

# Vision paper: digital defence for information dominance



**Atos**



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The digital transformation of defence is profound and ongoing. For Armed Forces and adversaries alike, given the increasing convergence of information and intelligence, data is a mission-critical weapon. The MoD's Digital Strategy for Defence sets out how the exploitation of data will deliver end-to-end advantage, supported by an agile 21st century Digital Backbone that will enable multi-domain integration and dataflow across sea, land, air, space and cyber domains, as well as with partners across Government and allies around the globe.

Throughout the 1990s, the USA concept of Network Centric Warfare highlighted the need for the 'network' that would enable military forces to maximise exploitation of data to gain the upper hand over increasingly technically adept, and therefore potent, adversaries. On 20 March 2003, with the support of the British, the United States invaded Iraq and defeated its modern, well-equipped army with three times the number of soldiers in less than a month. The Pentagon subsequently cited superior control of information as critical to success.

A year later, France launched its own battlespace digitalisation programme, designed to conduct 'info-centric' operations. Today, one of the most telling French illustrations of this information superiority strategy is the French Army's Scorpion programme, based on a unique information system called SICS (Scorpion Combat Information System). Developed by Atos, it enables the real-time sharing of tactical information, reinforces interoperability and provides decision support for all force elements deployed across the JOA.

Today, the evolution of the MoD's Digital Backbone – which Atos is helping to support and accelerate – is secure-by-design and based on common standards and architecture. The infrastructure is cloud-based, uses software capabilities to exploit data as a strategic asset, which means that leading-edge apps can be rapidly adopted and scaled.

The recently issued Integrated Review of Security, Defence, Development and Foreign Policy, which sets out a strategic framework for achieving the UK's national security and international policy objectives between now and 2025, confirms that the Digital Backbone is central to achievement of mission outcomes. Its design enables the effective prioritisation of information, with faster verification and fusion of information, and includes additional capacity to meet surges in demand. It supports cross-domain communication, with simultaneous voice and data transmission for enhanced execution along the chain of command. Faster access to more information improves and accelerates planning, analysis and information dissemination; 24-hour planning cycles are reduced to just two hours. Advanced analytics and AI complement human processes and enable rapid responses to adversarial action; an asymmetric edge is created by sensing and responding to threats and opportunities more rapidly than the enemy.

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 force coordination.



# Three key drivers for digitalising defence

## 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 Armed Forces and assets in operational condition. These include predictive maintenance, spare parts inventory tracking, immediate access to medical capabilities and the use of physical or software simulators to qualify and train pilots and combat leaders, among others.

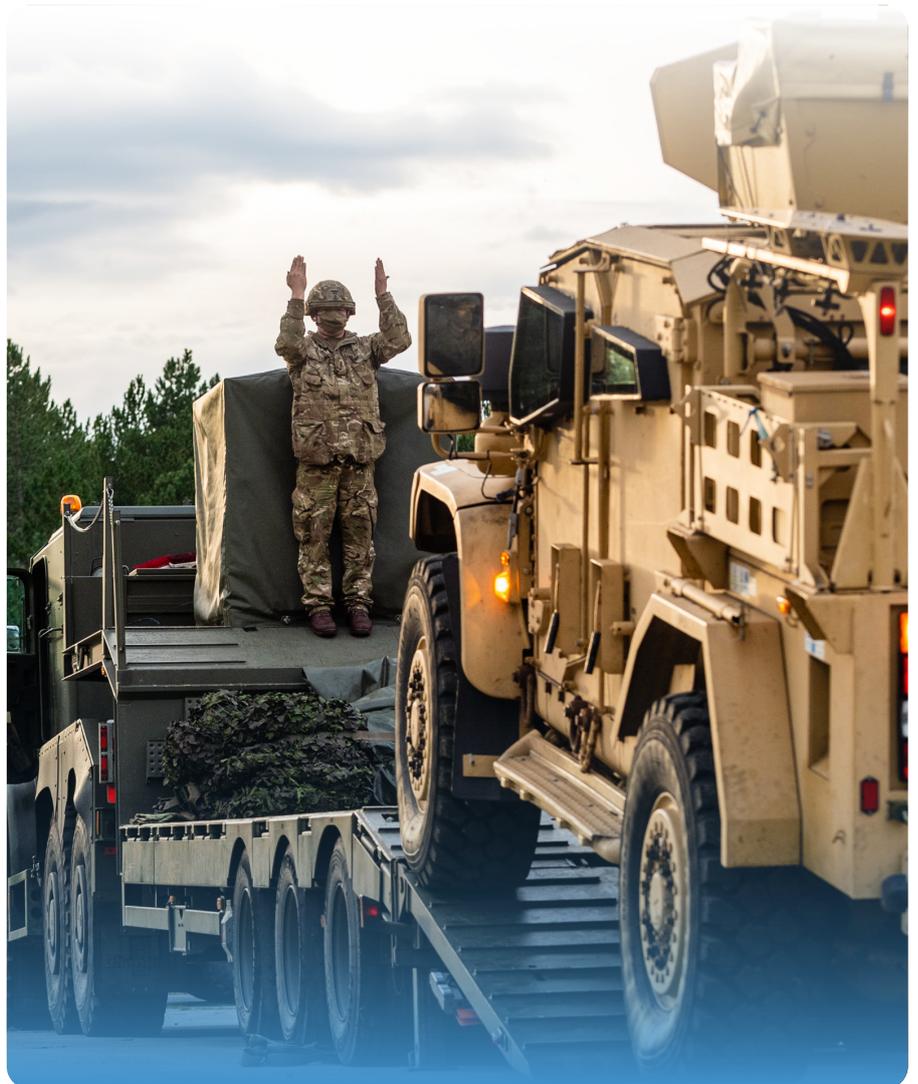
In this context, Atos is working in partnership to help transform military healthcare information systems to support evidence-based patient-centric healthcare for the UK Armed Forces. The CORTISONE programme was established to provide an integrated, consistent, reliable and sustainable information management solution for medical, dental and health services, enabling Defence Medical Services (DMS) to improve patient outcomes while maximising resource efficiency and the number of service personnel who are fit for role.

## 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 sources, while avoiding information overload, for optimal decision-making.

This ambition is covered more broadly by the United States' Advanced Battle Management System (ABMS) programme, which will eventually federate the various branches of the US military, from command posts to deployed sensors, into a unified network.

In 2019, the French Defence Procurement Agency (DGA) selected Atos to develop a sovereign platform combining massive data processing and artificial intelligence for the defence sector. Called ARTEMIS (architecture for processing and exploiting massive multi-source information), this big data platform for the French Ministry of the Armed Forces has recently moved from the demonstration phase to the optimisation and industrialisation preparation phase. It will strengthen the Ministry's capacity in all areas that require massive data processing (intelligence, cyber security, health in particular).



## Towards greater force coordination

Force coordination is critical for 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).

Based on an Android smartphone, Atos' AUXILIUM system, an encrypted and reliable battlefield and urban tactical communication solution, combines the advantages of civilian

technology with the high standards of military equipment. Tried out in the Île-de-France region as part of Operation SENTINEL since 2016, it has performed superbly since its initial operational deployment. It has been adopted by another nation's Armed Forces as its tactical communications solution.



## Three critical success factors for the digitalisation of defence

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

### System integration

If the digitalisation of Forces is a major objective for modern armies, the ability to integrate disparate systems seamlessly is a pre-requisite, including the requirement to close any skills gaps in relation to digital technologies and data.

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

This approach is based on enhancing and combining military practices with hard-won experience and expertise gleaned from civilian engagements; these include a focus on agility, infrastructure versatility, standardisation and the creation of common components to reduce project time and cost.

We also ensure that there is concerted change management to engage users, drive user adoption and ensure that Armed Forces, and others throughout the value chain, develop the necessary skills and knowledge to use digital systems and data effectively to deliver mission outcomes.

## Frictionless dataflows

With integration expertise comes the ability to efficiently move data up and down the chain of command. To achieve this, Atos leverages its expertise in enabling the different temporalities of combat, with tools specific to reflex time and thinking time, thus preserving the time advantage over adversaries.

This expertise in time management is combined with a proven ability to adapt to very different network conditions. It also creates active interfaces between strategic and tactical level systems in order to contract the OODA loop (observation, orientation, decision, action) for greater responsiveness, reactivity and understanding of the combat environment.

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. In the UK, the MoD is building its Digital Backbone to

enable friction-free access to data by connecting sensors, effectors, decision-makers and partners across domains. This will enable rapid exploitation of that data using increasingly sophisticated tools – such as automation, AI, autonomous vehicles, virtual reality, synthetic environments and quantum computing – for faster, data-driven decisions and improved operational and corporate outcomes.

In addition, Atos provides increased protection against cyber threats, which can neutralise Forces' capabilities, increase the 'fog of war' or give the enemy access to confidential information.

Confidentiality, availability and integrity of data and communications systems are ensured by establishing flexible communities of interest, depending on the evolution of the mission.

## Expertise in civilian and military technologies

Atos has significant expertise in civilian and military technologies including Auxylium and SICS systems in France and in addition, the 'transparent battlefield' for the Bundeswehr in Germany.

Based on agile methodologies, Atos puts customers and operational staff at the heart of its projects with the objective of delivering scalable solutions that combine robustness and performance, flexibility and scalability, sovereignty and security, in other words, the 'right tool for the right mission'. Technology must enable operational commanders to make the right

decision at times of high intensity; this is why Atos focuses on and invests in 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 Armed Forces. Combat-proven, sovereign, reliable and sustainable, Atos is firmly focused on the future providing a best-in-class response to the era of digital transformation.



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In the UK, Atos has delivered HYDRA, a data-driven geospatial analytics platform to provide the British Army with a high-performance decision support solution; this is based on the integration of best-in-class products to provide enhanced situational awareness. The platform automatically collects, ingests and analyses multiple data sources across different organisations, Government Departments and official statistics. It generates mission-configurable views for data-driven decision support at all levels, from senior commanders to in-field liaison offices and deployed assets. This high-grade intelligence gives military commanders greater situational awareness to make critical decisions in support of operations and exercises including the MOD's contribution to the national response to the pandemic and, ultimately, to save lives.

# About Atos

Atos is a global leader in digital transformation with 105,000 employees and annual revenue of over € 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 operates under the brands Atos and Atos|Syntel. Atos is a SE (Societas Europaea), listed on the CAC40 Paris stock index.

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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Let's start a discussion together



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