



Controlled Adaptation and Integration

Defence AI in Belgium

Daniel Fiott

DAIO Study 26|33

Ein Projekt im Rahmen von

 **dtec.bw**
Zentrum für Digitalisierungs- und
Technologieforschung der Bundeswehr



About the Defense AI Observatory

The Defense AI Observatory (DAIO) at the Helmut Schmidt University in Hamburg monitors and analyzes the use of artificial intelligence by armed forces. DAIO comprises three interrelated work streams:

- Culture, concept development, and organizational transformation in the context of military innovation
- Current and future conflict pictures, conflict dynamics, and operational experience, especially related to the use of emerging technologies
- Defense industrial dynamics with a particular focus on the impact of emerging technologies on the nature and character of techno-industrial ecosystems

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1 Executive Summary

Belgium's engagement with artificial intelligence (AI) in defence is best understood not as a dramatic technological leap, but as a series of pragmatic, institutionally embedded steps shaped by alliance politics, budgetary realism and an enduring preference for multinational solutions. Rather than positioning itself as an AI front-runner, Belgium has sought to integrate AI-enabled capabilities where they reinforce existing strengths: intelligence analysis, logistics, cyber defence, training and interoperability within NATO and the European Union (EU). This approach reflects a broader Belgian defence culture that favours the centrality of the NATO alliance, EU cooperation in defence and multinational cooperation.

Belgium's defence engagement with AI sits at the intersection of three strategic frameworks. First, NATO provides the primary operational reference point. As host to NATO's political headquarters and a long-standing advocate of transatlantic cohesion, Belgium views AI as an enabler of interoperability, decision support and resilience rather than a tool for unilateral advantage. NATO's work on data, autonomy, and the responsible use of AI has therefore heavily influenced Belgian thinking, particularly in areas such as command and control (C2), intelligence, surveillance, and reconnaissance (ISR), and cyber defence.

Second, the EU framework shapes Belgium's industrial and regulatory approaches. Belgian policymakers have consistently emphasised the need to reconcile AI adoption with European norms on data protection, ethics and civilian oversight. Participation in EU defence initiatives—such as capability development projects and research programmes—has allowed Belgium to experiment with AI in a manner that pools risk and cost while reinforcing European technological sovereignty.

Third, national defence planning provides practical constraints. Belgium's defence modernization efforts since the late 2010s have focused on restoring readiness and credibility after years of underinvestment. Within this context, AI is not treated as a standalone capability but as a force multiplier for existing platforms and processes. The emphasis is on incremental gains—better maintenance forecasting, faster data analysis, improved situational awareness—rather than autonomous systems.

At the operational level, Belgium's use of AI has concentrated on data-intensive functions. Modern military operations generate vast quantities of information, and Belgian defence has increasingly explored AI-enabled tools to assist human analysts rather than replace them. In ISR, machine learning techniques are used to sift,

classify and prioritize sensor data, reducing cognitive overload and accelerating decision cycles. This is particularly relevant for a medium-sized armed force that must operate efficiently within multinational task forces. Logistics and sustainment represent another important domain. Predictive maintenance, inventory optimization and transport planning are areas where AI promises tangible efficiency gains. For Belgium, whose armed forces rely on a mix of national assets and multinational supply chains, AI-enabled logistics can help ensure that limited resources are used intelligently, especially during high-tempo operations or prolonged deployments. Training and simulation also feature prominently. AI-supported modelling allows Belgian defence to enhance training realism while managing costs. Adaptive learning systems can tailor training pathways to individual soldiers, while AI-driven simulations enable complex scenario planning without the expense of large-scale live exercises.

Cyber defence is arguably the area where Belgium's AI engagement is most pronounced. The increasing sophistication and speed of cyber threats have made automated detection and response tools indispensable. Belgian defence has explored AI techniques to identify anomalies in network traffic, detect malicious behaviour and support rapid incident response. Given Belgium's role as host to critical NATO and EU institutions, cyber resilience is not only a national concern but an allied responsibility. Importantly, Belgian approaches to AI in cyber defence reflect a strong awareness of escalation and attribution risks. Automated systems are designed to support human operators, preserving human-in-the-loop decision-making for actions with potential strategic consequences. This reflects a broader Belgian sensitivity to the political dimensions of cyber operations and the need to align technical responses with legal and diplomatic considerations.

Belgium's defence-industrial base is modest but specialized, and this has shaped its AI trajectory. Rather than pursuing large, vertically integrated defence AI programmes, Belgium has relied on a networked ecosystem linking defence, academia and industry. Universities and research institutes—often working in close cooperation with the Royal Military Academy—play a central role in developing and testing AI applications relevant to defence and security. Belgian industry contributes through niche capabilities, dual-use technologies and integration expertise. Companies active in land systems, weapons, sensors and digital solutions increasingly embed AI components into their products, often in cooperation with larger European partners. This reinforces Belgium's preference for being an intelligent integrator within multinational programmes rather than a sole developer of end-to-end AI systems.

EU research funding has been particularly important in this regard. Participation in collaborative projects allows Belgian actors to access cutting-edge research while aligning with European standards on ethics and data governance. AI development is thus closely tied to broader debates about responsible innovation and the avoidance of technological dependency.

Belgium has consistently emphasised the ethical and legal dimensions of military AI. This is not merely rhetorical. As a state deeply invested in multilateralism and international law, Belgium approaches AI with a clear preference for restraint, transparency and accountability. Discussions around autonomous functions, human control and algorithmic bias are integrated into defence planning and education. Rather than rushing towards fully autonomous weapon systems, Belgian defence policy has favoured clear human oversight, especially in lethal decision-making. AI is framed as decision support, not decision authority. This stance aligns Belgium with broader European efforts to shape international norms on the responsible military use of AI, particularly within NATO and the EU.

Belgium's AI journey in defence is not without constraints. Limited budgets, competition for skilled personnel and dependence on multinational frameworks all shape what is feasible. There is an inherent tension between the desire to remain technologically relevant and the reality of finite national resources. As a result, Belgium must make careful choices about where AI delivers the greatest strategic return. There is also a cultural dimension. Integrating AI into military organizations requires changes in mindset, training and trust. Belgian defence has approached this cautiously, prioritizing explainability and operator confidence over rapid automation. This may slow adoption, but it reduces the risk of over-reliance on opaque systems.

Belgium's use of artificial intelligence in defence is emblematic of a broader European pattern: cautious, collaborative and normatively anchored. AI is not treated as a panacea, nor as a revolutionary break with existing defence practices. Instead, it is woven into the fabric of defence reform as a practical tool to enhance effectiveness, efficiency and interoperability. In this sense, Belgium's approach may lack the drama of major power AI strategies, but it possesses a certain strategic sobriety. By embedding AI within alliances, regulatory frameworks and human-centred decision-making, Belgium seeks not to lead the AI race, but to remain a credible, responsible and reliable defence partner in an increasingly data-driven security environment.

2 Thinking About Defence AI

Belgium's national and regional approaches to AI reveal a cautious but increasingly purposeful effort to ensure that civilian AI ecosystems can support security and defence objectives without eroding democratic control. Rather than pursuing a standalone "military AI strategy", Belgium has opted to embed defence-relevant AI capabilities within wider regional and federal innovation frameworks in Flanders and Wallonia, where investments in data science, automation and AI skills indirectly strengthen the technological base available to the armed forces.

At the national level, the National Convergence Plan provides an enabling governance architecture that seeks to align AI development with ethical, legal and societal norms—an approach that is particularly salient for defence applications involving data, surveillance and decision-support systems. Coordination mechanisms such as AI4Belgium further reinforce this model by linking defence stakeholders with civilian research, industry and public authorities, thereby supporting dual-use innovation while mitigating fragmentation across Belgium's federal system. In this sense, Belgium's defence-oriented use of AI is less about the rapid fielding of autonomous military systems and more about ensuring that defence modernization draws sustainably on a robust, responsible and interoperable national AI ecosystem anchored in European and NATO frameworks. Below is an overview of Belgian approaches to civil and military AI.

2.1 What Belgium Wants to Achieve With Defence AI

For Belgium, and within the context of its national, European and international efforts, AI is not treated as a standalone capability but as a force multiplier for existing platforms and processes. Belgium emphasizes incremental gains in defence AI rather than on developing fully lethal autonomous systems. For Belgium, AI is designed to support human decision-making, reduce the cognitive overload of civilian and military personnel and improve efficiency rather than replace command authority or automate lethal choices.

As we shall see in later chapters, Belgium has already started to integrate AI within training, staff development and technological innovation enterprises. These efforts include steps to fund, procure and develop better maintenance forecasting, faster data collection and analysis and improve situational awareness in critical domains such as space. In this sense, Belgium views defence AI as part of a broader technological strategy centred on developing Belgian industry, while also ensuring that Belgium does not get left behind by allies and partners in NATO and the EU. Accordingly, Belgium's defence AI efforts are seen as way to improve national efficiency and effectiveness in defence, while also ensuring that Belgian armed forces remain fully interoperable with partners.

Therefore, Belgium aims to transform its armed forces into a ‘future-proof, tech-enabled force’ by integrating AI as a core element of its overall defence modernization. According to the Strategic Vision 2025 and the 2024 Security, Technology, Ambition and Resilience (STAR) Plan¹, the Ministry of Defence focuses on AI to enhance decision-making, optimize smart logistics and support autonomous systems armed drones and swarm tactics. A key objective for Belgian defence is to transition from a crisis management or expeditionary force into a high-readiness military force capable of anticipating threats and defending national territory alongside NATO partners. To achieve this, Belgium has committed more than 3% of its total defence budget specifically to research, development and innovation. Furthermore, we must recall that defence AI is situated within the 2022 National Convergence Plan for AI, which emphasizes the dual-use nature of these technologies, aiming to ensure cybersecurity and ethical development while strengthening the Belgian defence industrial and technological base.²

Part of Belgium’s approach to defence AI also includes an important ethical dimension, and Belgium seeks to develop AI in defence in line with its international obligations. Ethical and legal obligations play an essential role. Belgium wants to ensure human oversight and transparency in the way AI is integrated in defence, and there is a rejection of the idea of AI enabling full autonomy for lethal systems. Overall, Belgium follows the principles of its National AI Convergence Plan, which seeks to promote trustworthy AI and recognises that the use of AI does not occur in a legal vacuum. To this end, Belgium wants to uphold the highest standards of data protection, fundamental rights (including privacy, dignity and non-discrimination) and transparency in AI. As part of the EU’s “AI Act”, which formally excludes military use but still frames the overall application of AI, the emphasis is on a human-centric, risk-based model.³

Yet, Belgium’s approach to defence AI is influenced by its broader diplomatic approach to international laws and norms governing the use of Lethal Autonomous Weapons Systems (LAWS). Belgium and other EU member states (such as the Netherlands) have led early efforts through the EU to develop international law on LAWS and they have supported human control over LAWS.⁴ At the United Nations, Belgium plays an active role in the Group of Governmental Experts (GGE) on LAWS and it played a key role in the adoption of the Eleven Guiding Principles for the Development and Use of LAWS, which were endorsed in 2019.⁵ Furthermore, Belgium co-sponsored and voted for the UN General Assembly Resolution

1 Royal Higher Institute for Defence, “Defence, Industry and Research Strategy.”

2 LexGo, “New Belgian National Convergence Plan for the Development of Artificial Intelligence.”

3 Clapp, “Defence and Artificial Intelligence;” Ooms/Gils, “Implementing the AI Act in Belgium: Scope of Application and Authorities.”

4 European External Action Service “Convention on Certain Conventional Weapons – EU Statement on LAWS.”

5 Belgian Ministry of Foreign Affairs, “Disarmament.”

80/57 (December 2025) on LAWS, which seeks an urgent response to lethal autonomous weapons and international prohibition.⁶

Accordingly, Belgium is keen to benefit from certain elements of defence AI, while always adhering to international laws and norms that it is actively engaged in developing and promoting. And here, we should acknowledge that the Belgian Federal Government goes to great lengths to promote a national dialogue on the responsible use of AI, as well as contributing to efforts through organisations such as the EU. For example, the government has organised public consultations on use of AI in 2024⁷ and, on 26-27 February 2026, the Royal Military Academy organised a major international conference on the Ethical and Social Perspectives on New Military Technologies, which reflected on the rise of LAWS, military strategy and the Just War tradition.⁸ What is more, we should recognise that Belgium has worked through EU bodies like the European Defence Agency to develop important documents such as the White Paper on Trustworthiness for AI in Defence, a document that integrates feedback and input from several AI experts and EU member state stakeholders.⁹

2.2 National and Regional Approaches to AI

Like other European nations, Belgium is seeking to utilise and integrate AI into society in a responsible and effective manner. Belgium has already made steps to encourage societal and public use of AI for government services, innovation and entrepreneurship. In 2019, Flanders developed its regional strategy for AI to cover the period 2024-2028. The “Flemish Artificial Intelligence Policy Plan” seeks to boost research, business digitalization and AI literacy in society. Flanders’ AI policy reflects a strategic effort to position the region at the forefront of the data-driven transformation reshaping economies and societies.¹⁰ At its core is a tripartite policy plan that channels sustained investment into strategic basic research, broad AI adoption by business and societal readiness and governance. The research pillar seeks to deepen foundational AI knowledge and methodologies by supporting universities and research centres, such as through the “Flanders AI Research Programme,” which develops generic AI tools applicable in healthcare, industry and the public sector. This investment in fundamental science aims not merely to generate academic output but to anchor long-term competitiveness and ensure that Flanders can contribute to and shape cutting-edge developments rather than passively apply them.

6 UN General Assembly, “Resolution on Lethal Autonomous Weapons Systems.”

7 Belgian Ministry of Foreign Affairs, “Belgian citizens meet to reflect on AI.”

8 Royal Military Academy, “Ethical and Social Perspectives on New Military Technologies.”

9 European Defence Agency, “White Paper: Trustworthiness for AI in Defence.”

10 “Flanders Artificial Intelligence Policy Plan.”

Complementing research, the regional strategy prioritises implementation and uptake of AI across the economy. Through the Agency for Innovation and Entrepreneurship (VLAIO) and associated networks, Flanders incentivises firms — from nascent startups to established SMEs — to integrate AI into core operations, backed by advisory support and subsidies designed to lower barriers to adoption. At the same time, policymakers recognise that technological change requires concomitant societal adaptation: broad public awareness campaigns, targeted training programmes via the Flemish AI Academy (VAIA) and an ethical and legal framework are key to cultivating trust, safeguarding citizens and equipping the workforce for an AI-augmented future. Initiatives like the Knowledge Centre for Data & Society and citizen engagement projects (e.g. “Amai!”) underline that responsible governance and use are integral to the plan’s ambition of sustainable, inclusive digital transformation.

The Walloon region has also developed its own regional AI strategy as part of its wider “Digital Wallonia 2025-2029” framework, which situates AI as one of six strategic priorities alongside connectivity, cybersecurity, digital transformation and data sovereignty.¹¹ This regional programme seeks to narrow existing adoption gaps — where only around a quarter of firms currently deploy AI tools — by accelerating concrete and impactful uptake across economic and public sectors. Recognizing the dual imperatives of competitiveness and coherent governance, Wallonia aligns its regional ambitions with the European initiatives, aiming not just to import AI capabilities but to cultivate endogenous capacities that contribute to productivity, service quality and territorial intelligence.

Operationally, Wallonia’s approach combines capacity building, research investment and practical support for enterprises. The “DigitalWallonia4.ai” programme, for example, consolidates expert networks, financing instruments and adaptation tools to help organizations overcome technical, financial and regulatory barriers to AI integration. Furthermore, auxiliary initiatives like “Start IA” and “Tremplin IA” are designed to help firms assess AI uptake feasibility, plan adoption and develop proofs of concept with external expertise. Moreover, a significant research ecosystem — exemplified by programmes such as “ARIAC” by DigitalWallonia4. AI — reinforces the link between academic innovation and regional economic development, while coordinated efforts to help organizations comply with emerging regulatory regimes (e.g., the EU AI Act) underscore Wallonia’s insistence on responsible, governed AI adoption alongside competitive positioning.¹²

¹¹ “Wallonia Digital Strategy.”

¹² Digital Wallonia, “Intelligence artificielle.”

At the national level, Belgium has developed its general national approach to AI and digital strategy. Through the Federal Public Service Policy and Support (BOSA), Belgium developed a “National Convergence Plan” for the development of AI, which was approved by the Council of Ministers on 28 October 2022. Through a federal framework, the convergence plan is designed to harness AI systematically across the public and private sectors while anchoring innovation within ethical, legal and societal norms. The plan’s ambition is to make Belgium a “#SmartAINation” capable of responding to emerging economic, technological and societal imperatives. It does this not through a single flagship programme but through nine strategic objectives that span trustworthy AI, cybersecurity, competitiveness, data-driven economic growth, healthcare innovation, sustainable mobility, environmental stewardship, lifelong learning and enhanced public services. These objectives reflect a broad understanding of AI’s disruptive potential and align national priorities with wider EU and global digital agendas — from robust digital infrastructure to responsible public sector modernization.

Implementation is anchored not only in objectives but in governance and coordination mechanisms that bridge federal ministries, regions, private stakeholders and academic actors. The plan envisages a steering committee jointly overseen by BOSA and the Federal Public Service Economy to coordinate action, monitor progress and foster cooperation across language communities and institutional competencies. This emphasis on organised but flexible governance illustrates Belgium’s pragmatic response to both Belgium’s federal complexity and the inherently cross-cutting challenges of AI. The plan seeks to accelerate adoption, mitigate risk and ensure that AI contributes to national resilience, socio-economic competitiveness and citizen-centred public services in the decade ahead.¹³ In addition to this Convergence Plan, Belgium has already long invested in digital skills and AI, as shown by the “Digital Belgium Skills Fund” established in 2016 to invest in digital projects, especially for socially vulnerable people.¹⁴ It should also be noted that, to address the ethical concerns surrounding AI and to raise public awareness, Belgium appointed a “Data and AI Ethics Advisory Committee for the Federal Administration” in May 2024.¹⁵

In keeping with Belgium’s flexible approach, the “National Convergence Plan” is accompanied by an expert AI lab, an AI and Digital Technologies Observatory and two coalitions called “AI4Belgium” and “Blockchain4Belgium.” AI4Belgium occupies a deliberately connective and facilitative role within Belgium’s fragmented yet increasingly active AI ecosystem. Rather than functioning as a cen-

13 BOSA, “National Convergence Plan for the Development of Artificial Intelligence.”

14 BOSA, “Digital Belgium Skills Fund.”

15 BOSA, “Appointment of the Data and AI Ethics Advisory Committee for the Federal Administration.”

tralized body, it operates as a national hub and convenor, linking public authorities, industry, academia and civil society to support the realization of concrete AI projects. In doing so, AI4Belgium also acts as an observatory, monitoring the evolving landscape of actors as well as key technical and economic trends, and translating this situational awareness into a national AI agenda that helps align activities across institutional and regional boundaries. Its emphasis on communication and consultation—through platforms for surveys, studies and structured engagement—is reinforced by the organization of thematic working groups at the national level, which encourage experience-sharing, surface common challenges and help identify cross-cutting priorities relevant to both federal and regional stakeholders.¹⁶

Finally, at the start of 2025, the Belgian Federal Government Agreement (2025-2029) came into force, reinforcing these ongoing federal and regional efforts. The Agreement embeds AI within a broader ambition to modernise the Belgian state and economy through digitalization and data-driven governance. At the heart of this vision is a desire to transform the federal administration into a responsible, transparent and AI-enabled organization. The agreement aims to help Belgium implement European frameworks — including the AI Act and the Data Act — through designated regulators. The coalition agreement also extends AI's reach into sector-specific domains of public interest and security, signalling both opportunity and caution. In public health, the government plans a joint data and AI strategy aimed at improving care quality and administrative efficiency while safeguarding medical confidentiality and cybersecurity — an acknowledgment that AI's promise in healthcare must be tethered to ethical and regulatory guardrails.

On the security front, initiatives include establishing a living lab for intelligence services to experiment with emerging technologies, updating surveillance legislation to permit “smart” camera systems and deploying AI tools to relieve police administrative burdens and map criminal networks more effectively. Coupled with commitments to invest in cyber defence and electronic warfare within defence policy, the agreement illustrates an incremental but institutionally aware assimilation of AI across policy areas, where innovation is pursued within clear legal frameworks and with an eye to European harmonization and citizen trust.¹⁷

¹⁶ BOSA, “AI4Belgium.”

¹⁷ Kenniscentrum Data & Maatschappij, “Belgium – Federal Government Agreement 2025-2029.”

2.3 A National Strategy for Defence and AI

In 2025, the Belgian Federal Government released the “Strategic Vision for Defence,” which is the latest policy and strategy roadmap for Belgian defence.¹⁸ Given the geopolitical challenges facing Belgium, the EU and NATO, the Vision aims to transform Belgian defence from a largely expeditionary enterprise for crisis management into a robust and resilient participant in the defence of Europe and NATO’s deterrence activities. The Vision reflects a clear shift from a legacy of under-investment toward a more credible, resilient force posture capable of contributing meaningfully to collective defence. In response to changing threat dynamics — including the prospect of high-intensity conflict in Europe and emerging hybrid challenges — the Belgian government has elevated defence spending¹⁹ to 2% of GDP in 2025 and committed substantial new resources to capability development. This fiscal recalibration is not simply about meeting alliance benchmarks; it aims to underpin tangible enhancements in readiness, deterrence and sustainable force projection. By signalling a willingness to close capability gaps that have accrued over decades, Belgium’s strategy anchors its modernization in both national sovereignty and NATO solidarity.

Operational modernization is grounded in a comprehensive refresh of material capabilities across all domains. The strategy envisages significant acquisitions—from additional F-35 combat aircraft and layered air defence systems to enhanced naval platforms and unmanned aerial vehicles—that collectively address the air, land and maritime dimensions of contemporary warfare.²⁰ Belgium’s plan for 1,500 combat vehicles and thousands of logistical assets underscores a renewed emphasis on manoeuvre, sustainment and interoperability with allied formations.²¹ The focus on multi-layered air defence, including NASAMS and other systems, reflects lessons from recent conflicts about the centrality of integrated air and missile defence to territorial protection. These investments are intended to transition Belgian forces from niche expeditionary roles toward a more balanced force capable of high-intensity operations alongside partners.

Belgium’s defence modernization also encompasses structural reforms to manpower/human capital, logistics and stockpiles. To support increased operational output, the defence strategy prioritizes the growth of an “operational reserve”, expanded recruitment and improved conditions of service, recognizing that

18 Belgian Federal Government, “Strategische Visie Defensie 2025.”

19 Although, as stated by Belgian defense specialists, there is a need for the government to meet higher spending commitments in NATO of up to 5%. Haas/Haesebrouck/Balcaen, “Tanks Versus Pensions? How European NATO Countries Fund Defence and What Belgium Can Learn.”

20 Ruitenbergh, “Belgium to add F-35s, spend billions on anti-air in defense catch up.”

21 “Belgium Gears Up for Future Wars with Drones, AI and 1,500 Combat Vehicles.”

modern hardware demands commensurate human capacity. A critical component of readiness is the Ammunition Readiness Plan 2025,²² which seeks to end chronic shortages by investing in a broad range of munitions and establishing strategic partnerships with producers. This systematic attention to ammunition, sustainment and rapid procurement processes signals a maturation in Belgium's approach to force generation — one that aligns with NATO's emphasis on sustainment in prolonged conflict.

Belgium's strategy situates modernization within broader technological and institutional contexts. Investments in cyber defence, cloud²³ transition and automated threat analysis enhance resilience against non-kinetic threats and reinforce the military's digital backbone. Efforts to support defence-related research and to update legal frameworks reflect an awareness that modernization is as much about the governance of innovation as it is about platforms. By aligning national defence technology priorities with NATO and EU initiatives, Belgium seeks not only capability but also interoperability and shared industrial returns. In this way, the 2025 strategy blends material enhancement with deeper integration into allied norms and structures — a pragmatic and sober approach to modernizing Belgium's defence in an era of accelerating strategic complexity.

²² "Defence launches the Ammunition Readiness Plan 2025: Putting an End to Chronic Ammunition Shortages."

²³ "Cloud technology should replace classic army data centres – Belgian Defence Minister."

3 Developing Defence AI

Belgium's armed forces have faced a long-standing imperative to regenerate after decades of relative neglect and structural decline that followed the end of the Cold War. Successive budget cuts and organizational downsizing left the military ill-equipped to meet emerging security challenges, prompting defence planners and scholars to argue that the danger is not merely a temporary shortfall but a chronic erosion of capability and capacity. Mattelaer, for example, has long noted that despite surges in investment, the Belgian armed forces face the challenge of both developing and acquiring modernized military equipment and generating its force structure.²⁴ Beyond hardware, this regeneration challenge encompasses a critical human-resources bottleneck, with an ageing force profile that threatens to undermine operational effectiveness even as major weapon systems are upgraded. This long-standing need to rebuild the Belgian armed forces therefore combines a revitalization of core combat capabilities and the cultivation of a robust, younger and sustained military cohort. In this respect, recent Belgian government efforts in defence have stressed the importance of defence innovation, and this includes the digitalization of the Belgian armed forces and use of AI.

3.1 Defence and R&D Priorities

In terms of defence innovation, Belgium has developed its priorities in defence AI in a blended format mixing, on the one hand, a top-down articulation of defence requirements from the government that is also based on NATO and EU-level requirements, and, on the other hand, a more bottom-up technology drive shaped by Belgium's innovation network of universities and enterprises, as well as the technological solutions offered by international partners (see section 3.2). While there is not one single document that articulates all of Belgium's defence AI priorities (Table 1), it is possible to combine individual objectives and priorities from a range of government strategy and legislative documents and funding allocations. We should also note that the Royal Military Academy (RMA) is currently overseeing the development of 47 specific defence research projects on AI in the areas of sensing, automation, Big Data, cybersecurity, communications, and infantry protection, running until at least 2027.²⁵

From a more top-down perspective, the government's "Strategic Vision for Defence 2025" articulates a forward-leaning conceptual shift in how the Belgian Armed Forces integrate technological innovation into national defence planning, emphasizing not simply capability acquisition but anticipatory adaptation to the changing character of warfare. Central to this vision is the elevation of innovation

²⁴ Mattelaer, "Belgian Defence in 2018: Regeneration Time?"

²⁵ Royal Military Academy, "Research Programme."

Table 1: Belgian Defence AI Priorities

■ AI-Supported Cyber Defence	■ Detection of Explosive Devices and IEDs
■ AI and Data Fusion	■ Situational Awareness Capacities
■ AI and Digital Connectivity	■ Automatic Space Imagery Capacities
■ AI Defence Personnel Training	■ Force Protection and Medical Services

from a supporting function to a core driver of transformation: AI, robotics and autonomous systems are paired with electronic warfare, resilient C4ISR architectures and offensive/defensive cyber capabilities as priority axes for development (see Table 1). By dedicating more than 3% of the federal defence budget to research, development and innovation, Belgium signals an intent to embed disruptive technologies into force design and operational concepts rather than treating them as peripheral experiments²⁶. This strategic posture reflects a broader recalibration from an externally oriented, expeditionary model toward a high-readiness, deterrence-focused force capable of defending national territory and contributing credibly to NATO's collective security framework. Importantly, the vision also underscores collaboration with industry, academia and alliance partners as essential to sustaining innovation cycles, underscoring Belgium's recognition that technological edge is as much about ecosystems and governance as it is about platforms and systems.

Belgium's "Defence, Industry and Research Strategy" (DIRS) underscores the conclusion that national security in the 21st century is as much about technological and industrial resilience as it is about traditional force structure.²⁷ The strategy's core mission is to develop and consolidate a Belgian Defence Technological and Industrial Base (DTIB) capable of supporting national defence policy, contributing to European strategic autonomy and positioning Belgium as a relevant, reliable and competitive technological partner within both EU and transatlantic capability development frameworks. This ambition responds to a longstanding acknowledgement that Belgium's defence posture cannot be divorced from the health of its industrial ecosystem: without sustained investments in scientific research, technological expertise and industrial capacity, the country risks ceding influence and capability within the collaborative security architectures of NATO and the EU. By aligning national efforts with European Defence Fund, Permanent Structured Cooperation (PESCO) and broader industrial strategies, DIRS seeks to embed

²⁶ Innovation Board of Belgian Defence, "Belgian Defence Steps Boldly into the Future."

²⁷ Defence, Industry and Research Strategy.

Table 2: Belgian Defence R&D Priorities

Vertical Priority Domains	Horizontal Priority Domains
Maritime mine countermeasures technologies	Defence-related cyber
Next-generation combat aircraft technologies	In-service support and life-cycle services
Advanced military health and human performance	Smart and advanced structures and materials
Advanced soldier systems	Energy and environment
Ammunition systems/effectors and integration	Sensing, information processing and data management, communications and embedded intelligent systems
Unmanned intelligent systems	Emerging and disruptive technologies
Space-related applications	Underpinning technologies
	Skills and competences

Source: Belgian Federal Government, "Strategische Visie Defensie 2025," Defense Industry and Research Strategy.

Belgian firms, research centres and knowledge institutions within value chains that matter for tomorrow's defence applications — from dual-use technologies to next-generation systems — while ensuring that economic and social returns in the form of knowledge, employment and technological spill-over benefit the wider society.

DIRS articulates innovation — including emerging technologies such as AI — as a structural priority rather than a peripheral add-on. The strategy emphasizes that strengthening the DTIB sustainably requires coherent value chains, upstream research on critical technological building blocks and close collaboration between government, industry, academia and research institutes. This emphasis reflects an understanding that future operational advantage will derive not only from platform acquisition but from the ability to integrate sophisticated technologies, accelerate knowledge cycles and adapt rapidly to evolving security environments. Governance structures such as the DIRS steering committee, advisory bodies and a dedicated management unit further institutionalize this innovation agenda, ensuring that policy coherence and resource allocation support long-term technological investment. In doing so, Belgium aims to safeguard national autonomy in key domains while contributing to collective European defence capabilities — a

pragmatic yet strategically ambitious posture that resonates with broader continental efforts to align defence innovation with ethical norms,²⁸ economic competitiveness and alliance interoperability.

Finally, it is worth underscoring that Belgium's defence R&D priorities are in-line with the EU's and NATO's own innovation priority targets. For example, the European Defence Agency's "Capability Technology Areas" priorities include RF sensor technologies, naval systems, cyber research, energy and environment, space, guidance and navigation, secured communications and information networks and disruptive technologies²⁹. The "European Defence Industrial Strategy" and the EU's "White Paper on European Defence" outline 1) air and missile defence, 2) artillery systems, 3) ammunition and missiles, 4) drones and counter-drone technologies, 5) military mobility, 6) AI, quantum, cyber and electronic warfare and 7) strategic enablers and critical infrastructure protection as the critical military domains for the Union.³⁰ For NATO, the most critical technology domains include: 1) AI and data processing, 2) autonomous systems, 3) quantum-enabled technologies, 4) biotechnology and human enhancement, 5) space, 6) hypersonic systems, 7) novel materials and manufacturing, 8) energy and propulsion and 9) next-generation communications networks.³¹

3.2 Defence AI and the Belgian Defence Industry

Belgium's defence industry occupies a strategically important yet structurally nuanced position within both national security and the broader European defence ecosystem. Historically characterised by a preponderance of high-tech SMEs and mid-caps offering niche technologies rather than large systems platforms, the industry has been shaped by decades of fluctuating investment and policy fragmentation, leaving Belgium reliant on interoperability and cooperation with larger allies for major capability needs. The "Defence, Industry and Research Strategy 2022" has sought to reverse this trajectory by redefining national defence R&T as a core instrument for shaping Belgium's place within the emerging European Defence Technological and Industrial Base (EDTIB), with R&D expenditures projected to grow exponentially and link into EU mechanisms such as the European Defence Fund, DIANA and NATO Innovation initiatives. This reflects a deliberate policy choice: instead of market insulation or protectionism, Belgium favours open, coop-

28 de Neve, "Edge of Tomorrow: Navigating the Ethical and Strategic Complexities of Emerging Disruptive Technologies in Modern Warfare."

29 European Defence Agency, "Capability Technology Areas."

30 European Union, White Paper for European Defence – Readiness 2030, p. 7; European Union, A New European Defence Industrial Strategy.

31 NATO, "Emerging and Disruptive Technologies."

erative industrial engagement that positions its technological strengths — from cybersecurity to aerospace and AI-enabled systems — within transatlantic supply chains, reinforcing both national security and EU strategic autonomy.³²

Within this evolving industrial landscape, innovation — including AI — is not a peripheral endeavour but an important driver of capability and competitiveness. From a more bottom-up perspective, Belgian firms are increasingly contributing to advanced defence applications such as AI-supported recognition systems and integrated decision-support tools, while government efforts at the federal and regional levels aim to reduce barriers to defence R&D and facilitate ease of exports and cooperation within NATO and EU frameworks. For example, Thales Belgium, which has nine sites across the country, is working with universities, innovators and firms in Belgium to produce AI-enabled tactical communications systems and sensors, airborne communications systems and electronic warfare capabilities³³. Recent regional initiatives — such as Flanders’ “Innovation and Industrial Strategy for Security and Defence” — explicitly highlight AI and aerospace as areas of comparative strength, backed by investment and regulatory reform to stimulate industrial growth. Such innovation is vital not just for economic returns and jobs, but for ensuring that Belgium’s armed forces can integrate cutting-edge technologies into operational concepts, and that the national defence industry remains a relevant, reliable partner in multinational capability development.³⁴

In Wallonia, the defence industry has historically been rooted in metallurgical and mechanical expertise, but over the past decade it has evolved into a dynamic, innovation-oriented ecosystem capable of addressing contemporary security challenges and emerging technologies such as AI, autonomous systems and data-driven defence solutions. Anchored by the Skywin and MecaTech competitiveness clusters, the regional industrial base brings together large corporations, innovative SMEs and research institutions to collaboratively define strategic priorities and build technological capacity across the full value chain, from embedded systems and sensors to unmanned platforms and advanced materials.³⁵ This collective enterprise is underpinned by a strong linkage between research, industrial development and public policy — including regional and federal support — that seeks to reinforce Wallonia’s contribution to national and European defence needs.

A striking example of disruptive technology adaptation in Wallonia lies in the IRIS (Intelligent Recognition Information System) project, which explicitly leverages artificial intelligence, machine learning and computer vision to enhance surveillance and decision support in complex environments. By integrating behavioural de-

32 Mattelaer, What Future European Defence and Technological Industrial Basis (EDTIB) Do We Want/Need? The Belgian Case.

33 Thales, “Thales in Belgium,” SkyWin, “Thales Belgium.”

34 “Flemish government relaxes arms trade rules and invests in defence innovation.”

35 Pôle MecaTech and Skywin, “Defense Industry: Innovations, Projects and Players in Wallonia.”

tection and threat analysis capabilities, IRIS aims to provide operators with timely, actionable intelligence, strengthening situational awareness for both military and critical-infrastructure security applications — a marked shift from traditional sensor systems toward cognitive, data-augmented tools that can handle the scale and ambiguity of modern security contexts.³⁶ Beyond AI-centric projects, the Walloon industry is also developing innovative human-machine interfaces and advanced control systems that blend digital technologies with operational effectiveness. For instance, the OPTIMIS consortium brings together industrial and academic partners to create multimodal interaction systems that enable more intuitive control of weapons platforms, exploiting intelligent interfaces that reduce cognitive load and improve responsiveness in operational settings.³⁷

In Flanders, the defence industry is undergoing a strategic recalibration driven by a recognition that disruptive technologies — particularly AI, autonomous systems, cyber capabilities and advanced sensing — are central to contemporary security and defence paradigms. Under the “Flemish Defence Plan”, the region has articulated a comprehensive innovation and industry strategy that explicitly integrates defence-related technological development into its broader economic and industrial policy.³⁸ This includes the Vlaamse Innovatie- en Industriestrategie voor Veiligheid en Defensie (VISD), which seeks to harness regional strengths in AI, cyber, aerospace and autonomous systems to bolster both national security and economic competitiveness, with a funding trajectory growing to €50M annually by 2029.³⁹ By situating AI and other disruptive technologies at the core of its roadmap — alongside maritime, space and unmanned systems — Flanders is positioning its industrial base not merely as a supplier of components but as an innovative participant in European and NATO value chains.

A key feature of this industrial adaptation is the tripartite governance and ecosystem model that connects government, research institutions and the private sector to accelerate technology maturation. Through VLAIO’s tailored calls for defence and dual-use projects, including a €10M call in 2025, the region is lowering traditional barriers between civilian R&D and defence applications, encouraging SMEs to pursue innovation with clear military relevance while preserving dual-use applicability.⁴⁰ This reflects a deliberate policy shift — exemplified by the abolition of restrictive directives that once only permitted support for dual-use technologies — aimed at unlocking defence innovation that might previously have languished under regulatory constraints. Such measures also dovetail with broader export and

36 *Ibid.*, p. 14.

37 Defense Industry: Innovations, Projects and Players in Wallonia, pp. 29, 31.

38 Vlaamse Regering, “Mededeling aan de Vlaamse Regering.”

39 Vlaanderen, “Vlaamse Innovatie- en Industriestrategie voor Veiligheid en Defensie.”

40 Vlaamse Regering, “Mededeling aan de Vlaamse Regering,” p. 3.

regulatory reforms, including a modernized arms trade decree, that aim to streamline company participation in international projects and partnerships.

The defence industry's adaptation to disruptive technologies is not limited to funding mechanisms. It is underpinned by project-level engagement with cutting-edge capabilities. Flanders hosts a strong cohort of firms and research centres active in areas such as AI for decision support, intelligent sensing, secure communications and simulation technologies — domains that are directly relevant to modern defence needs. The region's capacity extends to AI-enhanced operational support and cyber resilience, positioning firms to contribute not only to national requirements but also to allied frameworks such as the European Defence Fund and NATO's DIANA innovation initiatives. Moreover, investments by the Flemish government in cybersecurity education and co-innovation spaces demonstrate the region's commitment to building specialized technical competencies that feed into both industrial development and operational readiness.

Finally, the evolving Flemish industrial landscape reflects a broader strategic calculus: ensuring that regional strengths in high-tech sectors translate into defence-relevant outcomes that reinforce Belgium's role within European and transatlantic security architectures. The marked increase in Flemish defence exports — including target detection systems and advanced components — underscores that investment in disruptive technologies can yield real economic returns and strengthen supply chain positions in key capability niches. At the same time, Flanders' engagement with NATO innovation mechanisms such as DIANA and its emphasis on cooperation with federal and European partners demonstrate that regional industry adaptation is not a parochial endeavour but part of a collective effort to shape capability development and technological excellence in an era defined by rapid change and intensifying strategic competition.

4 Organizing Defence AI

Belgium's approach to AI in defence reflects the complex interplay of federal, regional and military bodies that together shape both policy and operational capability. At the federal level, strategic direction comes from the Ministry of Defence and the Council of Ministers, supported by agencies such as BELSPO, BOSA and the Royal Higher Institute for Defence (IRSD/RHID), which coordinates research, scenario modelling, and feasibility studies, while the Royal Military Academy (RMA) integrates AI into training, experimentation and applied research. Complementing these federal actors, industry and innovation networks—including AGORIA and the Belgian Security and Defence Industry (BDSI)—facilitate collaborative R&D, dual-use technology development and initiatives, which embed AI into cybersecurity and defence innovation. At the regional level, Flanders and Wallonia operate their own innovation frameworks and programmes, ensuring that universities, industry and research centres contribute to a coordinated AI ecosystem. As we will see, Belgian defence relies on a pre-existing institutional framework to advance its defence AI strategy and needs, but the Federal Government is investing in new organisational ways of ensuring coherence in Belgium's approach to innovation and defence AI.

4.1 Government Bodies, Private Enterprise and Defence AI

Given Belgium's federal nature, we must focus on a range of national and regional bodies and agencies involved in developing Belgium's overall approach to AI, as well as its specific development of defence AI.

At the federal level, Belgium relies on a Council of Ministers that approves legislation and government work programmes on defence, following proposals from the Minister of Defence and the Minister of Economy. Cooperation also exists between the Ministry of Defence and the Federal Scientific Policy Office (BELSPO), especially where it concerns the development of AI in the space sector and the initiation of the Defence-related Research Action research programme (DEFRA). The Ministry of Defence relies on the Royal Higher Institute for Defence (IRSD/RHID) to spearhead AI defence efforts in the Belgian armed forces. We should also not overlook the fact that Belgium's General Intelligence and Security Service (GISS/ADIV/SGRS) is also increasingly using AI in its military intelligence, electronic signals and cybersecurity efforts.⁴¹ Finally, it is important to note that Belgium has appointed a General for defence innovation in the person of Lt. Gen. Michel Van

⁴¹ European Commission, "Belgium AI Strategy Report."

Strythem, who is Chief Innovation Defence (CID) in the Belgian armed forces, and his role is ensure that innovation efforts meet Belgium's military needs and requirements.⁴²

Another important federal service that advances Belgium's AI efforts is the Federal Public Service Policy and Support (BOSA), which is central to the federal government's efforts to coordinate national AI efforts across research institutes, government and industry. The federal level is also supported by the federal employers' organization (AGORIA) and collaborative research centres on technology and industry (SIRRIS). Specifically, within AGORIA is the Belgian Security and Defence Industry (BDSI), which provides companies with a platform to collaborate on R&D and development. The BDSI aims to support its members with internationalizing their business and cooperation, developing cybersecurity and helping businesses in Belgium with emerging and disruptive technologies. The BDSI is home to specific working groups, including a "Cyber Made in Belgium" (CMiB4Defence) that includes elements of AI. Together, these bodies and agencies lead Belgium's work on disruptive technologies, innovation and AI.⁴³ While not specifically focused on defence, these government bodies and agencies can help set the overall national framework in Belgium in which defence can utilise AI.

At the regional levels, there are also a range of authorities and bodies that are involved in AI. In Flanders, AI research is supported by the Flemish Department of Economy, Science and Innovation (EWI) and the Flemish Agency for Innovation and Entrepreneurship (VLAIO). Additionally, research funders such as the Flemish Research Foundation (FWO) and collaborative industrial initiatives such as the Interuniversity Microelectronics Centre (IMEC) play a key role. In Wallonia, similar efforts are underway with the Public Service of Wallonia on the Economy, Employment and Research (SPW-EER), which finances research projects to develop trust in a human-centric use of AI and supports the "DigitalWallonia4.ai" initiative. Programmes such as "Start AI" in Wallonia are designed to bring universities and industry together to develop and test AI projects. In particular, the Wallon region established an Innovation and Growth Fund (WING) in 2016, and it is financing efforts to develop "smart cities" in Wallonia.⁴⁴

42 "Belgium Defence gets first general for drones and innovation."

43 European Commission, "Belgium AI Strategy Report."

44 Ibid.

4.2 The Military and Defence AI

Belgium's approach to defence innovation is underpinned by a structured constellation of federal bodies, research institutions and operational commands, reflecting the country's dual commitment to technological advancement and alliance interoperability. At the apex, the Ministry of Defence provides strategic guidance, allocates resources and ensures that innovation efforts—including those involving AI—align with national defence objectives, NATO obligations and European capability development frameworks.⁴⁵ Through policy instruments such as the DIRS and targeted R&D lines, the Ministry orchestrates investments in priority technologies, facilitates partnerships with industry and academia and supervises the integration of AI-enabled solutions across operational domains, from C4ISR to logistics and cyber defence. Governance, oversight and ethical considerations remain central to Belgium's approach to AI in defence. The Ministry of Defence, in coordination with IRSD/RHID and the Royal Military Academy, establishes frameworks for experimentation, testing and deployment that ensure AI applications meet operational needs while respecting legal, ethical and alliance standards.⁴⁶

A cornerstone of Belgium's research and innovation architecture is the IRSD/RHID, which functions as both a think tank and a scientific coordinator for defence-related technology projects. IRSD/RHID operates at the interface of policy, operational need and scientific expertise, providing technical analyses, scenario modelling and foresight studies to guide the adoption of emerging technologies. In the context of AI, IRSD/RHID plays a central role in identifying dual-use opportunities through DEFRA, supporting feasibility studies and ensuring that Belgium's AI investments are both technologically relevant and operationally viable, while also respecting ethical, legal and alliance standards.⁴⁷ Complementing IRSD/RHID's strategic and scientific remit, the Royal Military Academy (RMA) provides foundational research, applied training and experimentation platforms for AI and other disruptive technologies. Operationally, the Belgian Army, Air Component, Naval Component, Cyber Command and Medical Component each maintain dedicated structures for the identification, testing and deployment of disruptive technologies.⁴⁸

However, while Belgium is relying on a host of pre-existing bodies to drive forward its defence AI efforts, the Federal Government has understood that the complex federal and multi-layered governance and organisational structure need more coherence and direction. This is why, in January 2026, the Minister of Defence, Theo Francken, announced the creation of a new body called the Organisation for Defence Innovation and the Defence Industry (ODIN). The main ethos behind ODIN

45 Godefridis, "Zes uitdagingen voor artificiële intelligentie binnen Defensie."

46 Ibid.

47 Royal Higher Institute for Defence, "Autonomous Systems for Artificial Intelligence."

48 Ibid.

is to link defence industry and research in a more structured way. To this purpose, ODIN shall have its own mandate, funding and governance structure. We do not yet know what the precise organisational structure of ODIN will look like, nor how it will connect to defence and other government ministries, as the government wants to purposefully maintain some flexibility in organisational design. What we do know for now, is that the intention is for ODIN to remain closely linked with the IRSD/RHID and its innovation efforts.⁴⁹ The aim is to support ODIN's work by injecting additional funds (see next section) for Belgium's innovation needs, but more than money will be required to ensure that ODIN truly becomes a federal innovation hub.

⁴⁹ Belgische Kamer van Volksvertegenwoordigers, "Beleidsnota: Defensie en Oorlogsslachtoffers", pp. 45, 46.

5 Funding Defence AI

Belgium has established a comprehensive, multi-layered funding ecosystem for defence AI that integrates federal, regional and European resources to drive innovation, build industrial capacity and enhance operational capabilities. Although specific spending figures are hard to come by, publicly released information suggests that Belgium spends approximately 3% of its total €7.9bn defence budget on innovation and R&D, which equates to roughly €230M in 2024.⁵⁰ This amount is set to increase in line with the Belgian defence budget, with the government announcing a €35bn investment plan up to 2035.⁵¹ What is more, the Belgian Federal Government has announced plans to provide ODIN with a budget worth €3.7bn until 2034 for AI-driven and autonomous technologies – this would equate to about €370M per year.⁵²

At the national level, the DIRS provides the strategic framework under which programmes such as DEFRA (Defence-Related Research Action) translate priorities into concrete projects, with funding increasing from €1M in 2021 to €20M in 2025. Complementing this, thematic lines such as Next Generation Combat Air Technologies (NGCAT) fund projects related to AI applications for propulsion, drones, infrared vision and threat sensors. Belgian entities also participate actively in the European Defence Fund, contributing to multinational AI projects for explosive detection, adaptable AI in defence systems and space imagery intelligence. Together, these Belgian federal and European funding streams create an ecosystem that not only supports dual-use and disruptive technologies but also fosters industrial partnerships, aligns with NATO and EU objectives, and ensures that Belgium can develop, integrate and operationalize AI across cyber, C4ISR, logistics, air combat and space domains.

5.1 Federal Sources of Funding for Defence AI

The Belgian Federal Government makes several sources of funding available for AI in defence, both in a general and focused manner. At the core of Belgium's approach is the creation of a sustainable ecosystem for defence innovation rooted in partnerships between government, industry, academia and research centres, backed by a governance architecture that aims to channel budgetary resources and instruments toward collaborative research, technological expertise and capacity building in priority domains. This includes mechanisms to inform stakeholders, facilitate partnerships and support value chains that deliver scientific knowledge, dual-use technologies and industrial capacity aligned with national and European

50 Belgian Federal Government, "Vision Stratégique Défense 2025."

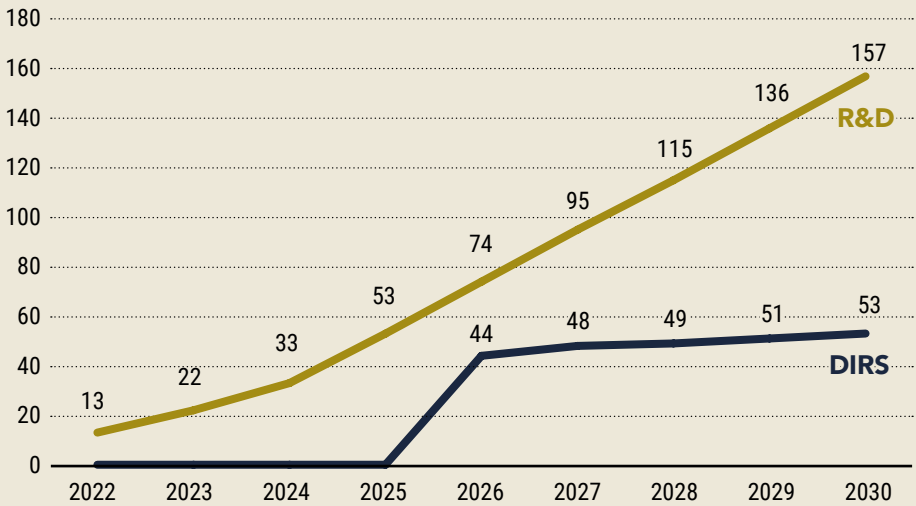
51 DSEI, "Belgium unveils EUR33bn defence spending plan."

52 Manuel, "Belgium's 'Odin' Innovation Program to Prep Military for Future Warfare."

defence goals, implicitly creating fertile ground for innovation financing within the Belgian context. Overall, the federal government utilises the national budget to support defence and its various funding areas. As Figure 1 shows, Belgium intends to increase its defence investments in research and technology and for the DIRS up to 2030, in line with NATO and EU targets and expectations. Overall, Belgium's defence investment is set to grow from €6.5bn in 2022 to €8.8bn in 2030.

In practice, this strategic orientation is complemented by targeted funding schemes and programmes that operationalise DIRS priorities: for example, national research grants such as the DEFRA (Defence-Related Research Action) programme explicitly support scientific projects aimed at capacity development and innovation in line with defence policy, fostering a culture of technological advancement within defence and its industrial partners. Moreover, Belgium's industrial and innovation ecosystem — including regional authorities like Flanders — has launched defence R&D calls and investment funds that lower barriers to defence innovation and encourage dual-use projects into which emerging technologies such as AI can be integrated, further aligning with DIRS's ambition to strengthen national and European capability development. This said, DEFRA has become the central funding vehicle in Belgium for emerging and disruptive technologies, and it has steadily increased its funding lines for defence R&D since its inception in 2021 (Table 2).

Figure 1: Belgium's Defence Budget, 2022-2030



Source: Belgian Foreign Trade Agency, "Belgian Defence," p. 25.

Table 3: DEFRA Funding for Defence

Call	Budget	Number of themes	Number of selected projects
2021	€1M	3 themes	3 projects
2022	€6.4M	4 themes	6 projects
2023	€8.8M	5 themes	8 projects
2024	€12M	6 themes	10 projects
2025	€20M	9 themes	

Source: Source: https://www.belspo.be/belspo/defra/about_en.stm (last accessed 27 February 2026).

Within the total of 27 DEFRA-sponsored projects since 2021, one can identify several projects that relate specifically to defence AI. First, in 2022, DEFRA sponsored a project called "AIDefSpace", which looks at the use of AI to defend telecommunications and satellite positioning systems from the interference of space weather events. With a budget of €906,000, AIDefSpace involves partners from Belgian industry and the Katholieke University of Leuven.⁵³ It should be noted that five other DEFRA-funded projects also contain important AI elements, including the projects on territorial observation (the "SALTO" project), medical and soldier fitness (the "STATS" project), adaptive human operator interaction with autonomous systems (the "AHOI" project), naval intel (the "SIREN" project) and CBRN ventilators (the "VENT-DEFENSE" project)⁵⁴.

Importantly, at the end of 2023, the Belgian Council of Ministers approved a specific thematic R&D budget line for "Next Generation Combat Air Technologies" (NGCAT). The specific funding line on NGCAT seeks to respond to aero structures, avionics, sensors, propulsion, disruptive technologies and more. So far, under NGCAT, and out of a total of 15 projects, Belgium has funded a defence AI project called "ACE4ACES", which is developing advanced cockpit enhancements for air combat efficiency and success. With a budget of almost €6M from 2025 to 2028, ACE4ACES is being developed by a range of Belgian innovators and companies, including ScioTeq, Swave, Apixa, dotOcean, Sirris and Thales Belgium.⁵⁵

⁵³ KU Leuven, "Using AI to defend telecommunications and satellite positioning systems from the interference of space weather events."

⁵⁴ DEFRA, "Project Factsheets."

⁵⁵ Ibid.

Additionally, under NGCAT, Belgian defence is sponsoring projects on engine air intake and propulsion (the “COSTEO” project), drones and avionics (the “HIBOU” project), rotary flight controls (the “PFC-REA” project), infrared vision (the “QuantumSight” project) and threat warning sensors (the “TWS” project).⁵⁶

Additionally, and as we have noted, the Belgian Federal Government announced in January 2026 that it would create ODIN. Embedded within the broader Defence, Industry and Research Strategy (DIRS) and anticipated to become a standalone public organisation with its own mandate, governance and budget, ODIN is explicitly designed to act as the national hub for defence innovation by aligning public-sector research and industry partners to accelerate dual-use technologies, from AI and autonomous systems to cyber and quantum capabilities.⁵⁷ Complementing this structural innovation is a €3.6bn investment envelope allocated over the next decade intended to underpin rapid development, experimentation and deployment of advanced technologies that Belgium and its NATO allies will need in future high-intensity conflict environments. In the context of Belgium’s Strategic Vision 2025, which commits to directing more than 3% of total defence spending toward research and innovation,⁵⁸ the creation of ODIN signals not just increased resourcing but potentially a more coherent and direct financing architecture that seeks to bridge the gap between conceptual research and operational capability.

5.2 European Sources of Funding for Defence AI

Another important funding line for Belgian defence companies and research institutes can be found at the EU level, with initiatives such as the European Defence Fund. The EDF has a budget allocation of €8bn up to 2027, and it is funding defence R&D projects, many of which seek to utilize or to develop further AI. So far, Belgian entities are participating in 146 projects (40 in 2024, 42 in 2023, 30 in 2022 and 34 in 2021). The European Commission, which manages the EDF, has allocated approximately €158M to disruptive technologies, €270M to innovation, €51M to technological challenges and €22M to quantum technologies. Overall, the IRSD/RHID is involved in 16 of Belgium’s total projects, followed by C&V Consulting (11 projects), John Cockerill Defence (8 projects) and Naval Group Belgium (7 projects).⁵⁹

⁵⁶ Ibid.

⁵⁷ Belgische Kamer van Volksvertegenwoordigers, “Beleidsnota: Defensie en Oorlogsslachtoffers”, p. 45.

⁵⁸ “Vision Stratégique Défense 2025.”

⁵⁹ Data taken from an analysis of all EDF projects from 2021-2025. See European Commission, “EDF Work Programme 2025;” “EDF Award Decisions 2024;” “EDF Award Decision 2023;” “EDF 2022 Award Decision” and “EDF 2021 Award Decision Part I and II.”

Among the EDF projects that Belgian entities participate in, three major projects focused on defence AI stand out:

- **Artificial Intelligence for Detection of Explosive Devices (AIDeDeX):** This project seeks to use AI for mine and IED detection and clearance. The project is worth some €5M million and Belgian entities (as project lead) work alongside companies and research institutes from Spain, Croatia, Germany and Denmark.⁶⁰
- **Frugal and Robust AI for Defence Advanced Intelligence (FaRADAI):** This project researches adaptable AI that learns from its environment with minimal developer intervention, which is crucial for defence systems. FaRADAI will cost an estimated amount of €18.5M and it includes Belgian entities alongside those from Greece (project lead), Bulgaria, Germany, Estonia, Spain, France, Hungary, Italy, Latvia, Lithuania, the Netherlands and Poland.⁶¹
- **Proactive Automatic Imagery Intelligence Powered by Artificial Intelligence Exploiting European Space Assets (IntSen2):** This project seeks to use AI for space imagery intelligence to enhance the EU's operational autonomy. It is worth some €3.3M and Belgian entities are partnering with entities from Austria, Greece, Spain (project lead), Italy and Poland on the project.⁶²

⁶⁰ European Commission, "AIDeDeX project factsheet."

⁶¹ European Commission, "FaRADAI project factsheet."

⁶² European Commission, "IntSen2 project factsheet."

6 Fielding and Operating Defence AI

Belgium is progressively operationalizing AI across its military branches. AI is being introduced selectively across core military functions where data volumes, operational tempo and complexity increasingly exceed human processing capacity alone. AI is being introduced in the military to enhance decision-making, shorten response times and strengthen sustainment and protection. Overall, bodies such as the Royal Military Academy are developing specific projects for AI in defence that speak to the specific needs of the Belgian armed forces.

Today, the Belgian armed forces are seeking to utilize AI for three critical military areas: C4ISR, logistics and cybersecurity.⁶³ Operationally, Belgium's armed forces apply AI across domains ranging from autonomous systems and predictive logistics to sensor fusion, intelligence and medical support, creating an integrated and ethically guided defence innovation architecture that combines national priorities, alliance obligations and emerging technological opportunities. For example, the Army leverages AI for autonomous vehicles, predictive logistics and situational awareness; the Air Component integrates AI into flight simulators, cockpit decision-support and sensor fusion;⁶⁴ the Naval Component explores AI for unmanned maritime platforms, mine countermeasures and advanced maritime surveillance,⁶⁵ while the Medical Component experiments with AI for soldier health, medicine and medical logistics.

6.1 C4ISR

Belgium's armed forces are increasingly embedding AI into C4ISR to enhance situational awareness, decision-making and interoperability with NATO partners.⁶⁶ Belgium emphasizes data-centric architectures, sensor integration and decision-support tools that enhance situational awareness and interoperability within NATO and EU frameworks. Emerging technologies such as AI, advanced data processing and embedded intelligent systems are envisaged as force multipliers that help manage information overload, shorten decision cycles and improve the quality of command judgement.⁶⁷ In line with Belgium's broader strategic culture, these technologies are not intended to replace human decision-making, but to augment it—ensuring that commanders can operate effectively in contested, multi-domain environments while remaining aligned with allied standards and ethical constraints.

⁶³ Defence, Industry and Research Strategy.

⁶⁴ For example, Royal Military Academy, "AR ATC."

⁶⁵ For example, Royal Military Academy, "SSAVE."

⁶⁶ This has long been called for by the academic and policy communities in Belgium. See: "Update of the Strategic Vision 2030: Recommendations," p. 9.

⁶⁷ de Neve, "Les organisations de défense face aux défis de l'intelligence artificielle."

Under the previous Belgian coalition government, a C4ISR Centre of Excellence was established in Tubize, developed in partnership with Thales Belgium and several Belgian defence commands to unify sensor and operational data streams into a coherent, interoperable architecture that accelerates information exploitation across the land, air, sea, cyber and medical commands of the Belgian defence forces. This initiative included plans to recruit AI systems engineers and data scientists, signalling an investment in human capital alongside technological infrastructure to support real-time data fusion and exploitation.⁶⁸

6.2 Logistics

Logistics represents a second area where there is significant potential for disruptive innovation. Belgian defence planning increasingly recognizes that operational credibility in high-intensity or prolonged conflict hinges as much on sustainment as on combat platforms.⁶⁹ Here, AI-enabled logistics, predictive maintenance and data-driven supply chain management are expected to improve readiness, availability and cost-efficiency across the force. Belgium places particular emphasis on life-cycle support, in-service sustainment and smart infrastructure. For a medium-sized armed force with limited margins for redundancy, such as Belgium, the intelligent use of data and automation in logistics is less about efficiency gains alone and more about ensuring reliability and continuity under operational stress, especially in multinational deployments. AI-enabled tools are being integrated to predict equipment failures, optimize spare parts distribution and streamline maintenance schedules across the Army, Air, Naval, Cyber and Medical Commands.

For example, Belgian defence has collaborated with industry partners to implement predictive analytics platforms that leverage operational data from vehicles, aircraft and naval vessels to anticipate failures before they occur, reducing downtime and improving availability for both national and multinational missions. These initiatives are reinforced by the defence R&D programme DEFRA, which funds projects on AI-enabled logistics and maintenance systems, ensuring that the Belgian military can maintain a high state of readiness while optimizing costs. In multinational exercises, AI-supported logistics has been fielded to simulate large-scale deployment scenarios, testing the movement of troops, equipment and medical supplies in real time. This allows Belgium to validate automated decision-support tools that integrate operational priorities with supply chain constraints, providing commanders with predictive insights to optimize resource allocation.

68 "Thales se renforce en Belgique et ouvre un nouveau centre de compétences pour soutenir l'armée belge dans sa transformation numérique."

69 Van Hoeymissen, "Dual Use and Military Mobility Seminar Report: Fast-Tracking Military Mobility."

6.3 Cyber Defence

Cybersecurity and cyber defence constitute a third pillar where disruptive technologies are treated as both an operational necessity and a strategic vulnerability. Belgium situates cyber defence as a horizontal priority domain, reflecting the reality that digital dependence cuts across all military functions, from C4ISR to logistics and personnel management. AI-supported cyber tools—ranging from anomaly detection to automated threat analysis—are envisaged as critical for protecting networks, enabling rapid response and enhancing resilience against sophisticated adversaries. At the same time, the strategy reflects a distinctly cautious approach: cyber innovation is tightly linked to governance, skills development and cooperation with civilian and allied partners. In this way, Belgium seeks to integrate advanced cyber capabilities into its armed forces while mitigating escalation risks and reinforcing collective defence, underscoring that technological disruption in cyberspace must be matched by institutional control and alliance coherence.

Yet, Belgium has boosted its efforts in recent years to develop AI in the cyber domain. In creating a Belgian Cyber Command (Cybermacht) in 2022, Belgium moved into new territory, and the IRSD/RHID increased its role in cyber innovation and AI.⁷⁰ As the fifth component of the Belgian armed forces—alongside land, air, naval and medical commands—the Cybermacht is designed to establish secure military networks, conduct cyber operations, gather military intelligence and support national cybersecurity efforts in collaboration with national and international partners, academia and industry. The Cybermacht of the Belgian defence forces are seeking to integrate AI tools for network anomaly detection, automated threat prioritization and real-time defensive decision-making, hence the decision to strike up a long-term partnership with Belgian telecoms provider Proximus and other firms.⁷¹ This reflects a recognition that modern cyber threats are both sophisticated and fast-moving, and Proximus and partners will be offering the Cybermacht a suite of AI-enabled cyber defence capacities. AI is also being applied to signal analysis and electronic warfare, enabling more effective monitoring of adversary communications and enhancing situational awareness across operational theatres⁷².

70 Mattelaer, “Why Belgium Needs a Cyber Command.”

71 Proximus, “Proximus NXT selected by Defence as strategic cyber defense partner.”

72 “Belgium Gears Up for Future Wars with Drones, AI and 1,500 Combat Vehicles.”

7 Training for Defence AI

There is growing evidence of enhanced training for AI in defence in Belgium, and Belgium's defence establishment has recognised that mastering AI is not simply a matter of acquiring hardware or software but fundamentally about upskilling personnel across the Ministry of Defence and its subordinate components. For example, Microsoft BELUX and the Belgian Ministry of Defence have already announced a partnership— to begin in 2026— to train thousands of defence employees, most specifically those working in operations, support and management positions.⁷³ Employing more than 30,000 individuals (of which 25,000 are military personnel), a figure which is set to grow further,⁷⁴ the Ministry of Defence is keen to ensure that its civilian and military employees do not fall behind on basic AI literacy and digital skills. Based on comments by CID of the Belgian armed forces, Lt. Gen. Van Strythem, the aim is to give defence staff knowledge and skills to generative AI tools and other methods that can make the work of the ministry more efficient.⁷⁵

Such an investment in generative AI competencies is consistent with broader digital transformation objectives and Belgium's ambition to ensure that its defence workforce remains relevant in an increasingly data-centric security environment. Overall, Belgium is aiming to use AI-supported modelling and adaptive learning systems to enhance training in the armed forces, both for military and civilian personnel. The logic is that AI-adapted learning programmes can help train staff in the use of AI itself, but also in creating complex and realistic scenarios for planning and training. The hope here is that immersive training can take place but without the costs of conducting large, live exercises regularly.

In parallel, Belgium's regional and academic institutions are also contributing to research-oriented AI training that feeds into defence innovation pipelines. For example, the RMA is conducting research into generative AI models to explore their applicability in defence contexts, signalling that Belgium's officer and technical training institutions are not only consumers of AI but active contributors to its development. Projects such as the "Generative Artificial Intelligence Models – Tech Watch" initiative aim to map cutting-edge AI capabilities and identify potential defence use cases, ensuring that the military's future leaders have foundational knowledge about both the opportunities and limits of AI.⁷⁶

What is more, the RMA is working to integrate AI into curricula spanning robotics, autonomous systems, cyber operations and decision-support tools, hopefully creating a cadre of officers and technical specialists capable of understanding and operationalizing advanced systems. Beyond education, the RMA engages in

73 "Microsoft Belux and Defense join forces for an AI training program." See also: "Microsoft gaat AI-trainingen geven aan Belgisch defensiepersoneel."

74 Belgian Defence, "Structure of Belgian Defense."

75 Ibid.

76 Royal Military Academy, "Generative Artificial Intelligence Models – Tech Watch."

applied research projects, often in partnership with universities, industry clusters and European innovation initiatives, serving as a bridge between conceptual AI research and practical defence applications

Belgium's emphasis on training is also visible in multinational operational contexts, where Belgian personnel participate in exercises such as NATO's Coalition Warrior Interoperability Exercise (CWIX), which emphasises interoperability of digital and information systems. Preparing forces to operate seamlessly in such environments requires not only interoperable technology but personnel who understand how to integrate AI-enabled C4ISR tools and data exchange protocols, reinforcing the need for training that extends beyond national borders into coalition settings. NATO's CWIX is in its 27th year and routinely includes Belgian defence officials as part of approximately 2,500 participants each year.⁷⁷ CWIX includes training on battle-tested sensors, geospatial awareness and C4ISR capabilities.

Additionally, Belgium's engagement with EU and European AI hackathons illustrates the country's desire to contribute to collaborative innovation while deepening its domestic expertise in AI. A prominent example at the EU level is the upcoming AI Hackathon taking place during "EU AI Week 2026" in Brussels, hosted by BOSA.⁷⁸ This event brings together developers, public sector professionals and students from across Europe to work intensively on projects that demonstrate how sovereign AI solutions can enhance administrative processes on local infrastructures, emphasizing secure, opensource approaches to AI deployment and public sector efficiency. The hackathon not only provides a practical forum for innovation but also reflects Belgium's role as a convener within the EU AI ecosystem, helping translate policy goals into hands-on experimentation and community building.

Belgium has been increasingly active in EU-level defence innovation hackathons too, recognizing these events as strategic platforms to accelerate practical solutions, attract talent and embed disruptive technologies such as AI into future military capabilities. A prime example is the EUDIS Defence Hackathon,⁷⁹ which brings together innovators, researchers and defence stakeholders from across EU member states and associated countries to collaborate on pressing defence challenges, including autonomous systems, secure communications and cybersecurity—areas where AI is central to competitive edge and operational relevance. Belgium hosted one of the six national hubs for the first edition in 2024, which drew 275 participants from 16 nations and produced 70 prototype ideas in topics such as situational awareness and cyber defence, demonstrating both Belgian engagement and the broader EU commitment to grassroots defence innovation.⁸⁰

77 NATO, "CWIX 2024: NATO's Largest-Ever Digital Interoperability Exercise Concludes."

78 BOSA, "EU AI Week 2026 – Shaping EU AI Sovereignty."

79 European Commission, "EUDIS Defence Hackathon."

80 European Commission, "EU Defence Innovation Scheme - Defence Hackathons."

8 Conclusion

This study has shown that Belgium's engagement with AI in defence is best understood not as a disruptive rupture, but as a process of controlled adaptation shaped by alliance politics, institutional culture and long-standing resource constraints. Rather than pursuing technological primacy or radical autonomy, Belgium has embedded AI incrementally into defence planning, capability development and operational practice. In this respect, one of the central findings of this analysis is that Belgium does not treat AI as a standalone military capability. Instead, AI is consistently framed as a force multiplier for core defence functions such as C4ISR, logistics, cyber defence and training. This orientation is evident across policy documents, funding mechanisms and organizational structures. AI is designed to support human decision-making, reduce cognitive overload and improve efficiency rather than replace command authority or automate lethal choices.

Furthermore, Belgium's defence AI efforts are not driven by a single agency or programme, but by a dense constellation of actors spanning the Ministry of Defence, IRSD/RHID, the Royal Military Academy, operational commands and federal/regional innovation frameworks. This institutional diversity can generate coordination challenges, but it can also create some degree of resilience. By dispersing AI-related expertise across agencies, bodies and industry, Belgium reduces dependency on any single technological pathway and preserves flexibility. In practice, this might allow Belgian defence to experiment with AI through research projects, pilot programmes and multinational exercises without prematurely locking itself into immature solutions. In parallel, Belgium has created new institutions to advance stakeholder alignment with the post Chief Innovation Defence and the Organisation for Defence Innovation and the Defence Industry

Another key finding concerns the role of the defence-industrial and research ecosystem. Belgium's modest but specialised defence industry has shaped the country's AI trajectory in decisive ways. Lacking the scale to develop large, sovereign AI systems independently, Belgium has instead positioned itself as a capable integrator and contributor within European and transatlantic value chains. Federal instruments such as DEFRA and thematic initiatives like NGCAT, alongside participation in the European Defence Fund, have allowed Belgian firms and research institutes to engage with AI development at various levels.

The analysis further demonstrates that ethics and governance are not peripheral considerations in Belgium's defence AI approach. On the contrary, legal accountability, human oversight and alignment with European regulatory norms are consistently treated as enabling conditions for sustainable AI adoption. Belgium's insistence on "human-in-the-loop" decision-making, particularly in cyber operations and C4ISR, reflects an awareness that trust in AI systems is as much a political and organizational issue as a technical one. This normative anchoring slows adoption

in some areas, but it reduces strategic risk and reinforces Belgium's credibility as a responsible defence actor within NATO and the EU.

At the operational level, the study finds that Belgium's most tangible AI progress has occurred in data-intensive domains. In C4ISR, AI is being used to filter, prioritise and fuse information. In logistics, predictive analytics and data-driven maintenance support readiness and sustainability for forces. In cyber defence, AI-enabled threat detection and analysis have become indispensable as the speed and complexity of cyber threats outpace purely manual responses. Training and human capital are vital for Belgium's defence AI trajectory. The study shows that Belgian authorities increasingly recognise that investment in skills is as important as capability development. Initiatives led by the RMA, combined with broader AI literacy programmes within the Ministry of Defence and participation in NATO and EU exercises, aim to ensure that personnel can understand, trust and critically assess AI-enabled systems.

Taken together, these findings suggest that Belgium seeks to remain a credible, interoperable and responsible defence partner in an increasingly data-driven security environment. Its AI strategy is shaped less by visions of automation or dominance than by a desire to restore military readiness, reinforce alliances and manage risk in a period of accelerating technological and geopolitical change. This approach may lack the visibility or rhetoric associated with larger powers, but it offers a somewhat pragmatic template for medium-sized states that are navigating the tension between innovation, ethics and alliance dependence. In an era where enthusiasm for AI often outpaces strategic realities, Belgium's approach is suitable for a country of its size, although continued and higher levels of defence investment will be required, in addition to technological uptake by government and defence actors, if Belgium is to reap the positive elements of the AI (r) evolution.

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