

Digital Decisive Advantage

Trusted and secure data enabling information dominance



Atos



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The digital transformation of Defence is profound and ongoing. Given the increasing convergence of information and intelligence, data is a mission-critical weapon for armed forces. Digital technologies enable intelligence, surveillance, reconnaissance (ISR) by gathering, analysing and sharing in real-time secure, trusted and relevant data.

In 2018, the amount of data created worldwide was 33 zettabytes, this almost doubled in 2020, and is projected to increase almost six times by 2050. Identifying who has access to this data, and how rapidly this data can be transformed into knowledge, are two of the most crucial questions raised in the Defence Data Strategy 2021-2023 paper. How do we harness this exponential growth in safe, accessible, and outcome-focused ways for Defence?

The impact of knowledge management strategies and automated response used in strategic models will add value to Defence by stimulating focused response strategies, capabilities and giving capacity for effective and efficient response to situation and environments. Atos is able to bring together the power of Internet of Things (IoT), Artificial Intelligence (AI), machine learning and analytics to the armed forces, enabling them to govern, trust, discover, use and share data, in the battlefield and cyberspace, to build effective and immediate response strategies and actions.

Dataflow across sea, land, air, space and cyber domains, as well as with partners across Government and allies around the globe will create a digital decisive advantage to Defence.

With AUKUS pact reshaping the military landscape in Pacific region and collaboration between Australia, the United Kingdom and the United States. Deeper military interoperability will emerge, new architectures of meetings and engagements between Defence and foreign policy officials will be created, and a joint cooperation on cyber, AI, quantum technologies will unlock new capabilities in Australia in the years to come.

For every defence organisation, digital transformation is a force multiplier. It enables armed forces to improve mission outcomes by meeting three key challenges: operational readiness, decision support and forces coordination. In the field, digitalisation is imposing itself on the armed forces and impacting both doctrine and practices, even beyond technical adaptations. For our forces and those of our allies, as well as for those of our adversaries, "Data is the New Weapon".



Major historical turning points in the genesis of defence digitalisation

Yet as early as the 1990s in the United States, the concept of Network Centric Warfare emphasised the need to network combat forces to better exploit data for gaining the upper hand over adversaries.

On 20 March 2003, with the support of the British, the United States invaded Iraq and defeated a modern, well-equipped army with three times the number of soldiers in less than a month. The Pentagon cited superior control of information as critical to success.

A year later, the unique information system called SICS (Scorpion Combat Information System) was launched. Developed by Atos, it contributes directly to the sharing of real-time tactical information, reinforces interoperability, and provides decision support for all players on the battlefield.

The same observation was made at NATO level in the early 1990s, when the alliance committed itself to external operations and the problem of armies' interoperability became a condition for mission success. The interoperability of armies will be achieved through the digitisation of systems, enabling

the systems of different armies to communicate, interact, benefit from common services, and create synergies, with fluidity, sharing and control of information as the backbone.

Today, after a global pandemic that has profoundly transformed our society and accelerated the shift towards digitalisation, the AUKUS pact is reshaping the military landscape in Pacific region. Because of this rapid rate of technological innovations, the globalisation and democratisation of technology, and a fast changing world, harnessing digital technologies has never been more important for our forces. New technological sophistication will create a broader range of capabilities and a more agile, capable and potent Defence Force in Australia.



Defence digitalisation: 3 major domains of action

Operational superiority through operational readiness

The power of an army lies in its ability to project itself into theatres of operation. To act fast, strong and far, it is essential to have forces and equipment that are prepared and available, as well as projection vectors and robust long-term logistics and maintenance chains.

There are a range of digital applications for preparing or maintaining forces in operational condition. These include predictive maintenance, spare parts inventory tracking, and the use of physical or software simulators to qualify and train pilots and combat section leaders, among others. In this context, Atos Australia has developed an asset management and planning system platform leveraging Artificial Intelligence (AMPS⁷) – Australian Made Product registered with the not-for-profit Australian Made Campaign Ltd (AMCL) – which delivers smart logistics support. The platform enables a tailored approach to project implementation and addresses the challenges of:

Deployability: the deployable synchronisation tools and decentralised architecture support offline and in real-time service operations.

Predictability: knowledge is key on the battlefield. Leveraging AI, the platform can make predictive maintenance a reality.

Towards greater force coordination

Force coordination is critical to the fields of collaborative combat and tactical communication. It enables simple, efficient and instantaneous information sharing in a 'bottom-up' and collaborative way, integrating the higher echelon (elementary unit or battle group operational centre).

Capture, analysis and share of data has always been the task of military units in warfare environments. New technologies now enable the war fighter to anticipate, move and fight with agility and speed in the warfare environment. The development of Auxylium by Atos is a concrete expression of this. Based on an Android smartphone, this encrypted and reliable communication solution combines the advantages of civilian technology with the high standards of military equipment.

Making the right decision at the right time

Integral to information superiority is up-to-date situational awareness and tracking (including Blue Force Tracking), as well as accurate intelligence. This provides troops on the battlefield with reliable, dynamic and relevant information, while avoiding information overload, for optimal decision-making.

Digital technologies enable intelligence, surveillance and reconnaissance (ISR) by gathering, analysing and sharing in real-time secure, trusted and relevant data. From strategic to tactical intelligence, the so called "Digital backbone" provides frictionless and secure dataflow to support decision making at critical moment.



This ambition is covered more broadly by the U.S. Advanced Battle Management System (ABMS) programme, which will eventually federate the various branches of the U.S. military – from command posts to deployed sensors – into a unified network. In Australia, the ISR capabilities have been continuously upgraded since 2016. Designed to improve the situational awareness in combat environment. Mission planning and warfighting capabilities, the ISR system needs to access trusted, secure and informed data in real time.

Four critical success factors for the digitalisation of defence

Successful digital transformation depends on four key factors: sovereign capabilities, excellence in integration, the frictionless flow of data along the chain of command, and the ability to combine the best in sustainable civilian and military technologies.

Sovereign capabilities

Atos leverages its sovereign industry capabilities in civilian and military technologies. Based on agile methodology, Atos puts customers at the heart of its projects with the objective of offering sovereign solutions and products that are built and developed in Australia. Sovereign industry capabilities in civilian and military technology including Artificial Intelligence; Missile Defence Systems; Information Warfare and Cyber Capabilities will help to build a robust, resilient and internationally competitive defence industry in Australia.

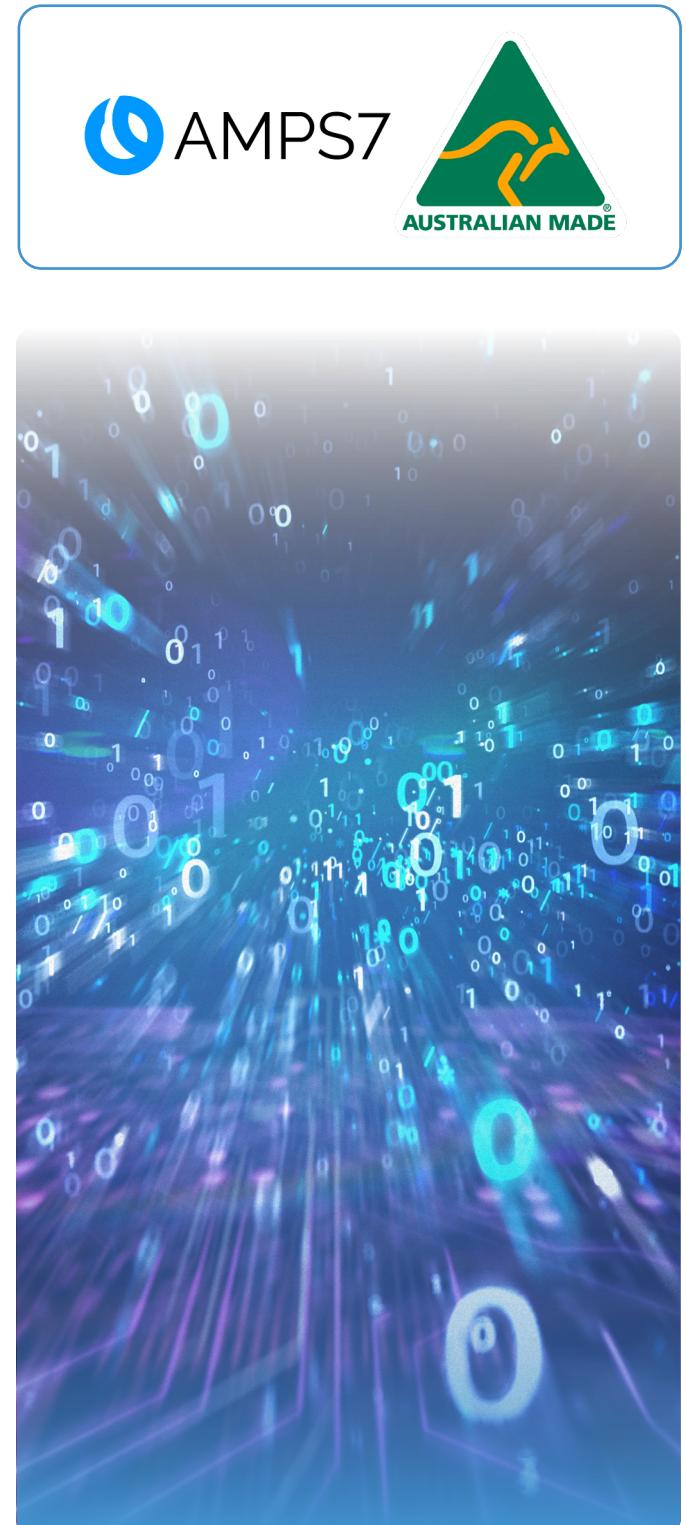
Atos is committed to build and develop sovereign solutions and products in Australia to support the Australian Defence Force and to participate in providing a long-term employment to Australians in new technologies. Atos invests in the people that will shape the future of the industry. AMPS7, an Australian Made Asset Management and Planning System is a good example of it. Atos has developed and continues to reinvest in cloud-based secure solutions in support of the Australian Industry Capability. When technology, infrastructure and IP are designed and built for purpose and locally, it gives full control of servicing for the Commonwealth of Australia.

Atos develops scalable solutions that combine robustness and performance, agility and scalability, sovereignty and security: the 'right tool for the right mission'.

Technology must free up operational actors to make the right decision at times of high intensity, which is why Atos invests know-how into simplifying complexity and designing easy-to-use interfaces.

Digital technology requires multidisciplinary expertise, which Atos has developed over several decades as a core partner for delivery of strategic projects for many countries and armies. Particularly when it comes to defence, innovation for innovation's sake is not enough ; innovation has to serve operational and information superiority. To this end, Atos is taking advantage of its expertise in High Performance Computing (HPC), Quantum Computing, Big Data and Artificial Intelligence to develop intelligent and intuitive high-tech systems for the military. Although digitisation serves to enhance the superiority of military systems, it also brings with it cyber risks. With 5,000 cyber security experts, Atos is leveraging this expertise to develop systems that meet the cyber security requirements of the armed forces.

Combat-proven, sovereign, reliable and sustainable, Atos solutions are firmly focused on the future and the response to the era of digital transformation.



System integration

If the digitalisation of forces is a major objective for modern armies, the ability to integrate disparate systems is a pre-requisite.

Atos has recognised expertise in leading large-scale projects involving numerous partners and systems. Unlike other major defence partners, Atos acts as an independent integrator to guarantee cost savings, durability of hardware and software solutions and sustainability of defence and business ecosystems.

This approach is based on the use of civilian best practices, including agility, infrastructure versatility, standardisation and the creation of common components to reduce project time and cost.

Frictionless dataflows

Atos leverages its expertise in big data, analytics, AI and machine learning to transform the data into knowledge, and to create predictive models. Ultimately, this is about providing actionable intelligence to the right person at the right time in the right way, making best use of visualisation, temporal analysis and predicting likely future events.

This expertise in IoT is combined with a proven ability to adapt to very different network conditions, but also to actively interface strategic and tactical level systems in order to usefully serve the OODA loop (observation, orientation, decision, action) for greater reactivity and understanding of the environment by combat actors.

At the same time, Atos provides increased protection against cyber threats, which can cripple forces' capabilities, increase the 'fog of war' or give the enemy access to confidential information. While essential for boosting military efficiency, cyber-technologies are also leveraged as weapons, as many recent and highly sophisticated cyber-attacks have shown. Cybersecurity has become a critical strategic domain for warfare, where armies must prepare. Cyber space and critical technologies will help build a safe, secure and prosperous Australia.

Sustainability

To understand, manage and minimise armed forces environmental impact, Atos delivers tailored solutions and services. Delivering a sustainable estate across Defence maritime, land and aerospace areas, activities and operations will be key in Australia in years to come. Minimising future pollution risks while managing existing contamination risk and improving the efficiency of Defence's resource consumption can be made possible thanks to digital technologies such as IoT, Artificial Intelligence and analytics.

Leader for sustainability in digital services and technologies, Atos is helping government agencies to make a difference in the race to net-zero. Atos' Decarbonisation Center of Excellence guides organisations to reduce carbon in core digital and business processes, from supply chains optimisation to energy efficiency of assets.





About Atos

Atos is a global leader in digital transformation with 109,000 employees and annual revenue of c. € 11 billion. European number one in cybersecurity, cloud and high performance computing, the Group provides tailored end-to-end solutions for all industries in 71 countries. A pioneer in decarbonization services and products, Atos is committed to a secure and decarbonized digital for its clients. Atos is a SE (Societas Europaea), listed on Euronext Paris and included in the CAC 40 ESG and Next 20 Paris Stock indexes.

The purpose of Atos is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

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