COMPLETED. IN 2024, THEY EXPANDED REACH TO AN ADDITIONAL 1.8M HOMES.”<sup>21,2</sup>**

Additionally, local businesses in the food and beverage sector have expanded their reach through drone delivery services. These types of companies have a wider customer base. Even though some UAVs can carry heavy loads,

<sup>21</sup> Australia Commercial Drone Market | Industry Report, 2030. (n.d.). [www.grandviewresearch.com/industry-analysis/australia-commercial-drone-market-report#:~:text=The%20Australia%20commercial%20drone%20market](https://www.grandviewresearch.com/industry-analysis/australia-commercial-drone-market-report#:~:text=The%20Australia%20commercial%20drone%20market)  
<sup>22</sup> Walmart To Make Largest Drone Delivery Expansion of Any U.S. Retailer <https://corporate.walmart.com/news/2024/01/09/sky-high-ambitions-walmart-to-make-largest-drone-delivery-expansion-of-any-us-retailer>  
 EXHIBIT 6 - Statista Charts (Commercial Drones Projected Growth)

urban-designed UAVs can only carry up to 2.5 kg of cargo and can only travel up to 15 kilometres when carrying a load.

According to Amazon, 86% of e-commerce packages weighed less than five pounds. Walmart states that 70% of its consumers reside five miles or less from a centre.

Despite this, it's crucial to remember that UAVs for small package delivery are still at the idea validation stage when it comes to fusing drone technology with economic activities.

Additionally, the relevant nation's regulator in charge of flight operations should implement strict flight safety regulations, especially for activities beyond visual line of sight (BVLOS), to protect all operations and the safety of all parties involved.

### ELSIGHT (ASX:ELS) IN AUSTRALIA

Elsight is an Israel based company founded in 2009 that provides connectivity solutions for robotics including drones and unmanned aerial vehicles (UAVs).

Their core product, Halo, is an AI-powered communication platform that ensures reliable, high-bandwidth connectivity for drones even in challenging areas. "Connectivity is mission critical with unmanned systems, its not a nice-to-have" Amitai states.

Halo by ElSight is an advanced connectivity solution tailored for unmanned aerial vehicles (UAVs) and unmanned ground systems (UGSs). It harnesses AI to merge and encrypt diverse communication channels such as LTE, 5G, SatCom, and proprietary RF, creating a robust and secure link crucial for operations beyond visual line of sight (BVLOS).

By encrypting various data types like video, telemetry, and sensor data into secure packets, Halo maintains data integrity and uninterrupted communication throughout transmission.

Halo has been integrated into both defence applications including Lockheed Martin's quadcopters, and commercial applications including Drone-up enabling clients such as Walmart, 7-Eleven, Chick-fil-A. Reuters states that "Australia will spend an additional AU\$400 million to manufacture next-generation military drones - one of a number of locally manufactured projects that will create more jobs".

According to a report commissioned by Aircservices

Australia and conducted by Scyne Advisory, the Australian drone industry is anticipated to undergo significant development, particularly with the advent of the Brisbane Olympics.

The report suggests that this major event will serve as a catalyst for advancements in aerial passenger transportation and Advanced Air Mobility (AAM) within Australia.

With a growing demand for UAVs and UGSs, including drones and robots, these have become essential tools for law enforcement agencies globally, enhancing operational capabilities, reducing personnel risk, and accelerating response efficiency.

Nevertheless, successful non-line-of-sight UAV/ drone operations necessitate secure, uninterrupted communications for constant data exchange between drones and the command centre.

Halo enables the industry to scale as it enables;

1. BVLOS missions without the need for human observers.

2. Enables one operator to control an entire drone fleet and not just one drone.

3. Provides the telecommunications industry with another source of revenue as the multiple channels of cellular use the local SIMs.

4. Provides operators with Remote ID, a regulation that already exists in the US and the EU (FAA and EASA) and

will come to Australia.

**“THE GLOBAL  
ROBOTICS MARKET  
IS PROJECTED  
TO GROW FROM  
AU\$68.8 BILLION IN  
2024 TO AU\$143.9  
BILLION BY 2029”<sup>23</sup>**

### FUTURE OF ROBOTICS

“While the World Wide Web created one of the biggest revolutions in humanity since the Industrial Revolution (some say even bigger than that) by creating the virtual infrastructure of humanity, I believe that we are currently living the next evolution of robotics and AI combined will create the biggest physical infrastructure revolution and will make the world a more efficient, greener and safer place to live in.” states Amitai

The future of the robotics industry is poised for significant growth and transformation, driven by advancements in technology and increasing adoption across various sectors.

The global robotics market is projected to grow from AU\$ 68.79 billion in 2024 to AU\$ 143.93 billion by 2029, with a compound annual growth rate (CAGR)

<sup>23</sup> Robotics - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029. [online] www.researchandmarkets.com. Available at: <https://www.researchandmarkets.com/reports/4703471/robotics-market-share-analysis-industry>

of 15.91% during this period.<sup>22</sup> This growth is fueled by investments in automation and the integration of artificial intelligence (AI) and machine learning into robotics.

One of the key areas of growth is industrial robotics, which is expected to reach AU\$ 119.83 billion by 2029, growing at a CAGR of 13.40%.<sup>23</sup>

The adoption of industrial robots is particularly prominent in the automotive, electronics, and e-commerce sectors. Companies are increasingly using robots to enhance productivity, improve quality, and ensure workplace safety.

Technological advancements in AI, machine learning, and the Internet of Things (IoT) are central to the robotics industry's future.

Companies like Siemens and Google Cloud are integrating AI and data analytics to develop more intelligent and autonomous robots.

The rise of Industry 4.0 is further driving the adoption of robotics by enabling more connected and automated manufacturing processes.

Investments in robotics are also growing globally, with notable initiatives such as Hyundai Motor Group's AU\$ 600 million investment in the Boston Dynamics AI Institute aimed at advancing AI and robotics. Moreover, the Chinese government's "Made in China 2025" plan underscores the country's commitment to becoming a leader in high-tech manufacturing, including robotics.<sup>24</sup>

### éthica capital and Greenco. membership

Australia is rapidly becoming a key player in the global drone industry, driven by rising demand across various sectors such as agriculture, mining, emergency response, and environmental monitoring.

This growth is attributed to Australia's diverse landscapes, which present unique opportunities for drone applications, and a strong regulatory framework that supports innovation and deployment.

The fully autonomous drone segment is projected to grow at the fastest rate, with a CAGR of 15.8%, as these drones can perform operations without human intervention, making them ideal for scalable operations like rescue missions

and agriculture surveys.

Supportive government policies and strategic initiatives by key stakeholders have resulted in significant capital investment in drone technology. The market is witnessing a surge in both start-up activity and established companies expanding their operations to include advanced drone solutions.

The drone market in Australia is expected to grow at an impressive rate, with projections indicating a multi-billion-dollar industry by the end of the decade.

<sup>25</sup>The Australian robotics market is projected to reach AU\$1.012 billion in revenue by 2024. Within this sector, service robotics is expected to lead, with an anticipated market volume of AU\$884.50 million in 2024.



**“THE NEXT  
EVOLUTION OF  
ROBOTICS & AI  
COMBINED WILL  
CREATE THE  
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REVOLUTION”**

*Yoav Amitai, CEO ElSight*

The market is forecasted to grow at an annual rate (CAGR 2024-2028) of 2.18%, resulting in a market volume of AU\$1.103 billion by 2028.

The integration of AI and advanced sensor technologies is revolutionising the capabilities of drones, making them indispensable tools for industries requiring real-time data and aerial insights. This technological advancement is further catalysing the demand, leading to an influx of funding aimed

at developing more sophisticated and versatile drone systems.

At éthica capital, we recognise the transformative potential of robotics and are dedicated to providing comprehensive services to support the growth of this sector.

éthica capital, Green Bond Corporation SARL (GBC), and Carbon Capital Corporation (CCC) collaborate on an exclusive basis. Collectively bringing together extensive knowledge and insights in sustainable finance, infrastructure development, and carbon-based financing aimed to support businesses in achieving environmental and humanitarian objectives.

é | c partner with industry leading experts and thought leaders such as ElSight Ltd.

<sup>22,23 & 24</sup> Robotics - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029. [online] [www.researchandmarkets.com](https://www.researchandmarkets.com). Available at: <https://www.researchandmarkets.com/reports/4703471/robotics-market-share-analysis-industry>

<sup>25</sup> Robotics - Australia | Statista Market Forecast. [online] Available at: <https://www.statista.com/outlook/tmo/robotics/australia#:~:text=The%20Robotics%20market%20in%20Australia>



Gain exposure to ASX listed Robotics and Drone companies;

| Ticker | Company                     | Price     | Market Cap  | 6mnth change | 1 yr change |
|--------|-----------------------------|-----------|-------------|--------------|-------------|
| 3DP    | Pointerra Limited           | \$ 0.032  | \$ 25.76M   | -23.81%      | -65.22%     |
| CDA    | Codan Limited               | \$ 11.330 | \$ 2.06 B   | 33.57%       | 53.24%      |
| DRO    | Droneshield Limited         | \$ 1.440  | \$ 1.25 B   | 277.63%      | 537.78%     |
| ELS    | Elsight Ltd                 | \$ 0.485  | \$ 71.10 M  | 24.36%       | 86.54%      |
| EOS    | Electro Optic Sys.          | \$ 1.455  | \$ 92.90 M  | 47.96%       | 74.70%      |
| MOB    | Mobilicom Ltd               | \$ 0.083  | \$ 12.41 M  | -11.70%      | -44.67%     |
| SOR    | Strategic Elements          | \$ 0.047  | \$ 21.01 M  | -38.96%      | -57.27%     |
| FBR    | FBR Ltd                     | \$ 0.024  | \$ 106.59 M | -4.00%       | -14.29%     |
| WTC    | WiseTech Global             | \$ 93.320 | \$ 30.93 B  | 24.43%       | 21.24%      |
| ALU    | Altium                      | \$ 67.910 | \$ 8.96 B   | 45.46%       | 89.85%      |
| VR1    | Vecton Technologies Limited | \$ 0.021  | \$ 22.53 M  | -9.09%       | -60.00%     |
| BRN    | BrainChip Holdings Limited  | \$ 0.220  | \$ 401.79 M | 11.11%       | -44.44%     |
| RKT    | RocketDNA                   | \$ 0.007  | \$6.14 M    | -22.22%      | -41.67%     |

\*prices as at 24 June 2024

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