



Military Technology

Trend Report





Innovation Intelligence at Your Fingertips

At **StartUs Insights**, we make the world's information on innovation, emerging companies, and technologies accessible. Our [Big Data & AI-powered Discovery Platform](#) covers over **2,5 million startups & scaleups globally**, making it the world's leading resource for data on emerging companies.

This technology enables you to identify what's next by quickly and exhaustively scouting startups, scaleups, emerging technologies & trends that matter.

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► The military industry is witnessing significant transformations and is leveraging technology trends to strengthen military capabilities. Major trends include artificial intelligence (AI), robotics, and the Internet of Things (IoT) to optimize defense operations and augment military efficiency. Today, conventional warfare is increasingly being replaced by hybrid approaches that also combine cyber warfare and other frontiers. New and emerging technologies are changing the battlefield in four aspects—connectivity, lethality, autonomy, and sustainability. Connectivity solutions address concerns about how combatants detect and locate their adversaries, communicate with each other, and direct operations. Advances in missile and weapons technologies increase lethality, making battlefield operations more effective. On the autonomy front, startups utilize robotics and AI to execute decisions without no or minimum human interference. Lastly, startups are improving sustainability in the defense industry with technologies like additive manufacturing and electrification.



► Covering over 2,5 million startups & scaleups globally, we use our [Big Data and AI-powered Discovery Platform](#) to identify innovative applications, technologies, and companies impacting the Military Industry. This exhaustive, data-driven startup scouting pinpoints emerging trends and technologies in the Military Industry. For this research, we analyzed a sample of 1036 startups and scaleups and present the Top 10 Trends along with 20 highly relevant solutions.

► In the Innovation Map below, you get an overview of the Top 10 Military Technology Trends & Innovations that impact companies worldwide.



Innovation Map: Military Technology

1036

Startups & Scaleups

**Artificial
Intelligence**

**Immersive
Technologies**

**Advanced Defense
Equipment**

**Additive
Manufacturing**

**Robotics &
Autonomous Systems**

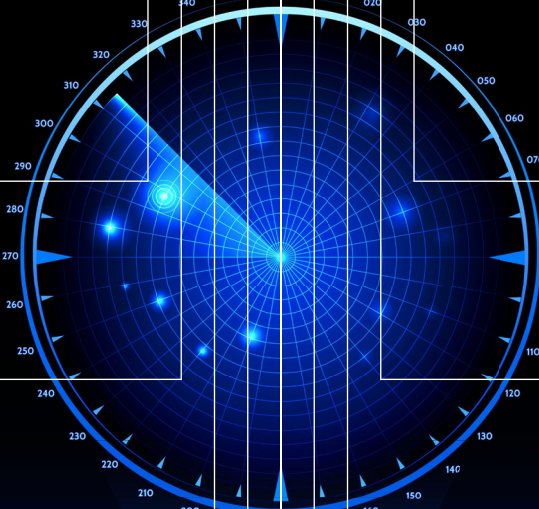
Big Data Analytics

**Internet of
Military Things**

5G

Cyber Warfare

Blockchain



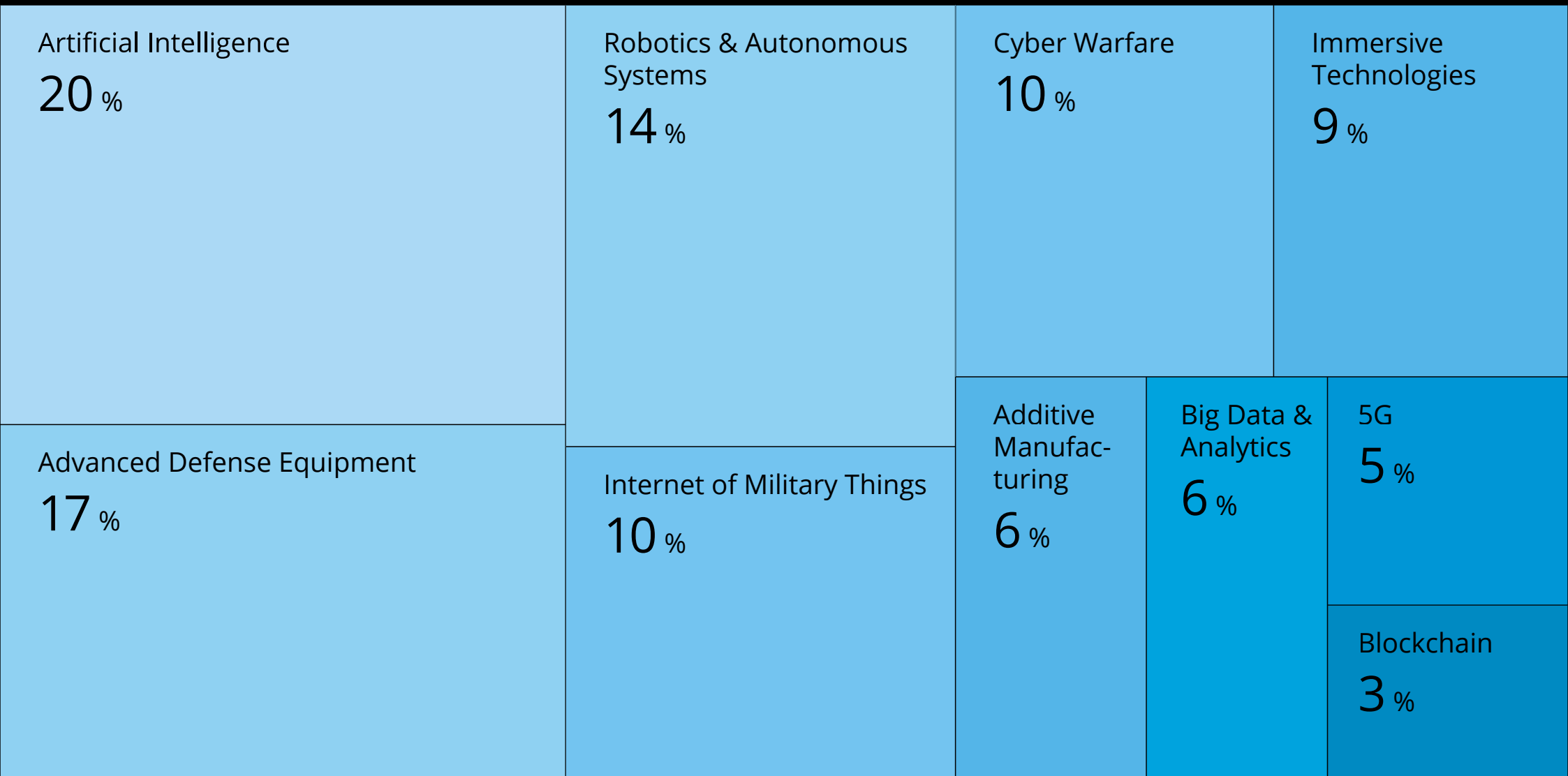


Tree Map: the Impact of Military Technology Trends

► Based on the Military Technology Innovation Map, the Tree Map below illustrates the impact of the top 10 Military Technology Trends. AI is one of the most prominent trends as many nations and companies are increasingly spending more on AI research. The industry is also inventing novel weapons and accessory technologies. Similarly, robotics and autonomous systems improve the combat effectiveness of the military as well as impact other trends in the industry. Also, there is a substantial rise in the use of the IoT technologies such as sensors, wearables, and edge computing.

► Cyberspace is another emerging front and startups develop both cyberattack and cyberdefense solutions. Furthermore, immersive technologies find use in military training and combat preparedness. Additive manufacturing boosts the manufacturing capacity for defense components. 5G is a crucial enabler of ultra-high-speed connectivity. Moreover, using blockchain the sensitivity of data & processes in the military is preserved.

Top 10 Military Technology Trends & Innovations





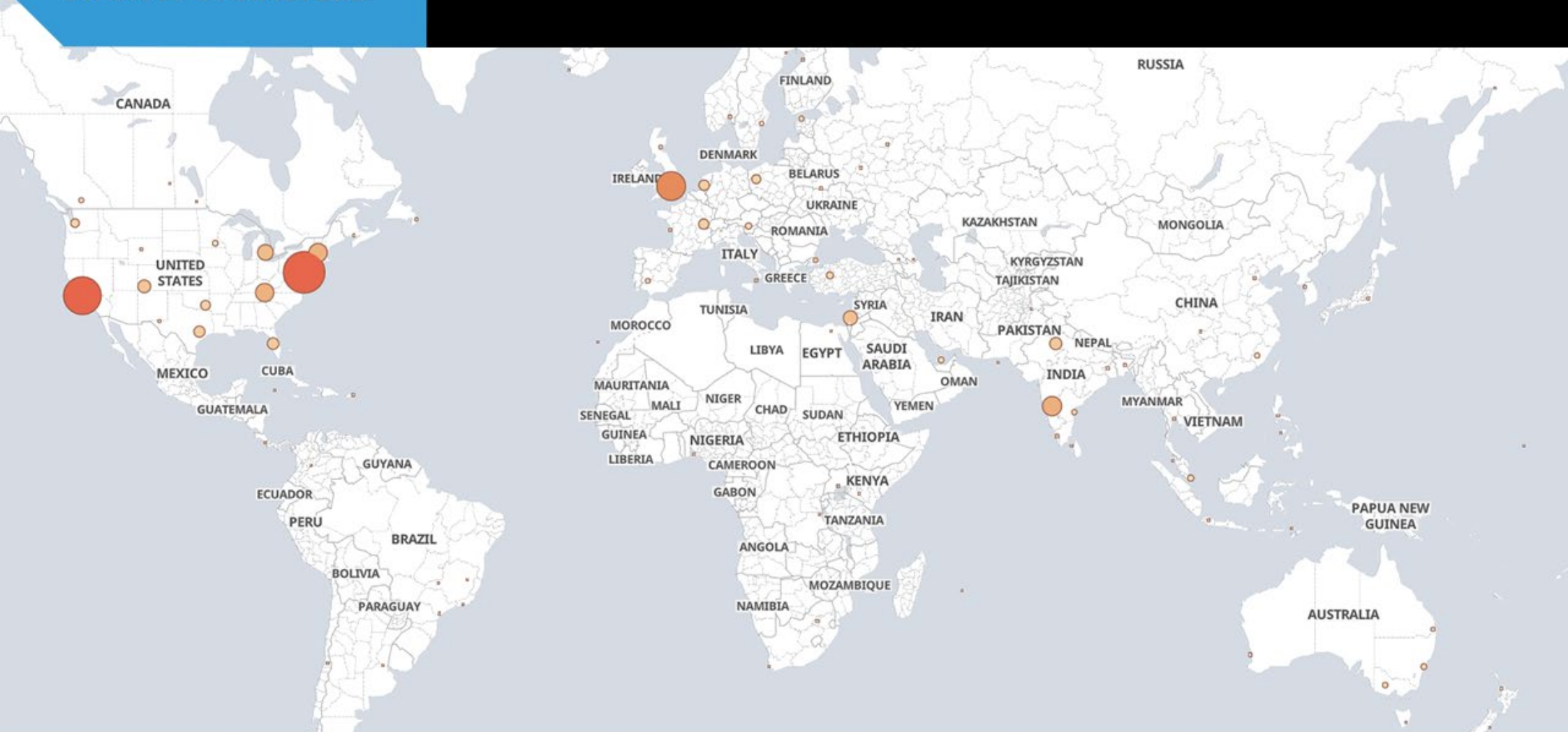
Global Startup Heat Map: Military Technology Startups & Emerging Companies

► The Global Startup Heat Map below highlights the global distribution of the 1 036 exemplary startups & scaleups that we analyzed for this research. Created through the StartUs Insights Discovery Platform, the Heat Map reveals that the US is home to most of these companies while we also observe high activity in the UK and Israel.

► Below, you get to meet 20 out of these 1 036 promising startups & scaleups as well as the solutions they develop. These 20 startups were hand-picked based on criteria such as founding year, location, funding raised, and more. Depending on your specific needs, your top picks might look entirely different.

1036
STARTUPS ANALYZED

Global Startup Heat Map: Military Technology



This Global Startup Heat Map illustrates the geographical distribution of 1036 startups & emerging companies we analyzed for this topic

Artificial Intelligence

► The adoption of AI in defense enhances computational military reasoning for intelligence, surveillance, and reconnaissance (ISR) missions. The use of computer vision enables equipment safety management and empowers autonomous combat systems, thereby reducing soldier casualties. By leveraging digital twin technology and machine learning, defense manufacturers test new military product iterations as well as enable militaries in predictive asset maintenance. With the deployment of swarm computing, startups are developing self-organizing intelligent systems that work collaboratively towards a strategic objective.

► Israeli startup [Axon Vision](#) develops an AI-based decision-making engine. The startup's product, edge360, uses computer vision technology to provide ground vehicles with

complete and automated situational awareness. With an intuitive user interface (UI) and customized alert mechanisms, it detects, classifies, and estimates the whereabouts of threats in real-time. The startup's solution helps tactical teams navigate the threats and obstacles on the field.

► US-based startup [Rebellion](#) builds mission-focussed AI products for the defense and security sectors. The startup uses machine learning and the power of data to deter threats and drive mission success. Their subscription-as-a-service model software products are used for achieving comprehensive battlespace awareness, executing autonomous missions, and cyber readiness. Their user-centric software designs are built on open architecture hence are compatible with existing hardware and software systems.



Advanced Defense Equipment

► Militaries are developing more sophisticated and advanced defense equipment to counter emerging threats. Innovations ranging from the hypersonic flight and directed energy weapons to space militarization are underway. Also, the defense industry is aligning its objective with achieving net-zero emissions. It is investing in battlefield electrification techniques through the use of electric propulsions in military aircraft as well as testing hydrogen fuels. Besides, defense organizations are also advancing research in biotechnology and nanotechnology for creating self-healing armors and other equipment.

► US-based startup [Hermeus](#) builds Mach 5 capability aircraft. The startup's Quarterhouse hypersonic jet is being designed to travel at a speed of 3000+ miles per hour. It uses the

startup's proprietary turbine-based combined cycle (TBCC) engine and has both military and commercial applications. The technology is capable of serving air force missions of senior leader transport, intelligence, surveillance, and reconnaissance.

► US-based startup [Epirus](#) develops directed energy weapons systems. It utilizes solid-state, software-defined high-power microwave technology to enable counter-electronics effects for a range of use cases. Featuring an open architecture, the product integrates with existing ground-based, maritime, and airborne systems for multi-layer protection against autonomous threats. The lightweight pods enable the destruction of critical electronic components, disabling drones.

Robotics & Autonomous Systems (RAS)

► Protecting forces, increasing situational awareness, reducing soldiers' physical & cognitive workload as well as facilitating movement in challenging terrains are a few crucial objectives for militaries. The integration of RAS technologies helps militaries achieve these objectives and control terrain, secure populations, and consolidate gains. RAS is increasingly important to ensuring freedom of maneuver and mission accomplishment with the least possible risk to soldiers. The use of drones provides enhanced battlefield situational awareness. Moreover, multi-mission robots facilitate landmine clearance, search rescue operations, explosive ordnance disposal, and logistics support.

► US-based startup [Anduril](#) offers an autonomous UAS for intelligent air support. The startup's product, Ghost4, is an ad-

vanced drone system that uses edge-based AI algorithms. It is man-portable, waterproof, and has a high payload capacity as well as being able to run a variety of missions in any environment. It provides real-time surveillance, intelligence, and reconnaissance capabilities, creating a clearer common operating picture to make more informed military decisions.

► Israeli startup [Spear](#) offers instant action drone-based systems. The startup's tactical drones utilize computer vision, swarm computing, and mesh algorithms to achieve tactical superiority. The drones are suitable for instant launch from, sea, land with both stationary and mobile platforms with a payload capacity of up to 1 kg. The drones are easy to operate and, hence, require minimal training and provide a tactical advantage to the ground and special forces.

Internet of Military Things (IoMT)

► Applications of the Internet of Things (IoT) in defense include connecting ships, planes, tanks, drones, soldiers, and operating bases in a cohesive network. This enhances perception, understanding in the field, increases situational awareness and response time. Edge computing technologies, AI, and 5G support the smooth flow of data across all branches of the military and this strengthens the command and control structure. In IoMT, the sensing and computing devices worn by soldiers and embedded in their combat suits and equipment collect a variety of static and dynamic biometric data.

► [Espre Technologies](#) is a US-based startup that offers a suite of sensor technology products for NIN communication. The startup's chipsets enable wireless digital encryption of data along with 10x simultaneous transmissions. The under-

lying technology embedded AI for smart threat detection and smart resource spectrum allocation. The network agnostic, secure & scalable communications are built for the battlefield of things and provide bidirectional communications.

► US-based startup [Geosite](#) aggregates data from different sources for both human and machine analysis. The startup's collaborative military system uses satellites, the internet of things, and field sensors to build a common operating picture. Data visualization along with management dashboards offer the advantage of information superiority to plan and execute operations. It helps forces in comprehensive intel for situational awareness, tracking threats, marking ranges, and mapping target areas.

Cyber Warfare

► Military systems are often vulnerable to cyber-attacks which could potentially lead to the loss of classified military information and damage to military systems. Over the past several years, the frequency and severity of cyberattacks have steadily increased. Prescriptive security technology uses a combination of cybersecurity, AI, and automation to detect potential threats and stop them before they impact defensive cyber warfare capabilities. Connected military equipment security, cyber protection for major institutions as well as in nuclear security are major areas of focus. Militaries are also developing offensive cyber warfare capabilities ranging from malware and ransomware to phishing attacks.

► French startup [HarfangLab](#) deploys cyber defense solutions to protect critical infrastructure environments for na-

tional defense. The startup's technology is built on ultra-robust programming offering both high computing speed and enhanced security. Its EDR software assists in the supervision, automatic detection, investigation, and neutralization of cyber threats. The open-by-design structure enables the software to easily integrate with existing cybersecurity solutions in any organization.

► US-based startup [Cyber Forza](#) provides a unified cyber defense platform. The startup's product has both defender and interceptor capabilities. While the former tackle external threats, the latter addresses internal threats. The platform provides AI-based distributed denial of service (DDoS). Moreover, it enables real-time monitoring, phishing fraud defense, and protection from ransomware and malware attacks.

Immersive Technologies

► Immersive technologies make it easy to build immersive, repetitive, and flexible experiences, such as for flight or combat training. Startups use virtual reality (VR) to construct synthetic training environments (STE). These experiences augment conventional training and mission rehearsal, improving the readiness of soldiers and units. Beyond training opportunities, augmented reality (AR) makes on-field soldiers more effective in their missions. Wearable glasses or augmented reality headsets provide soldiers mapping information, movement markers, and other data. This enhances real-time situational decision-making for the ground forces.

► US-based startup [GOVRED](#) builds turnkey VR-based training solutions for the military. GOVRED utilizes HTC Vive headsets and custom code to create scenarios running at

90 frames per second. This allows users to move around a 25 square meter area, interacting with multiple scenarios. The startup's proprietary training technology provides the military with a full line of firearms training and combat simulators.

► US-based startup [Red 6](#) develops the Airborne Tactical Augmented Reality System (ATARS), a solution for AR-based combat training. The system combines AR and artificial intelligence for air combat military training applications. It brings virtual and constructive assets into the real world by allowing pilots and ground operators to see synthetic threats in real-time, outdoors, and, critically, in high-speed environments. The technology is scalable to multi-domain operations and assists squadrons in enhancing readiness and lethality.



Additive Manufacturing

► Reducing the weight of defense equipment is crucial for improving performance in speed, capacity, and fuel consumption. 3D printing enables the production of components and parts while utilizing significantly less material than traditional manufacturing. It reduces production costs, enables new design engineering possibilities as well as powers localized and on-demand production, reducing the logistical burden. Moreover, it facilitates the creation of novel material combinations for armors, self-heating military clothing, and ammunition.

► Indian startup [Accreate Labs](#) prints aerospace-grade components for aerospace & defense sectors. With additive manufacturing, the startup makes complex end-use parts as well

as custom production tools like jigs and fixtures. The startup's solutions boost factory productivity and workers' safety as well as make the production process cost-effective.

► US-based startup [Rapid Application Group](#) produces mission-critical parts for the aerospace and defense industry. The startup provides a range of additive manufacturing solutions such as selective laser sintering, fused deposition modeling, stereolithography, digital light printing, direct metal laser sintering, and injection molding. Its application-based approach enables rapid prototyping and quality assurance of hardware parts.



Big Data Analytics

► The future of warfare relies ever so more on information and the ability to derive insights from it. Militaries with the capabilities to extract the most vital data, accurately and quickly analyze it, and then rapidly and securely disseminate the information will have a strategic advantage. Big data analytics unlocks insights from the various data sources to do just that. Quantum computing finds applications in cryptanalysis as well as running simulations for informed decision-making. Analytics advances also enable efficient interpretation of data gathered from the IoMT infrastructure. Moreover, predictive analytics deters threats and improves the safety and efficiency of dangerous tasks.

► Australian startup [Q-CTRL](#) offers cloud-based software for maximizing performance in quantum computers. It utilizes

quantum computing for various defense applications. The startup's solution enables cryptographic analysis and sensor-based detection of underground hardened structures and hidden weapons systems. Moreover, it facilitates quantum-enhanced navigation in GPS-denied battlefields through atomic accelerometers.

► French startup [Delfox](#) provides predictive technology to automate tasks in complex environments, such as for multi-actor cooperation. The technology leverages deep reinforcement learning to learn from data from previously encountered situations and adapts accordingly. The startup's products enable maneuvering for unmanned vehicles and the detection and communication of relevant information in a timely manner to the forces.

5G

► Appropriate and timely information is extremely critical to military operations. 5G technology, due to its fast speed, accelerates real-time decision support in the military. It promises hyper-converged connectivity and enhanced secured data networks. This enables new command-and-control applications and streamlines logistics. Further, 5G networks facilitate the transfer of massive amounts of data to connect distant sensors and weapons into a dense, resilient battlefield network. This provides instant situational awareness as well as enhances training and battlefield capabilities.

► Indian startup [Niral Networks](#) provides private 5G Infrastructure for last-mile connectivity. Its open and disaggregated

network operating system, NiralOS, facilitates 5G and edge computing products. It integrates with any off-the-shelf white box hardware. For defense organizations, the 5G infrastructure enables rapid and cost-effective digital transformation at all fronts.

► [WiGL](#) is a US-based startup that offers wireless electric charging via targeted energy through the air. The startup's patented technology uses a mesh network of wireless transmitters. It converts any wall outlet, vehicle charger, or power source into a smart electric power router. Communication occurs device-to-device using 5G or Wifi. With wireless charging, IoT devices are no longer reliant on the availability of batteries.

Blockchain

► Blockchain provides data security while allowing relevant data to be shared with all concerned parties. This is why defense startups are building blockchain-based solutions for protecting confidential military data and countering cyber threats. Other applications of blockchain technology in the industry include device tracking, streamlining the procurement process, and supply chain security. Smart contracts significantly reduce the risk of fraud or corruption while dealing with defense contractors.

► US-based startup [Taekion](#) develops technology for military data protection. It leverages blockchain to secure defense data in tamper-proof storage. The UNIX-style distributed file system has built-in compression, encryption, and deduplica-

tion features and integrates seamlessly with existing infrastructure. The technology offers military-grade protection for information security at all levels. Moreover, the digital box feature enables forensic investigations after any cybersecurity attacks.

► Slovakian startup [3IPK](#) offers a process management system for the defense and aerospace industries. It combines blockchain technology with data analytics and artificial intelligence. The solution automates the supply chain and maintenance processes. Moreover, it enables smart contracts, increases traceability and transparency, thereby leading to efficient process management and quality control.



Discover all Military Technologies & Startups

► It is important to realize that the landscape of war is changing at an exponential pace with new disruptive technologies. Lethal autonomous weapons, intelligent systems, and AI are major drivers for both defensive and offensive military capabilities. Hyper-converged and secured connectivity with 5G and blockchain make military communication safe and robust. From the development of hypersonic jets and directed energy weapons to quantum computing, these trends will have major implications on how militaries operate. This is why defense startups continue to develop military modernization solutions and dual-use technologies that have both military and civilian benefits.

► The Military Technology Trends & Startups outlined in this report only scratch the surface of trends that we identified during our in-depth research. Among other technologies, brain-computer interfaces, space militarization, and nanotechnology will transform the sector as we know it today. Identifying new opportunities and emerging technologies to implement into your business early on goes a long way in gaining a competitive advantage. Get in touch to easily and exhaustively scout relevant technologies & startups that matter to you.



Identify What's Next

The [StartUs Insights Discovery Platform](#) covers over **2,5 million startups & scaleups globally** – making it the world's largest resource for data on emerging companies. The SaaS Platform enables you to **easily, quickly, and exhaustively scout relevant companies, technologies, & trends** for your innovation activities. This saves your time and increases efficiency, which is why more than 650 leading corporate partners including Samsung, Kyocera, and Nestlé already trust our technology.

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