

What's brewing in Spanish defense sector: Key trends to watch out...





CYBER

Significant shortage of skilled cybers ecurity professionals, impacting its ability to respond to growing cyber threats.

Cybersecurity skills gap

Highlights

Trends

References

Economic Impact of cybercrime

Adoption of Green IT Practices in Cybersecurity

E-Waste from Outdated Cybersecurity Hardware

Block chain for Secure **Defense Communications**

Organizations like INCIBE, INDRA, and Telefónica Tech are actively working to address this gap through specialized training programs/technology centers



LAND

Energy efficiency is becoming a key consideration in military operations in Spain, with efforts to reduce fuel consumption and develop more energy-efficient vehicles and systems

Practices

Hypersonic Defense Systems for Ground Protection

Increased Focus on **Energy Efficiency** in Military Operations

Additive Manufacturing for

Hybrid Electric

and Autonomous

Land Vehicles

Advancing its missile capabilities with projects like the FOX I micromissile. developed by Aertec

Customized Land Defense Equipment



Seeing a rise in mergers and acquisitions as companies consolidate to remain competitive. This trend is driven by rising costs and technological demands

Diversification of Defense Workforce

Drones & UAV

Electronic Warfare

Autonomous Flight Systems

Defense Industry **Consolidation and Mergers**

Spanish Air and Space Force is preparing to deploy the MQ-9 Predator B, a state-ofthe-art combat drone developed by General Atomics Aeronautical Systems



NAVAL

Strengthening its maritime defense policies to combat the rising threat of cyberattacks targeting naval assets and critical infrastructure. This includes investing in cyber defenses & training programs

> Impact of Rising Sea Levels on Naval Bases

Stronger Maritime Defense Policies in Response to Cyber Threats

> Focus on Workforce Digitalization

Naval Radar Systems: Lock heed Martin has successfully tested the SPY-7 radar system developed for Spain's F-110 Multi-Mission Frigate project



SPACE

Europe is exploring the use of 3Dprinted satellites to enhance its space capabilities, contributing to projects like **SENTINEL**

> Integration of 3D-Printed Satellites in Defense

Development of Green propulsion systems

Sustainable Space Launch Initiatives

Europe is witnessing a rise in Space tech start ups focusing on sustainable materials & logistics in space launch initiatives

FEINDEF **FOCUS AREAS**





Dual Use Technologies



Technology Collaboration



Artificial Intelligence



Logistics

Note: The analysis provided is based on available secondary sources and is non-exhaustive and subjective

Source: PAC SITSI: Itonics. Secondary data resources





Appendix

Trend	Defense Value Chain segment	Short Overview	Example/Source links
Cybersecurity Skills Gap	Cyber	Significant shortage of skilled cybersecurity professionals, impacting its ability to respond to growing cyber threats.	Case-Study-PAPS-Indra_EN.pdf Indra leads the largest cyber situational awareness project for the Defense of Europe indra 180620_pr_minsait_cyber_range_customized.pdf
Economic Impact of Cybercrime	Cyber	The economic toll of cybercrime is growing in Spain, impacting businesses, governments, and individuals. This has led to increased investment in cybersecurity measures.	https://www.statista.com/topics/7011/cyber-crime-in-spain/#topicOverview https://link.springer.com/article/10.1007/s10207-024-00847-7
E-Waste from Outdated Cybersecurity Hardware*	Cyber	As cybersecurity hardware ages and becomes obsolete, Spain faces growing challenges related to e-waste disposal.	<u>Cybersecurity indra</u> <u>indra_isms_integrated.pdf</u>
Adoption of Green IT Practices in Cybersecurity*	Cyber	Green IT practices are being adopted by cybersecurity providers in Spain to reduce environmental footprints.	NoPriv.Inf-NFR-2023-Navantia_WEB_ENG.pdf
Blockchain for Secure Defense Communications*	Cyber	Spain is exploring blockchain technologies for secure defense communications.	Enhancing Military Cyber Defense in Spain: Key Strategies and Challenges - Total Military Insight
Hypersonic Defense Systems for Ground Protection	Land	Hypersonic technologies are advancing rapidly, driving the need for land-based defense systems in Spain capable of countering these ultra-fast missiles and aircraft.	Spain upgrades its air defense against hypersonic missile threats OCCAR, Spanish Missile Systems Sign Hypersonic Defense Interceptor Study Project
Additive Manufacturing for Customized Land Defense Equipment	Land	Additive manufacturing, or 3D printing, is enabling faster production of customized defense equipment and components in Spain. Spain is investing in additive manufacturing technologies, to be showcased at events like Addit3D 2025.	https://www.metal-am.com/dates-announced-for-spains-addit3d-2025-and-industry-forum/
Sustainable Defense Practices	Land	Increasingly adopting sustainable practices in defense to reduce its environmental footprint and ensure long-term operational resilience. This includes initiatives to reduce emissions and manage waste.	PowerPoint Presentation
Increased Focus on Energy Efficiency in Military Operations	Land	Energy efficiency is becoming a key consideration in military operations in Spain, with efforts to reduce fuel consumption and develop more energy-efficient vehicles and systems.	PowerPoint Presentation
Hybrid Electric and Autonomous Land Vehicles	Land	Spain is investing in hybrid electric and autonomous land vehicles to enhance operational efficiency and reduce environmental impact.	PowerPoint Presentation
AI-Driven Autonomous Flight Systems	Air	AI is driving the development of autonomous flight systems in Spain, reducing reliance on human pilots and enabling UAV swarms in defense.	Airbus and European innovation - Imagining a future combat aircraft cockpit Airbus



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Trend	Defense Value Chain segment	Short Overview	Example/Source links
Defense Industry Consolidation and Mergers	Air,Land	The Spanish defense industry is seeing a rise in mergers and acquisitions as companies consolidate to remain competitive. This trend is driven by rising costs and technological demands.	The Spanish Defense Industry in the Face of Sector Consolidation in Europe (ARI) Indra seeks to lead consolidation in Spanish defense industry
Diversification of Defense Workforce*	Air	The Spanish defense industry is focusing on workforce diversification, incorporating more gender, cultural, and demographic representation in leadership and operations.	p-16-21-red-14-eng-mujeres.pdf
Drones & UAV	Air	Spanish Air and Space Force is preparing to deploy the MQ-9 Predator B, a state-of-the-art combat drone developed by General Atomics Aeronautical Systems. Known as the Reaper, this UAV is essential for intelligence, surveillance, and reconnaissance missions and can execute precision strikes	Spanish Predator B drones to be finally armed with bombs and missiles
Electronic Warefare	Air	Spain leads the European Union's Permanent Structured Cooperation (PESCO) initiative to develop airborne electronic warfare capabilities.	https://www.defensenews.com/global/europe/2023/09/18/european-airborne-electronic-attack-program-kicks-into-highgear/https://www.pesco.europa.eu/project/airborne-electronic-attack-aea/
Stronger Maritime Defense Policies in Response to Cyber Threats	Naval	Strengthening its maritime defense policies to combat the rising threat of cyberattacks targeting naval assets and critical infrastructure. This includes investing in cyber defenses & training programs.	NATO certifies Spanish Navy as new Allied Reaction Force (Maritime) following largest naval exercise of the year Maritime Cybersecurity: Strengthening Defenses in 2025
Impact of Rising Sea Levels on Naval Bases*	Naval	Rising sea levels are threatening coastal naval bases in Spain, prompting relocation and adaptation strategies to maintain operational readiness.	Rising sea levels in Spain is an urgent concern
Focus on Workforce Digitalization	Naval	Digital skills and tools are becoming critical for naval personnel in Spain as defense operations increasingly rely on AI and technology.	The Spanish Navy finalises its Vision 2050 and details its plans up to 2030
Sustainable Space Launch Initiatives	Space	Sustainable space launch technologies are being developed in Spain to reduce the environmental impact of launching defense satellites and spacecraft.	The next SpaceX? These UK & European spacetech startups are taking off in 2025 — TFN Commission Unveils Strategic Access to Space Initiatives at 17th European Space Conference - European Commission
Integration of 3D-Printed Satellites in Defense*	Space	Europe is exploring the use of 3D-printed satellites to enhance its space capabilities, contributing to projects like SENTINEL and GALILEO.	3D Printing Satellite Parts with EOS Technology EOS GmbH EOS GmbH
Development of Green Propulsion Systems*	Space	Spain is investing in green propulsion systems to enhance sustainability in defense operations.	ESA - Testing Green Propellants with Existing Systems ESA - Green technologies

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