



# From Laggard to Potential Regional Innovator?

## Defence AI in Romania

Raluca Csernatoni

DAIO Study 26|32

Ein Projekt im Rahmen von

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



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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 Summary

Romania's defence AI posture has been gradually shifting from conceptual awareness to cautious institutional and industrial mobilisation. Faced with an increasingly volatile security and defence landscape on NATO's eastern flank, Romania is incorporating dual-use emerging and disruptive technologies (EDTs) such as artificial intelligence (AI) into its defence strategy, though from a modest starting point. At its core, this study is driven by a simple but pressing question: how can a frontline ally with limited indigenous capacity responsibly engage with one of the most transformative technologies of modern warfare?

Romania lacks a dedicated defence AI policy, and its National Artificial Intelligence Strategy for 2024–2027,<sup>1</sup> published in July 2024, primarily focuses on the civilian sector. This strategic document details the country's plan for adopting and integrating AI technologies across different sectors, in line with the European Union's (EU) ambitions to become a global leader in AI. It must be indeed noted that Romania's national AI strategy primarily serves as an economic development plan and remains silent on the deployment of AI for defence and security. The argument is that this tension between ambition and omission runs through Romania's approach to AI more broadly, shaping both its opportunities and its constraints.

Defence is only mentioned in passing, if at all. The strategy thus leaves a gap in addressing security and defence applications. This represents a major blind spot in the realm of national security, with the country remaining reactive and lacking coherent tools for prevention and response to AI-driven threats in both civilian and military domains. This has led to calls for a dedicated Defence AI policy, or at least a sector-specific plan to complement the civilian AI strategy, but these calls have not yet been answered.

Furthermore, this gap is tentatively recognised and is being addressed amid Russia's 2022 invasion of Ukraine and a wave of hybrid warfare in Eastern Europe, which has served as a wake-up call by exposing vulnerabilities from drone incursions to AI-driven disinformation campaigns. For Romanian policymakers and military planners, these developments have been felt as immediate, tangible security concerns unfolding just beyond the country's borders, and increasingly spilling over into Romanian territory. Yet, although it actively engages in Euro-Atlantic structures, Romania remains mainly a security consumer rather than a regional provider of expertise and initiative in emerging areas such as AI and information

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<sup>1</sup> Romania's National Artificial Intelligence Strategy for 2024–2027.

warfare.<sup>2</sup> This reactive stance, lacking sufficient tools to counter evolving security and defence threats, has motivated Romania to accelerate its digital transformation in defence and to align more closely with recent NATO and EU defence innovation initiatives, including those related to EDTs.

Overall, as a frontline NATO and EU member bordering the Black Sea and exposed to increasing hybrid pressures, Romania is increasingly viewing AI as crucial for strengthening deterrence, resilience, and interoperability across the Euro-Atlantic region. Under various National Strategies, defence planners anticipate AI to improve situational awareness, decision-making, and command-and-control, as well as advancing autonomous systems, cyber defence, and information operations. Thus, there is a growing emphasis on digital sovereignty, data security, and enhancing defence-industrial capacity through closer collaboration between government, industry, and academia.

Yet, despite this awareness, Romania's defence AI journey remains in its early stages and faces significant capability and governance challenges. The domestic defence industry and research base require greater investment, skilled human capital, and deeper international partnerships to develop AI-enabled systems sustainably. Most indigenous contributions to advanced military technology projects remain limited, with Romanian entities often playing minor roles in multinational consortia. From an institutional perspective, Romania still lacks a dedicated defence AI strategy, a central coordinating body, or integrated governance mechanisms linking defence, intelligence, and civilian R&D ecosystems. What emerges, therefore, is a dire need for Romania to learn under pressure. What is more, ethical and legal frameworks, particularly principles such as meaningful human control, remain underdeveloped even as Romania rhetorically aligns with emerging NATO and EU responsible-use norms.

Consequently, looking ahead, Romania's strategic direction is clear, namely, to utilise alliance frameworks, capability-building tools, and public-private cooperation to accelerate AI adoption. This is coupled by efforts to gradually boost sovereign capacity for innovation, but it remains somewhat rhetorical rather than operational. With political commitment demonstrated through increased defence spending and active engagement in NATO and EU innovation programmes, Romania could be poised to shift from a technology importer and cautious adopter to a contributor of AI-enabled defence solutions. However, to achieve this goal, it will require ongoing investment, institutional reform, talent cultivation, and a focus on responsible governance to ensure that AI enhances, rather than diminishes, national resilience and collective defence on the Eastern flank.

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2 Peptan, "Romania Facing New Vectors of Insecurity: Hybrid Warfare and Artificial Intelligence," p. 95.

# **2 Thinking about Defence AI**

## 2.1 Strategic Environment and the Defence AI Imperative

The security shocks from Russia's 2022 invasion of Ukraine, which occurred just across Romania's borders, have strengthened efforts to modernise and expand Romania's defence capabilities. It is worth noting that the shock was not merely strategic, but psychological, reintroducing the reality of large-scale conventional war into Romania's defence planning horizon. In this context, a new National Defence Strategy 2025–2030 was approved by Parliament in late 2025, outlining Romania's vision of "solidary independence," meaning strategic autonomy exercised in full solidarity with NATO allies and EU partners. This strategy is driven by rising defence budgets, urgent procurement needs for modern weaponry, and extensive plans to revitalise Romania's long-neglected defence industry.

It also coincides with unprecedented EU support, as Romania has secured €16.68bn in loans under the EU's SAFE programme, the second-largest allocation after Poland, to fund rapid investments in military equipment and defence production capacity.<sup>3</sup> Romania's SAFE allocation is expected to prioritise defence modernisation while anchoring procurement within European collaboration. Spending priorities include urgent capabilities such as ammunition, drones, air defence, and cyber resilience, but a significant portion is likely to also be allocated to high-end strategic systems such as Command, Control, Communications, Computers, Intelligence, Surveillance, Target Acquisition, and Reconnaissance (C4ISTAR), AI-enabled decision support systems, electronic warfare, and advanced unmanned and counter-unmanned platforms.

Under the SAFE instrument, approximately €9.6bn of the total allocation has been designated for military acquisitions by the Ministry of National Defence. An additional €4.2bn will support strategic infrastructure, including parts of the A7 and A8 motorways towards Ukraine and Moldova, while around €2.8bn is allocated to the Ministry of Internal Affairs and other national security agencies. The defence procurement plan includes 21 projects, encompassing both joint acquisitions with partner states and domestic procurements. Joint efforts involve air defence systems such as missile and radar platforms with France and Germany, as well as helicopter and maritime patrol capabilities. The military purchases range from armoured personnel carriers (e.g., Piranha 5) and multi-mission helicopters (H225M) to naval patrol vessels, radar systems, loitering munitions, and C4ISR software suites, reflecting a broad programme of modernisation directly linked to the SAFE financing framework.<sup>4</sup>

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<sup>3</sup> Cristea, "EU backs Romania with 16.7 billion euros in defence loans."

<sup>4</sup> Vasilache et al., "How Romania will spend €16.6 billion from the SAFE programme."

At the same time, Romania is leveraging NATO initiatives and strengthening bilateral partnerships, particularly with the United States (U.S.) and South Korea, to further improve its forces. These developments are set to transform Romania's Defence Technological and Industrial Base (DTIB), but they also reveal ongoing structural challenges rooted in the country's post-Cold War history of underinvestment and fragmentation.

Indeed, Romania's proximity to the ongoing Russian war in Ukraine has highlighted the need to revamp its security and defence policies, emphasising the need to address longstanding vulnerabilities while pursuing strategic opportunities. Traditionally reliant on Soviet-era systems, Romania's defence capabilities have suffered from decades of underinvestment and a fragmented industrial base.<sup>5</sup> The 2022 Russian invasion of Ukraine exposed weaknesses in Romania's military infrastructure and defence industrial strategy, prompting a necessary realignment of both its short-term and long-term security and defence policies. In response, Romania has increased its defence budget to 2.5% of GDP and accelerated procurement from international allies, including the U.S., to strengthen its defence capabilities, but challenges remain, as will be discussed in chapter 5.

In this context, Romania's approach to military innovation, including AI, is shaped by its strategic culture and defence sector legacy. Unlike some larger NATO allies, Romania does not have a decades-long tradition of indigenous high-tech defence R&D. It historically relied on imported Soviet, then Western, military technology. The post-Cold War downsizing and chronic underfunding of the defence industry left it with limited capacity for cutting-edge innovation. This has fostered a pragmatic and incremental mindset. Romania tends to adopt proven technologies from partners rather than leapfrogging with experimental capabilities. In this regard, Romania is "not currently a significant actor in the development of AI technologies, but rather a vulnerable recipient of their effects," with low digital literacy in society amplifying that vulnerability.<sup>6</sup> In fact, this historical inheritance continues to shape how Romanian decision-makers approach innovation, namely cautiously, pragmatically, and, in practice, rarely without an external anchor.

Romania's broader national effort towards digital transformation further shapes the direction of defence modernisation, especially regarding the gradual integration of AI-enabled capabilities. Current reforms focus on upgrading digital infrastructure, improving interoperability and secure data exchanges, and expanding cybersecurity capacity, all essential for deploying next-generation defence systems. Initiatives to modernise cloud infrastructure, fibre connectivity, and digital public administration aim to address long-standing fragmentation across state IT

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<sup>5</sup> Csernaton, Romania's defence technological and industrial base: Challenges and prospects.

<sup>6</sup> Peptan, "Romania facing new vectors of insecurity," p. 90.

systems. These challenges have similarly constrained digital transformation within the Romanian Ministry of National Defence (MApN).

Although mainly civilian in scope, these reforms directly affect the armed forces' ability to operationalise AI for command-and-control, training and simulation, logistics and maintenance, and predictive decision-making. As Romania remains structurally positioned as a "catch-up" digital economy, military digitalisation depends heavily on broader state modernisation, sustained funding, and the capacity to adapt to complex emerging technologies.<sup>7</sup> Therefore, ongoing gaps in digital skills and uneven investment patterns pose risks to the secure, responsible, and interoperable adoption of defence AI.

In this context, digitalisation of government and the economy is not a peripheral reform but a crucial enabling condition for Romania's growing ambition to incorporate AI into its defence strategy. Thus, Romania's adoption of defence AI is driven by its shifting security environment, efforts to broaden digitalisation, and the necessity to modernise its armed forces. As a NATO member on the EU's eastern border, Romania confronts a mix of conventional and hybrid threats that intensified after 2020.

Russia's assertive stance, reaching a pinnacle with the full-scale war against Ukraine in 2022, coupled with rises in cyber and information warfare in the Black Sea region, highlights the importance of advanced technological countermeasures. In this setting, Romanian defence planners view technology adoption and defence modernisation as essential for national survival. In this sense, defence AI should not be treated as a standalone technological silver bullet, but as a stress test for the country's broader innovation potential and digital maturity.

In summary, Romania's strategic stance on defence AI is marked by a high level of threat awareness, a political mandate to modernise through technology, and a cultural tendency to do so collaboratively with allies. Romania's perspective on defence AI remains only partly autonomous and continues to be heavily influenced by key partners, primarily the U.S. and NATO frameworks. This influence is evident in procurement decisions, doctrinal borrowing, and a preference for proven, interoperable U.S.-aligned systems rather than indigenous experimentation. Although this strategy reduces short-term risks and speeds up capability development, it creates long-term "intellectual dependence" as Romania risks importing not just technologies but also threat perceptions, operational concepts, and ethical assumptions.

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<sup>7</sup> Marinaş et al., "A Framework Analysis of Digital Transformation: Insights from the Romanian National Recovery and Resilience Plan."

Over time, this could restrict strategic innovation, limit domestic development ecosystems, and diminish Romania's capacity to shape European defence AI standards, making it more of a follower than a leader in shaping future military AI governance. Notwithstanding, there is a noticeable sense of urgency driven by the Ukraine war and hybrid warfare trends, which have raised defence technology discussions, including fostering a homegrown defence AI ecosystem, to the highest levels of government in Bucharest. The following section will explore how these strategic objectives enshrine the defence AI sphere into consecutive programmatic documents.

## 2.2 National Strategies and AI in Defence

Since the 2020s, national strategic documents, including the National Defence Strategy 2020–2024,<sup>8</sup> the 2021 Military Strategy of Romania,<sup>9</sup> the 2021 White Paper on Defence,<sup>10</sup> the National Defence Industry Strategy 2024–2030<sup>11</sup>, and the National Defence Strategy for 2025–2030, titled “Independence and Solidarity: Romania’s Vision for a Changing World,”<sup>12</sup> have emphasised digitisation and EDTs like AI, big data, and robotics as essential for military modernisation.

Indeed, Romanian defence planners view tech adoption as necessary for survival. The National Defence Strategy 2020–2024 explicitly identified hybrid and cyber threats, often AI-enabled, as key risks to national security, calling for state action to boost resilience, though the document was initially more declarative than prescriptive on emerging tech. The National Defence Strategy 2020–2024<sup>13</sup> recognised AI and related digital technologies as vital factors transforming the security landscape. It identified them as both drivers of innovation and facilitators of hybrid threats. Moreover, the National Defence Strategy 2020–2024 explicitly identified hybrid and cyber threats, often AI-enabled, as major risks to national security, calling for government action to enhance resilience. However, that document was initially more declarative than prescriptive regarding emerging technologies.

The document acknowledged that AI, machine learning, big data, and the Internet of Things (IoT) can enhance communication, information processing, and the development of new weapon systems. Indeed, the text described an international security environment transformed by rapid technological development, increased

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8 Romania's National Defence Strategy 2020–2024.

9 Military Strategy of Romania 2021.

10 Romania's 2021 White Paper on Defence.

11 Romania's National Defence Industry Strategy 2024–2030.

12 Romania's National Defence Strategy for 2025–2030.

13 Romania's National Defence Strategy 2020–2024, pp. 19–21.

interconnectivity, and growing cyber vulnerabilities. Emerging technologies, including AI, machine learning, big data, IoT, cloud computing, quantum technology, and 5G, were mainly seen as risk multipliers that enable new forms of hybrid and asymmetric threats. That is why AI was presented not only as a capability for defensive purposes, but also as a tool that can be maliciously exploited by organised crime, cybercriminals, hacktivists, terrorists, and state-linked actors. In this regard, it might be worth noting that AI was framed more as a source of anxiety rather than as an instrument of strategic agency or technological sovereignty.

The document also highlighted concerns that AI and related technologies could facilitate more advanced cyberattacks, offensive operations, and coordinated cross-border manipulation. It pointed out that as emerging technologies spread, the threat environment becomes more complex and volatile, especially as non-state actors gain access to advanced capabilities. At the same time, it recognised that AI-driven systems introduce operational challenges for securing large volumes of data circulating within increasingly digital defence ecosystems. The strategy connected technological progress to trends in weapon design, indicating that AI and autonomy will shape future platforms and sensor-rich systems. Essentially, AI was seen mainly as a disruptive, dual-use technology that heightens vulnerabilities, enlarges attack surfaces, and accelerates arms races, underscoring the importance of defensive preparedness rather than providing a clear strategy for leveraging AI as a strategic military asset.

Therefore, and as already mentioned, the strategy mainly viewed AI from a risk-oriented perspective, emphasising its potential for malicious use by non-state actors, cybercriminals, hacktivists, and terrorists, but only subtly hinting at its possible defence benefits. Its approach remained largely technological and lacked differentiation, grouping AI with other disruptive civilian technologies without detailing their specific military applications or governance requirements. Therefore, the strategy provided no clear guidance on defence AI development priorities, organisational mandates, procurement procedures, or frameworks for responsible innovation, among others. This absence of specificity, endemic to subsequent strategic documents, reflects an early phase of strategic thinking, in which recognition of opportunities and challenges precedes implementation or operationalisation.

Moreover, it omitted references to interoperability or alignment with NATO or EU defence innovation initiatives introduced during the same period. Consequently, AI was regarded as part of a broader set of emerging risks linked to digital transformation, rather than a distinct capability frontier for Romania's armed forces. As a result, the strategy effectively identified major technological shifts, but it failed to translate these insights into concrete defence planning priorities. Overall, the strategy demonstrated an early-stage strategic awareness rather than a comprehensive vision for integrating AI into Romania's defence posture.

That is why the gap between recognising threats and implementing solutions became clear as Romania faced real incidents, for instance, waves of false bomb alerts, election interference attempts,<sup>14</sup> and hostile drone incursions<sup>15</sup> along its borders in 2022–2025. The war in Ukraine showed how low-cost drones and AI-enabled loitering munitions could cause strategic effects, emphasising Romania's need to counter such systems or deploy its own.<sup>16</sup> In fact, these episodes served as a sobering reminder that technological gaps should be rapidly mitigated, an effort that is, of course, easier said than done.

The 2021 Military Strategy<sup>17</sup> engaged more deeply with AI than the earlier National Defence Strategy 2020–2024, positioning AI at the core of Romania's defence digital transformation. It explicitly linked AI to C4ISR integration, cyberspace operationalisation, and the acceleration of planning and support functions, thus aligning with NATO's emphasis on data-driven military transformation. The strategy acknowledged that AI, combined with big data, IoT, cloud, edge computing, and quantum technologies, will underpin emerging digital ecosystems and future military capabilities. Specifically, it placed AI within a federated multinational interoperability framework and identified legal, industrial, and research partnerships as vital for capability development. Yet, these references to AI mostly served as signalling devices rather than actual drivers of tangible change. While they demonstrated alignment with NATO and emerging technological trends, they were not supported by clearly allocated budgets, measurable AI capability targets, or dedicated implementation roadmaps. In practice, AI remained more aspirational than operational in Romanian defence planning.

The document indeed highlighted digital transformation as central to Romania's defence modernisation and decision-making superiority. Digitalisation was seen as a way to operationalise cyberspace as a battlefield and enable automated planning, operational analysis, and C4ISR functions. In this regard, defence AI appeared to be part of a broader emerging technology ecosystem, integrated alongside big data, IoT, cloud and edge computing, and quantum systems, to support data processing, autonomy, and rapid decision-making. From this perspective, AI was portrayed as a software-driven capability with "revolutionary impact," enabling experimentation with new concepts and maintaining digital sovereignty for the MApN. Moreover, the development and operational deployment of AI systems was connected to legal and regulatory reform, enhanced collaboration with the private sector and academia, and engagement with NATO and EU interoperability frameworks.

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14 OECD, "AI-Driven Social Media Interference Annuls Romania's Constitutional Court Ruling on the 2024 Election's First Round."

15 Vişan, "Romania No Longer Turns Blind Eye to Russia's Airspace Violations."

16 Peptan, "Romania Facing New Vectors of Insecurity," p. 98.

17 Military Strategy of Romania 2021, pp. 16, 19, 48.

In the cyber domain, AI was portrayed as part of a layered defence system that combined machine learning, IoT, and big data analytics for cyber operations, threat detection, and response. In addition, AI-enabled capabilities were seen as crucial to multidimensional force protection, especially against misinformation, deception, and hybrid threats. Overall, the document presented defence AI as both a facilitator of modern operational capability and a necessity for digital sovereignty, interoperability, and resilience in contested information environments. Here, optimism about technological progress risked obscuring the hard governance questions that determine whether innovation actually delivers military advance.

Hence, AI was described as a “game changer,” but engagement remained aspirational and overly deterministic, assuming digital progress would naturally lead to decision superiority without addressing risks such as algorithmic bias, military reliance on foreign vendors, vulnerabilities from interconnected IoT battlespace systems, or escalation from autonomous functions.

Similarly, the 2021 White Paper on Defence<sup>18</sup> identified AI alongside quantum tech, directed-energy weapons, advanced materials, and synthetic biology as key future capabilities the military must harness in the coming years. This aligned with NATO’s own 20-year outlook that lists AI as a top emerging and disruptive technology for defence. The White Paper indicated a growing recognition of AI as a strategic tool for Romania’s defence transformation, but its approach remained mostly declarative and capability neutral. Indeed, AI mainly featured as part of wider digitalisation and automation initiatives, integrated into visions of big data decision-making, cyber defence, production efficiency, and autonomous systems. This approach followed the broader Euro-Atlantic innovation agendas and acknowledged AI’s disruptive potential, including vulnerabilities in cyberspace or cognitive manipulation.

However, the document stopped short of defining specific priorities, governance frameworks, or operational concepts for military AI. For instance, responsibilities, timelines, and resource allocations were once again left unclear. Furthermore, although autonomous systems and AI-enabled production were mentioned, ethical, legal, and safety concerns, including responsible human control, were not addressed. Although the focus on industrial modernisation and partnerships suggested a pragmatic goal of utilising dual-use ecosystems, it was without concurrent commitments to doctrinal changes, institutional reforms, or accountability structures. All in all, the White Paper signified a crucial symbolic shift, but its operational implementation remained rather limited and risked relegating Romania to a reactive adopter rather than a strategic innovator in defence AI. The shift

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<sup>18</sup> Romania’s 2021 White Paper on Defence, pp. 16, 19, 48.

was primarily vital because it marked Romania's first formal recognition of AI as a strategic defence matter rather than merely a technical addition. Even if mostly symbolic, it established an institutional entry point for future policies, budgets, and debates, shaping expectations, legitimising AI investment, and aligning Romania with emerging NATO and EU dual-use AI discourses.

The National Defence Industry Strategy 2024–2030<sup>19</sup> leveraged AI mainly in the industrial and R&D sectors, signalling a gradual shift from broad strategic awareness to specific sectoral implementation plans. Unlike earlier high-level defence strategies, it highlighted AI as part of modernising the national defence industry, focusing on defence production optimisation, research clusters, and dual-use technological innovation. Notably, the document connected AI to autonomous combat vehicles, protection systems, and industrial automation, implicitly aligning with NATO goals for EDTs.

Nevertheless, and yet again, the engagement remained largely functional and techno-industrial, viewing AI as a component within larger re-technologization, digitisation, and manufacturing modernisation efforts. The document offered little explicit discussion on military operational AI uses, responsible or ethical deployment frameworks, or governance concerning battlefield autonomy. Also, AI was positioned within a broad laundry list of EDTs, with few mechanisms for setting priorities, securing funding, or defining institutional responsibilities.

Whilst the strategy indeed emphasised collaboration, research partnerships, and legislative adaptations, it remained unclear how Romania planned to address risks related to integration, cybersecurity, or supply-chain vulnerabilities. Importantly, the repeated references to autonomy, unmanned systems, and production optimisation indicated an awareness that AI will transform warfare and industrial capacity, but the transition from being a laggard in defence innovation in general to operational defence AI capability remained insufficiently detailed. Essentially, the strategy marked initial steps towards embedding AI within defence industry policy, though further development of doctrinal, ethical, procurement, and operational frameworks will be critical for Romania's defence AI readiness.

The new National Defence Strategy 2025–2030<sup>20</sup> was expected to address AI more explicitly, aligning with NATO's and the EU's strategic emphasis on emerging tech. It indeed recognises AI as a transformative and dual-use frontier technology with significant implications for national and international security. Its approach to AI reflects a growing realisation within Romania's strategic community that competition in EDTs, such as AI, quantum technologies, and advanced microprocessors,

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19 Romania's National Defence Industry Strategy 2024–2030, pp. 30, 33, 35.

20 Romania's National Defence Strategy 2025–2030, pp. 4, 13, 22, 26, 30.

will shape geopolitical hierarchies and military strength. The strategy emphasises the AI's potential to accelerate digitalisation and narrow Romania's development gaps with allies, signalling political acknowledgement of AI as a key capability for modernising defence.

However, this engagement remains mainly conceptual and declarative. AI is primarily viewed as a structural driver of global competition, a disruptive factor creating vulnerabilities, and an object of technological dependence. The document notes that AI can exacerbate national and global inequalities, foster new dependencies, and be weaponised by hostile actors for aggression, manipulation, and terrorism. This threat-focused perspective aligns with NATO rhetoric on EDTs, but lacks concrete pathways for defence AI research, innovation, and deployment, as well as clear institutional roles or capability development priorities. The strategy does not specify how Romania plans to develop, acquire, deploy, or govern defence AI, nor does it outline mechanisms for responsible adoption, talent growth, or civil-military innovation.

Likewise, the absence of interoperability considerations with EU and NATO emerging tech initiatives leaves unclear how the country intends to utilise alliance frameworks for AI-enabled capabilities. By mainly framing AI as an economic and digital transformation tool, the strategy risks underestimating the specific military, operational, and ethical challenges involved in deploying AI in command, control, intelligence, cyber, and unmanned systems, although some of these aspects have been addressed via the country's engagement in NATO and the EU (see chapter 3). Therefore, although the strategy recognises AI's critical role in Romania's security, its operational priorities remain starkly underdeveloped. This reinforces the fact that turning this vision into practical action will be difficult and will necessitate additional defence-specific AI planning documents that convert strategic awareness into clear objectives, defined responsibilities, institutional reforms, cooperation programmes, and clever resource allocation, enabling Romania to incorporate AI into defence responsibly and in accordance with Euro-Atlantic standards.

In conclusion, and taken together, Romania's strategic context and the need to adapt to rapid technological development create both urgency and vulnerability regarding defence AI. The war in Ukraine and the rise of hybrid threats turbo-charged by AI have made digital modernisation a key national security priority, yet decades of underinvestment in the DTIB and reliance on foreign suppliers limit Romania's ability to innovate, adopt, and manage AI responsibly. A new political mandate and rising defence expenditure could offer a rare chance for structural change, but seizing it will require careful planning, coherent governance, and investment in sovereign digital capacity.

# 3 Developing Defence AI

Romania's practical efforts to develop defence AI capabilities have accelerated after 2020, concentrating on key areas such as unmanned systems, intelligence analysis, cybersecurity, and training. It is worth noting that in practice, these strategic focus areas emerged more from the bottom up than through a coherent top-down capability planning process. They mainly built on existing partnerships, NATO-driven priorities, and available technologies rather than a systematic identification of national AI capability gaps. In fact, it could be argued that strategic coherence followed pragmatism, not the other way around.

This section examines the projects and development priorities Romania is pursuing, as well as the emerging ecosystem of institutions, industry players, and funding streams supporting defence AI. International cooperation is the foundation of Romania's strategy for defence innovation. Since 2020, Romania has actively used NATO and EU frameworks to enhance its capabilities in AI and emerging technologies, including NATO's innovation ecosystem, supporting NATO's Emerging and Disruptive Technology agenda for technological supremacy,<sup>21</sup> as well as contributions to EU initiatives such as Permanent Structured Cooperation (PESCO) projects, the European Defence Fund (EDF), the Security Action for Europe (SAFE) instrument, including various bilateral programmes, which collectively promote Romania's defence AI development.

In essence, Romania aims to position itself not only as a consumer of allied technology but also as a contributor to allied innovation networks, carving out a niche in resilience and hybrid threat mitigation through technology. Through NATO, EU, and key partner collaborations, Romania has greatly increased its access to knowledge, funding, and technology in defence AI since 2020. The upcoming challenge will be to absorb these inputs and turn them into lasting national capabilities. This will also require Romania to put more emphasis on establishing and developing its national (defence) innovation ecosystem, which is weak right now.

### 3.1 Participation in NATO Initiatives

Romania was an early supporter of NATO's efforts to craft a unified approach to military AI, including NATO's 2021 AI Strategy.<sup>22</sup> Romania supports the EU's proposed AI Act, a landmark regulation that would impose strict requirements on high-risk AI systems, signalling that any AI it develops for defence will adhere to European ethical and legal norms. It is worth noting that the AI Act focuses solely on commercial AI, explicitly excluding military applications and national security

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<sup>21</sup> Brinza, "The Implications of Artificial Intelligence on the Global Security Environment and the Impact of AI on Defence Strategies."  
<sup>22</sup> "Summary of NATO's Revised Artificial Intelligence (AI) Strategy."

services.<sup>23</sup> By backing these frameworks, Romania aims to strengthen its image as a reliable, norm-abiding partner committed to developing and applying AI in line with Western values. It has also emphasised interoperability in AI, ensuring Romanian systems can integrate into NATO networks and data architectures, viewing this as essential for collective defence.

Following NATO's 2021 AI Strategy, Romania designated representatives to NATO's Data and AI Review Board (DARB), the body overseeing the implementation of the AI strategy across the Alliance.<sup>24</sup> Through the DARB and related forums, Romania gains insight into Allies' best practices, for example, U.S. methods for testing AI systems, and contributes input based on its regional perspective, such as countering AI-enabled hybrid tactics seen from Russia. This two-way exchange helps Romania align its nascent AI projects with NATO standards from the outset.

Romania is also a founding member of the NATO Innovation Fund (NIF), the Alliance's venture capital fund for emerging and disruptive technologies. At the NATO Madrid Summit in June 2022, Romania joined 21 other Allies in launching this €1 billion fund, the world's first multi-sovereign VC fund, which invests in early-stage start-ups working on priority tech areas such as AI, autonomy, big-data processing, quantum, space, biotech, and more. But perhaps the most important NATO initiative for Romania is DIANA - Defence Innovation Accelerator for the North Atlantic, launched in 2022.<sup>25</sup> DIANA offers a network of innovation hubs, test centres, and accelerator programmes to encourage dual-use technological solutions among Allies. Romania eagerly joined DIANA and was chosen to host four DIANA test centres on its territory, one of which specialises in AI.<sup>26</sup> The NIF also complements DIANA: start-ups graduating from DIANA's accelerator can seek follow-on funding from NIF.

DIANA centres allow Romanian and allied innovators to test AI applications in realistic environments. On 23 May 2023, the official signing of a Memorandum of Understanding<sup>27</sup> took place between DIANA and the Test Centre in Artificial Intelligence at the Politehnica University of Bucharest (UPB). The mission of UPB's International Centre of Excellence in Artificial Intelligence<sup>28</sup> is to advance research and innovation in human-centred, trustworthy, safe, and secure AI. It aims to go beyond the current limits of AI technology and to develop AI-specialised human resources by aligning top-level research activities with industry and societal challenges. The goal is to create a tangible socio-economic impact for businesses,

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23 Clapp, *Defence and Artificial Intelligence*.

24 Brinza, "The Implication of Artificial Intelligence on the Global Security Environment and the Impact of AI on Defence Strategies," pp. 140–141.

25 For more, see: <https://www.diana.nato.int/> (last accessed 30 January 2026).

26 NATO's DIANA Network Test Centres, p. 6.

27 "Official Signing of the Memorandum of Understanding between the Defence Innovation Accelerator for the North Atlantic (DIANA) and the UPB - Test Centre in Artificial Intelligence."

28 For more, see: <https://aixcellence.upb.ro/#testcenter> (last accessed 30 January 2026).

citizens, security, and society. Accordingly, hosting DIANA test centres carries a lot of symbolic capital, signalling Romania's aspiration to be seen as a contributor rather than as a beneficiary of Allied innovation.

Moreover, Romania hosts the NATO Human Intelligence Centre of Excellence (HUMINT COE)<sup>29</sup> in Oradea, which plays a vital role in developing and modernising human intelligence capabilities across the Alliance. As multi-domain operations evolve, the Centre is integrating emerging technologies, most notably AI, into HUMINT processes to enhance collection, analysis, and decision-making. In this respect, the Centre prioritises collaborative research with academia and industry to leverage AI algorithms to improve operational effectiveness, exemplified by NATO-funded projects such as "Artificial Intelligence - Leveraged Enterprise Agility." The Centre also supports the development of AI-driven tools for intelligence tasks, thus emphasising the ongoing importance of human expertise alongside technological innovation.

Romania's private sector and start-up community have also embraced DIANA's accelerator challenges. In 2024, Romania was "among the top countries applying to the DIANA accelerator," submitting 88 proposals, a tenfold increase from the 8 submitted in 2023.<sup>30</sup> These proposals came from Romanian start-ups and scale-ups developing dual-use technology, many of them AI-driven solutions for energy, logistics, autonomous systems, and data-driven decision-making. Though only one Romanian company advanced to the later stages of the 2024 DIANA cohort, this volume of applications indicates a rising interest and capacity within Romania's tech sector for defence-related innovation. On the one hand, it could be argued that success rates remain rather modest; on the other hand, the learning effects of participation should equally not be underestimated, potentially leading to a spill-over effect in building a domestic defence AI ecosystem.

During the seventh edition of the Investors' Day, an event organised on 16 June 2024 by Techcelerator, the longest-running high-tech accelerator in Romania, to bring together tech startups and investors, a NATO DIANA Board of Directors member from Romania, Horia-Răzvan Botiș, highlighted that many proposals were technically strong but needed clearer articulation of military use-cases.<sup>31</sup> This feedback has prompted Romanian participants to sharpen their focus on defence applications of AI, ensuring, for example, that an AI drone traffic management idea explicitly addresses battlefield scenarios. The DIANA experience is thus aiding in developing Romania's human capital in pitching, developing, and aligning tech

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29 NATO Allied Command Transformation, "NATO's Human Intelligence Centre of Excellence: A Hub for Innovation."

30 Purice, "Romania Among the Top Applicant Countries in NATO's DIANA Accelerator."

31 Idem.

solutions to NATO requirements. All in all, NATO's ecosystem provides Romania with an invaluable platform to compensate for its small R&D base.

## 3.2 European Union Initiatives and Industrial Cooperation

Parallel to NATO, the EU defence innovation tools have become increasingly significant for Romania. As an EU member, Romania views the Union's initiatives as complementary to NATO's, focusing more on joint capability development and strengthening Europe's defence industrial base. Romanian officials often state that effective European defence projects ultimately reinforce NATO, and therefore, they pursue both collaboratively. Romania has increased its participation in EU frameworks such as PESCO, the EDF, the European Defence Agency (EDA) programmes, including the EU's recent SAFE instrument, to advance its AI and technological ambitions.

As part of the joint initiatives, Romania supports all defence projects in which our country participates at the EU level, such as: PESCO - 23 projects, EDA framework - 29 projects, the Act in Support of Ammunition Production (ASAP) – within which Romania (ROMARM) cooperates with Germany's Rheinmetall to build a new gunpowder factory in Romania, the European Defence Industry Reinforcement through common Procurement Act (EDIRPA), in which Romania participates in the joint procurement of MISTRAL led by France, and the EDF - 33 projects.<sup>32</sup> These figures point to the breadth of engagement, but also raise important questions about depth, critical mass, and strategic influence.

Yet, Romania's capacity to lead European defence consortia and integrate into large-scale European initiatives within EU defence programmes has remained relatively limited. This is evidenced by the fact that, unlike other Central and Eastern European countries, Romania leads only two PESCO projects.<sup>33</sup> Still, for Bucharest, coordinating the EU Network of Diving Centres (EUNDC) and the CBRN Defence Training Range (CBRN DTR) PESCO projects involves significant responsibilities, and Romania is fully committed to making these capabilities operational, which can strengthen the resilience of our Armed Forces in force protection and training.<sup>34</sup> It has also participated in the EDF with relatively modest research and development projects since 2021. This is especially significant for state-owned defence industrial entities, such as ROMARM.<sup>35</sup>

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<sup>32</sup> Romanian Defence 2025.

<sup>33</sup> Soare, Romania's Perception of the EU Defence Industrial "Toolbox."

<sup>34</sup> Romanian Defence 2025.

<sup>35</sup> Cozma, "How Can Romania Revitalise Its Defence Industry?"

For instance, Romania is part of an EDF project on Artificial Intelligence Deployable Agent (AIDA),<sup>36</sup> financed under the EDF 2023 call, which aims to develop prototype AI-based cyber-defence agents capable of autonomously managing the full life cycle of cyber incidents, from detection to response, addressing the growing attack surface of highly digitalised defence environments. Romania participates modestly in AIDA through Eviden Technologies SRL and the Ministry of National Defence, reflecting its emerging but limited role in collaborative AI-for-defence innovation at the EU level. This involvement signals growing engagement with EU cyber-AI ecosystems, but it also highlights Romania's status as a secondary partner rather than a lead technological contributor.

Indeed, typically, Romanian entities in EDF consortia are small research agencies or SMEs that often receive only a modest share of the budget.<sup>37</sup> This reflects capacity issues, as Romanian firms tend to act as junior partners providing niche expertise or regional test environments rather than leading high-value work packages. Thus, in practice, participation has often meant presence rather than real agenda-setting power. Importantly, of the 157 projects initiated between 2021 and 2023, Romania has only led an EDF project, AVALON.<sup>38</sup> It is led by a Romanian entity, an SME specialising in underwater wireless optical communication technology, Artemis Research & Innovation S.R.L. Though a notable achievement, AVALON remains an isolated case rather than an indicator of broader national engagement.

In March 2023, MAPN also signed a Memorandum of Understanding with Microsoft Romania<sup>39</sup> to bolster digitalisation in Romania's defence sector, enhancing cooperation in information technology, security, and cyber defence. The agreement reflects MAPN's growing reliance on strategic partnerships with global technology providers to accelerate digital transformation and operational resilience.<sup>40</sup>

Under the memorandum, Microsoft committed to sharing technical expertise and knowledge based on its global experience, including best practices in deploying innovative digital ecosystems and emerging technologies such as AI, advanced data analytics, cloud computing, big and open data architectures, IoT networks, Zero Trust security models, data lake infrastructures, and data-warehouse solutions. This collaboration indicates Romania's intention to modernise digital defence infrastructure through public-private cooperation and to lay the groundwork for scalable defence AI-enabled capabilities across its armed forces.

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36 "AIDA – Artificial Intelligence Deployable Agent."

37 Iancu, "Romania's Defence Policy and National Security Interests in the European Defence Fund Amidst European Defence Integration," p. 223.

38 "Avalon - Long-Term Support for Robotics and Autonomous Systems."

39 "Memorandum of Understanding between MOND and Microsoft Romania."

40 Neagu, "Digitalisation of the Romanian Army: The Ministry of National Defence Signs a Partnership with Microsoft Romania in the Field of Information Technology, Security, and Cyber Defence."

In 2024, Romania became the coordinator of another EDF project, the Small Enhanced European UAS (SEEU-STEP), funded under the 2024 Development Actions.<sup>41</sup> It aims to develop advanced small unmanned aerial systems capable of operating in contested environments and supporting C4ISR missions across EU armed forces. The project is led by Kapamed International SRL, a Romanian company based in Cluj-Napoca, marking a notable example of Romanian leadership within an EDF development initiative. The project's total estimated cost is €11,585,387.50, with €10,999,940.00 covered by EDF funding. The initiative focuses on enhanced endurance, low observability, interoperability, and intelligent data processing, including software components that enable autonomy. Romania's role as coordinator represents a significant step beyond junior participation, further strengthening its position within EU defence innovation and defence AI ecosystems. This case demonstrates that leadership is possible but remains the exception rather than the rule.

Yet, leadership requires significant project management skills and financial contributions that Romania's industry currently lacks. Although Romania's National Defence Strategy 2020–2024 explicitly acknowledged the importance of EU-led security and defence initiatives, this recognition has not actually resulted in concrete actions to modernise its defence industry or enhance cooperation with European partners.

Romania has also secured €16.68bn in loans under the EU's SAFE programme, the second-largest allocation after Poland, to fund rapid investments in military equipment and defence production capacity.<sup>42</sup> SAFE, a temporary emergency instrument, supports advanced technologies, including AI for defence and security, to enhance interoperability with NATO and EU partners. The programme demonstrates European solidarity in addressing the need for modern and resilient collective defence. Its goal is to promote industrial cooperation, reduce fragmentation, and establish a more efficient single market for defence equipment. Loans are provided based on a national defence industry investment plan approved by the European Commission, with Funds remaining available until 31 December 2030.

Romania also engages in EDA research and technology activities, including CapTech initiatives related to communications, cyber defence, and digital technologies. Although publicly available information does not allow for precise measurement of national involvement, these activities align with Romania's interests in secure military communications and emerging AI-enabled capabilities. Beyond the defence sector, Romania benefits from EU civilian research programmes like Horizon Europe,<sup>43</sup> with significant defence crossover.

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41 "Small Enhanced European Unmanned Aerial Systems."

42 Cristea, "EU backs Romania with 16.7 billion euros in defence loans."

43 OECD, Progress in Implementing the EU Coordinated Plan on AI (Vol. 1): Romania.

Romanian universities, research institutes, and technology firms actively participate in Horizon Europe projects focused on AI and cybersecurity, developing expertise and tools that can inform defence applications. Simultaneously, Romanian institutions are involved in EU-funded AI excellence and competence networks, which help build national expertise in advanced AI methods. Although mainly civilian in focus, these initiatives could indirectly strengthen Romania's defence AI ecosystem by expanding the country's research capacity, skills development, and exposure to European innovation networks that the MAPN can increasingly leverage. Nonetheless, Eurostat data from January 2025 shows that in 2024, only 3.1% of Romanian companies used AI technologies, placing Romania last in the EU, compared to the European average of 13.5%.<sup>44</sup>

### 3.3 Other Partnerships and National Initiatives

Beyond NATO and EU frameworks, Romania has developed direct partnerships with key allies to advance defence technology and AI. This reflects Romania's approach to defence innovation that is incremental and anchored around contributions by partner nations (chapter 2.1). Close cooperation with partners also allows Romania to gain hands-on experience by procuring and fielding foreign AI-enabled defence solutions,<sup>45</sup> as chapter 6 will discuss.

The United States is Romania's most significant strategic partner, with technology cooperation playing a prominent role in that relationship. Under a 10-year Roadmap for Defence Cooperation signed in 2020, the U.S. and Romania agreed to collaborate on emerging technologies such as AI, cyber, and space, among others.<sup>46</sup> American defence firms also play a role. Lockheed Martin has partnered with Romanian institutions, as shown by Lockheed's involvement in the Cluj AI Research Centre project.<sup>47</sup> In addition, Romania's long-standing ties with Israel and its defence sector play a crucial role in advancing access to AI-enabled unmanned systems, such as UAVs, to enhance Romania's capabilities in Intelligence, Reconnaissance, and Surveillance, as well as border security.

Moreover, Romania established a unique institution in 2021, the Euro-Atlantic Resilience Centre (E-ARC) in Bucharest.<sup>48</sup> Even though it is not military-specific, this centre addresses hybrid threats, resilience, and the impacts of emerging

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44 "EU Member States' Defence Spending and Military Personnel Statistics."

45 "Learning by procuring" is an approach many other EU and NATO partners of Romania such as Denmark, Estonia, Finland, Germany, Greece or Italy are pursuing as well. For more, see: Borchert, "The Very Long Game of Defense AI Adoption: Introduction," p. 26.

46 Vergun, "U.S., Romania Chart 10-Year Road Map for Military Cooperation."

47 Marica, "Lockheed Martin and Cluj University Establish AI Partnership for Defence Applications."

48 For more on the centre, see: <https://e-arc.ro/> (last accessed 30 January 2026).

technologies on security, operating under a diplomatic umbrella with NATO and EU support. E-ARC has organised workshops on AI governance and cognitive security with NATO and EU experts, where Romanian defence officials also participate. These initiatives help Romania develop a comprehensive understanding of AI's strategic and hybrid implications, from societal resilience to military applications, and bolster the country's role as a regional hub for security innovation. In this sense, resilience has become one of Romania's most distinctive conceptual contributions to Allied security debates.

### 3.4 A Local Defence AI Ecosystem in the making?

The reality is that Romania has consistently ranked among the lowest in AI adoption across the EU, which significantly affects home-grown defence AI applications.<sup>49</sup> Indeed, Romania's ability to develop a credible defence AI ecosystem is fundamentally limited by the country's ongoing lag in digital transformation and AI adoption across the wider economy and society. Despite increasing political focus on EDTs, Romania remains among the lowest performers in the EU on key indicators related to AI uptake, digital skills, and innovation intensity.<sup>50</sup> This broader technological lag directly influences the potential for domestic defence AI applications, which rely on a mature civilian digital environment for talent, data, infrastructure, and entrepreneurial spillovers. Indeed, this structural lag creates a ceiling on what defence AI can realistically achieve in the short to medium term.

A key systemic challenge is Romania's weak domestic innovation system. Public and private R&D investment remains low, venture capital markets are limited, and collaboration among universities, industry, and the government is fragmented. Defence AI, which relies heavily on software and data, requires ongoing access to advanced computing resources, high-quality datasets, and interdisciplinary research teams. Furthermore, such assets are unevenly distributed and often concentrated in isolated university centres of excellence rather than scaled across the country. Consequently, it could be argued that promising defence-related innovations often remain at the prototype stage or are absorbed into foreign-led ecosystems.

Digital skills shortages further constrain ecosystem growth. Romania faces a dual challenge of low overall digital literacy and a limited pipeline of advanced AI specialists. Although the country produces strong technical graduates, there is a massive brain drain issue. Many highly skilled workers are absorbed by multinational IT

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49 "EU Digital Economy and Society Statistics: 20.0 % of EU Individuals Used AI Services in 2025."

50 "Romania, Failing in Digitalisation: It Received a Score of 3 out of 10 in a Report by Estonian Experts."

firms or move to higher-paying markets, decreasing the pool for defence-related projects.<sup>51</sup> Within the armed forces, limited exposure to AI-enabled systems reduces demand: without clear operational concepts, procurement pathways, and user communities, military demand for AI remains cautious and fragmented. That is why the challenge is not only a lack of talent, but the inability to retain and channel it strategically, including in the Romanian armed forces.

Therefore, Romania risks falling behind in AI unless defence becomes a catalyst for AI adoption. Following the Polish model, for example, it should establish a dedicated military AI unit as a template, encouraging Romania to increase defence funding, utilise its IT sector, and systematically embed AI into armed forces modernisation.<sup>52</sup> Finally, the armed forces' procurement culture prioritises proven, imported systems over experimental domestic solutions, reinforcing dependence on foreign vendors. Without coordinated demand signals, sustained funding, and mechanisms to absorb risk, domestic firms find it difficult to scale defence AI solutions.

Nonetheless, Romania has taken a significant step towards establishing itself as a research and technology hub in Eastern Europe with the opening of its first national AI factory. The new facility, called RO AI Factory,<sup>53</sup> is part of the EU initiative EuroHPC - AI Factories,<sup>54</sup> which unites several countries to create a network of centres for high-performance computing and AI technologies. The RO AI Factory is the country's first national AI infrastructure, developed by the National Institute for Research and Development in Informatics - ICI Bucharest as the hosting entity, along with the National University of Science and Technology POLITEHNICA Bucharest and a consortium of academic, research, and industry partners. Thus, for the first time, Romania now has promising infrastructural foundations to experiment with AI at scale under sovereign conditions.

This initiative has the potential to enhance Romania's defence AI capacity by providing sovereign high-performance computing and AI infrastructure crucial for training, testing, and validating military-relevant algorithms. Connected to the EU's EuroHPC network, it can support dual-use research, enable secure data processing for defence purposes, and decrease reliance on foreign computing resources, thus improving resilience, interoperability, and Romania's ability to develop indigenous defence AI innovations.

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51 "How the Romanian Workforce Compares to Other European Markets."

52 Dumitrache, "Romania Risks Missing the AI Train. The Army Can and Must Receive Well Above 3 % of GDP, and the Opportunity May Come from the IT Sector." For more on the AI Implementation Center established at the Cyberspace Defence Forces Component Command, see: Lipka/Wernik/Dziegiel, *Guarding the Alliance's Eastern Frontiers*, pp. 39-40.

53 "National Premiere: ICI Bucharest and Politehnica Bucharest Build the First AI Factory in Romania."

54 European Commission, *AI Factories*.

Romania's emerging defence AI ecosystem is also gaining momentum through both commercial innovation and experimental defence applications. A Romanian tech company, Makeitfuture, based in Cluj-Napoca, won international awards for its advances in automated and AI-driven solutions, highlighting the country's potential in high-performance AI technologies that can spill over into defence contexts, such as data processing and autonomous systems development.<sup>55</sup> Makeitfuture primarily uses AI to develop automation and no-code solutions that help organisations streamline workflows, integrate Software as a Service (SaaS) tools, and deploy AI agents and chatbots tailored to specific business data and needs. Their services include AI workflow integration, intelligent decision-making systems, and automated data processing to improve efficiency across sectors such as customer support, sales, and operations.<sup>56</sup>

Meanwhile, OVES Enterprise's AI innovations are attracting attention from Germany's defence industry with their proprietary Nemesis AI, highlighting the export potential of Romanian AI solutions and enhancing their relevance within European security markets.<sup>57</sup> The company has developed a low-cost FPV drone controlled entirely by AI, capable of autonomous flight without GPS or radio, and utilising thermal and neuromorphic vision for target engagement. The company contends that such systems could redefine defence paradigms by emphasising speed and digital sovereignty, and it has signed a strategic memorandum with the UK's Overwatch Aerospace to collaborate on advanced aerial solutions.

Experimental systems, such as Romanian-designed AI-controlled drones, showcase early operational prototypes that could inform future autonomous ISR and loitering platforms, despite current limited integration with formal military procurement. Furthermore, the potential creation of an AI-controlled FPV drone costing under \$500 by a domestic firm exemplifies promising grassroots defence AI skills and indicates how affordable autonomous platforms could enhance traditional force structures if adopted and scaled by the armed services.

These developments collectively demonstrate an emerging ecosystem in which civilian AI expertise, startup vitality, and early defence-focused prototypes are converging, laying the foundation for a stronger Romanian contribution to NATO-aligned AI innovation.<sup>58</sup> Thus Romania's domestic capacity to develop AI-enabled systems is growing. This also provides an opportunity to reduce the country's dependence on foreign suppliers. But for these initiatives to sustainably support future defence modernisation efforts, companies require military demand signals

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55 "Romanian tech company earns international recognition for AI and automation innovation."

56 For more on the company, see: <https://www.makeitfuture.com/> (last accessed 30 January 2026).

57 Dragan, "Romanian AI Attracts Attention from Germany's Defence Industry."

58 Jipa, "Romania Has an AI-Controlled Drone Under \$500."

via procurement contracts, and military users must be trained to handle new equipment.<sup>59</sup>

Taken together, recent industrial, institutional, and policy initiatives indicate the gradual development of a local defence AI ecosystem in Romania, even if it remains fragmented and uneven. On the industrial front, several Romanian and Romania-based companies are building AI-enabled capabilities with clear defence relevance. Orbotix Technologies,<sup>60</sup> a Polish-Romanian DefenceTech startup, is developing AI for loitering munitions, signalling both indigenous and collaborative experimentation with autonomy, targeting, and human-machine teaming. The company operates in Poland, Romania, Spain and Ukraine, and plans to establish an AI-focused R&D centre in Warsaw. Meanwhile, the partnership between Dzyne Technologies and ROMARM<sup>61</sup> on drone and counter-drone solutions demonstrates how Romania leverages foreign expertise while incorporating production, testing, and integration locally. Similarly, ASSIST Software<sup>62</sup> offers advanced AI-driven situational awareness solutions, including within defence-tech cooperation frameworks with Germany, reinforcing Romania's role as a software- and data-centric contributor within European defence innovation networks.

From an institutional perspective, efforts to build ecosystems are becoming more apparent. The launch of the Romanian AI Hub (HRIA)<sup>63</sup> in June 2025 represents an attempt to strengthen national research capacity, promote public-private collaboration, and embed AI development within smart specialisation priorities, including security and defence spillovers. HRIA is a national project to create a centre of excellence for AI research, development, and innovation, bringing together universities and innovative SMEs within a consortium coordinated by Politehnica Bucharest. It aims to strengthen the national defence AI ecosystem, connect research with industry, develop advanced AI technologies, and increase Romania's visibility in Europe's strategic tech landscape, thereby indirectly supporting defence-related research and innovation.

Within the Ministry of National Defence, the Military Equipment and Technologies Research Agency (ACTTM, also known as METRA)<sup>64</sup> could play a potentially significant enabling role, especially in applied research, testing, and technology validation, even though its direct involvement with advanced AI remains limited and under-documented. Recently, the establishment of the Agency for Operational Experimentation and Advanced Technologies (AEOTA)<sup>65</sup> indicates a growing

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59 Moiş, "Romanian AI-Enabled Drones Tested on the Ukrainian Front."

60 Bednarz, "Orbotix secures €6.5M to boost AI drone systems."

61 "DZYNE Technologies and Romania's National Defense Company Formalize Collaboration to Build Romanian Defense Capability."

62 "ASSIST Strengthens German-Romanian Collaboration in Defence Tech and AI Innovation."

63 "Romania launches the Romanian Artificial Intelligence Hub."

64 For more, see: <https://www.acttm.ro/> (last accessed 30 January 2026).

65 Report on Emerging and Advanced Technologies, p. 38.

institutional recognition of emerging and advanced technologies, including AI, as strategic enablers for future military capabilities.

Overall, these initiatives indicate that Romania is not starting from zero. Instead, a defence AI ecosystem is developing through pragmatic connections between startups, established IT companies, foreign defence partners, and evolving national institutions. However, this ecosystem remains driven more by opportunity and collaboration than by a coherent national defence AI strategy, highlighting both its potential and its structural fragility.

# 4 Organising Defence AI

The discussion of Romania's strategic documents in chapter 2 made clear that the country's thinking on appropriate defence AI governance solutions is nascent at best. The 2021 Military Strategy, for example, lacked clear institutional responsibility for defence AI governance, lifecycle management, and ethical oversight. Although it recognised dual-use technology development and private sector collaboration, it provided no clear mechanisms for trusted procurement, sovereign control of defence data, or resilience against AI-enabled cyber threats. In short, the strategy reflected a more mature outlook on AI's defence potential but did not offer guidance on establishing concrete pathways for responsible and operational military AI deployment. MAPN has also been actively connected to the interinstitutional effort to endorse and approve the National Artificial Intelligence Strategy for 2024–2027.<sup>66</sup>

In addition, the Communications and Informatics Command (CCI)<sup>67</sup> is a specialised structure within MAPN responsible for managing, securing, and operating the Romanian armed forces' communication and IT networks. At the same time, the Cyber Defence Command (CaPC)<sup>68</sup> is the specialised military structure under the Defence Staff, responsible for protecting, defending, and ensuring the resilience of military IT networks and critical infrastructure. Both are crucial in coordinating IT modernisation and deploying AI-driven cybersecurity<sup>69</sup> tools to defend military networks.

Building on its increasing integration into NATO's innovation ecosystem (chapter 3.1), Romania has also taken tangible institutional steps to strengthen defence-industrial cooperation by establishing the Romanian Agency for Technological and Industrial Cooperation for Security and Defence (ARCTIS), under Government Emergency Ordinance no. 124/2023. The creation of ARCTIS marks a significant shift in Romania's approach to defence industrial policy, reflecting a deliberate effort to enhance strategic autonomy while integrating national industry more deeply within European and NATO defence frameworks. This institutional reform, if it does not create more bureaucracy and inefficiency, could reflect a growing awareness that innovation requires structural reforms, as well as whole-of-government and interdisciplinary coordination.

The ordinance details the principles, procedures, and governance mechanisms for technological and industrial cooperation arising from defence and security procurement, explicitly aimed at safeguarding Romania's vital security interests. By replacing the former Office for Offset (OCATS), ARCTIS is intended to serve as

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66 Brinza, "The Implications of Artificial Intelligence on the Global Security Environment and the Impact of AI on Defence Strategies," p. 141.

67 For more, see: <https://cci.mapn.ro/pages/acasa> (last accessed 30 January 2026).

68 For more, see: <https://cybercommand.ro/webroot/en/> (last accessed 30 January 2026).

69 Crelier, "Romania's National Cybersecurity and Defense Posture: Policy and Organizations."

a central coordination hub facilitating collaboration between Romanian defence companies and international partners, including those operating within NATO supply chains.<sup>70</sup>

From a defence AI perspective, ARCTIS is especially relevant because it formalises cooperation formats crucial for emerging and disruptive technologies. These include technology transfer, joint research and development, subcontracting, localisation of production, and the export of defence-related products and services. Such mechanisms are vital for scaling AI-enabled capabilities, where software, data, and systems integration increasingly drive value creation. By reducing bureaucratic fragmentation and streamlining transitions from R&D to production, ARCTIS can enable Romanian firms to participate more effectively in NATO-aligned defence innovation ecosystems.

Its focus on cybersecurity, AI, and advanced digital technologies indicates an intention to align Romania's defence industrial modernisation with the technological priorities shaping modern warfare. In this way, ARCTIS could indeed complement Romania's involvement in NATO innovation initiatives by providing the domestic institutional infrastructure needed to turn Alliance-driven AI experimentation into sustainable industrial and operational capabilities.

Meanwhile, Romania still lacks a clear and operational framework for ongoing state collaboration with companies developing AI and advanced digital solutions for defence and security. As recent industry commentary has noted, strategic documents and political commitments have not yet translated into predictable procurement processes, long-term partnerships, or clear rules for public-private cooperation in sensitive AI fields.<sup>71</sup> This implementation gap weakens incentives for domestic firms to invest in defence-relevant AI and reinforces reliance on foreign suppliers and ad hoc partnerships. A similar tension is evident in Romania's need for a more comprehensive MILCLOUD approach that aims to provide sovereign cloud infrastructure for defence and public administration.

While MILCLOUD represents an important step towards data sovereignty, secure information sharing, and Alliance interoperability,<sup>72</sup> it remains primarily an infrastructure project rather than a comprehensive enabler of AI-driven defence capabilities. Its governance model, integration with AI development pipelines, and role in supporting trusted data access for military AI applications remain under-specified. Without clearer links between MILCLOUD, defence procurement, and AI innovation policy, cloud infrastructure risks becoming an isolated technical

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70 Romanian Defense Market: Opportunities and Challenges, pp. 6–7

71 Barac, "Oves Enterprise says 'Romania Must Make AI a Strategic Priority for National Security.'"

72 "Minister of National Defence Signed the Letter of Intent by Which Romania Joins Allied Software for Cloud and Edge Services."

solution rather than a backbone for AI experimentation, testing, and deployment.<sup>73</sup> Overall, these shortcomings highlight a broader structural challenge: Romania has begun building the institutional and technological components of a defence AI ecosystem but has yet to connect them through coherent governance, implementation mechanisms, and sustained public-private collaboration. Until this gap is closed, Romania's defence AI ambitions are likely to remain fragmented and reactive, rather than strategically coordinated and nationally anchored.

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73 Țiganus, "MILCLOUD: Military Cloud Computing Architecture."

# 5 Funding Defence AI

By 2024, Romania's defence budget exceeded the NATO benchmark of 2% of GDP for the ninth consecutive year, reaching around €9bn. Romania has thus become one of the more responsive European allies to long-standing U.S. pressure to boost defence expenditure within NATO.<sup>74</sup> As discussed in chapter 2.1, this shift reflects both a changing threat perception and a broader recalibration of what Romanian society is willing to prioritise in the name of security.

In essence, the war had significant implications for Romania's defence posture and, by extension, its DTIB. Suddenly, Romania found itself sharing a border with an active war zone, a situation that brought a sense of urgency to defence planning not seen since the Cold War. Romania responded to the war by increasing its defence budget beyond previous commitments. By early 2025, the expectation was that the defence expenditure could reach 3% of GDP within one to two years, representing a substantial increase and signalling the intention to align with the more ambitious NATO benchmarks under discussion in the region.<sup>75</sup> After the 2025 NATO Summit in The Hague, Romania has a stated goal to increase its total defence-related spending to 5% of GDP by 2030, which would include 3.5% for direct military spending and an additional 1.5% for related investments, such as strategic infrastructure and cybersecurity.<sup>76</sup>

This increase in resources will ostensibly provide funding for major procurement programmes and the opportunity to invest in technological and industrial capacity, such as capital expenditure in local factories or R&D centres. The war has at least ensured that political support for defence funding remains strong, overriding earlier hesitations caused by budget deficits. It has become politically acceptable, even essential, to invest heavily in defence as Romanian society and elites witness the devastating consequences of military inferiority in nearby Ukraine.

In contrast to the general spending increase recent evidence confirms that Romania's defence R&D investment remains limited, uneven, and structurally subordinate to equipment procurement. Romania's post-2022 budget growth has predominantly focused on procurement, force readiness, and major capability upgrades, with research and innovation regarded as supportive activities rather than strategic drivers.<sup>77</sup> The 2025 defence budget reinforces this pattern by allocating €2.5–2.75bn to equipment procurement and R&D, a combined category that conceals how much funding is genuinely dedicated to research as opposed to procurement-related integration and upgrades.<sup>78</sup> As the 2024 activity report of the

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74 Romanian Defense Market: Opportunities and Challenges.

75 "Romanian defence spending could reach 3% of GDP in 1–2 years, president says."

76 Ernst, "Romania Adheres to 5%-of-GDP Defence Spending Target."

77 Romanian Defense Market: Opportunities and Challenges.

78 Brăteanu, "Secretary of State in the Ministry of National Defense: Defense budget 2025 – 8.7 billion euros for equipment and research."

Ministry of National Defence's 2024 reveals, Romania currently spends no more than 1.14% of MApN's total budget on R&D.<sup>79</sup>

This figure shows Romania far below NATO goals to boost defence innovation and reveals a persistent imbalance between acquiring capabilities and developing them domestically. In practice, R&D funding is mainly used for applied projects related to procurement programmes, offsets, and international cooperation frameworks, rather than dedicated to exploratory research, experimentation, or emerging technologies such as AI. The result is a defence innovation model that remains reactive and externally shaped, relying heavily on imported systems and allied technologies. While use of EU and NATO instruments partly compensates for limited national investment, the low and weakly ring-fenced R&D share limits Romania's ability to develop sovereign expertise and sustain long-term innovation in AI-enabled and data-driven military capabilities.

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<sup>79</sup> Report on the Activity of the Ministry of National Defence 2024, p. 19.

# 6 Fielding and Operating Defence AI

As discussed in chapter 3.3, international partners are essential to advance Romania's access to AI capabilities via procurement projects. Together with these partners Romania is gradually fielding AI for unmanned systems, counter-unmanned systems solutions and air defence:

#### ■ **Unmanned Systems**

The Romanian Navy has acquired the V-BAT surveillance drone from U.S. manufacturer Shield AI in a deal worth approximately USD30M. This uncrewed aerial system (UAS) is employed for intelligence, surveillance, reconnaissance (ISR) and targeting missions and operates in GPS- and communication-denied environments thanks to Shield AI's Hivemind autonomy software.<sup>80</sup> With a view to improving the country's ISR capabilities, Romania has also signed a USD400M deal to procure the Watchkeeper X UAV in 2023. Produced by Elbit (Israel) and Thales (UK), the system augments the Romanian armed forces' higher resolution data collection and pattern analysis.<sup>81</sup>

Also in 2023, Romania and Baykar signed a contract for 18 Bayraktar TB2 combat drones, including training and support worth USD321M. This acquisition was completed in 2025 and strengthens the capabilities of Romania's Army.<sup>82</sup> While the official procurement documentation does not explicitly mention AI capabilities, the platforms feature advanced avionics and automated flight control systems. Current Turkish drone developments, such as the AI-guided Kemankes missile tested for use on Baykar systems, suggest that AI-assisted target detection and decision support are being integrated at the payload and sensor level.<sup>83</sup>

#### ■ **Countering Unmanned Systems**

In late 2025, the U.S. supplied Romania with the Merops compact counter-drone system for testing as part of broader NATO efforts to strengthen air defences on the Alliance's Eastern Flank.<sup>84</sup> The U.S.-developed Merops system uses AI to detect, classify, and neutralise hostile unmanned aerial systems even in environments with jamming or disrupted communications, thus addressing a growing drone threat that has emerged along NATO borders. Romanian defence authorities reported ongoing trials and plans to integrate Merops into operational frameworks, reflecting deepening U.S.-Romanian defence cooperation in AI-enabled counter-UAS technologies that bridge tactical innovation and Alliance interoperability.

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80 Bisht. "Romanian Navy to Acquire V-BAT Drones for \$30 Million."

81 Dumitrescu. "Romania Acquires Israeli Surveillance Drones in USD 400 Mln Deal."

82 Baykar Teknoloji, "Romania Awards \$321 Million Contract for Turkish TB2 Combat Drones."

83 Bolocan, "Romania's Bayraktar TB2 Drones Now Use an AI-Enabled Missile That Hunts Unmanned Aerial Vehicles." For more on Turkey's AI developments related to unmanned systems, see: Kurc, *Enabling Technology of Future Warfare*, pp. 18–19.

84 "U.S. Sends Merops AI Anti-Drone System to Romania for Testing."

### ■ Air Defence

Romania has also recently signed an agreement with Israel's Rafael Advanced Defense Systems to procure very short- and short-range air defence systems (V/SHORAD), reflecting a major expansion of its layered air-defence architecture. The deal, valued at approximately EUR2bn to EUR2.3bn, was approved through Romania's Ministry of National Defence and state-owned CN Romtehnica SA, and will see the acquisition of six integrated systems, training, simulation platforms, ammunition, and logistical support over a seven-year period, with the first two systems expected within three years.<sup>85</sup> While official Romanian reporting does not explicitly label these systems as "AI" programmes, modern V/SHORAD suites like Rafael's Spyder family integrate advanced automated sensor fusion, target tracking, and decision-support software that rely on AI-enabled algorithms for threat evaluation and engagement coordination, particularly against drones, cruise missiles, and other low-altitude aerial threats.

The acquisition of these systems exposes Romania's armed forces to different AI applications. In parallel Romanian personnel are being trained to maintain and, possibly, manufacture components of different drones currently in use that operate AI for target tracking. This could enhance local expertise in autonomous flight and sensor data processing. Overall, however, it remains to be seen to what extent procurement-related AI introduction will help advance indigenous capacities and accelerate the development of innovative local solutions.

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<sup>85</sup> "Romania to buy Israeli anti-aircraft systems for \$2.3 bln"

# 7 Training for Defence AI

Training and education form a vital yet frequently underdeveloped pillar of Romania's emerging defence AI ecosystem. The digital transformation of higher military education is not mainly a technological challenge, but an institutional and pedagogical one, demanding new skills, teaching approaches, and organisational cultures tailored to data-driven and AI-enabled military settings.<sup>86</sup> These issues underline ongoing constraints, including uneven digital infrastructure, limited instructor readiness, and fragmented coordination among military education institutions. Moreover, they directly impact the armed forces' capability to responsibly implement and oversee AI-enabled systems.

That is why Romania's military higher education institutions remain vital entry points for developing defence AI capabilities. Two military education institutions are key:

- **Military Technical Academy "Ferdinand I" (ATM)**

ATM plays a particularly significant role in delivering engineering-focused expertise in fields closely linked to defence AI, such as automation, robotics, control systems, and unmanned systems engineering. Beyond education, ATM-affiliated experts are involved in European research and advisory bodies, including EU-level AI governance and assessment mechanisms.<sup>87</sup> This positions ATM as a potential link between technical AI expertise and defence applications, even if this expertise is not yet integrated into a coherent national defence AI training strategy.

- **Carol I National Defence University (UNAp)**

UNAp complements this technical focus by engaging with AI from doctrinal, strategic, and operational perspectives. UNAp-affiliated research has examined AI in the context of post-industrial society, military decision-making, and command-and-control processes, contributing to conceptual debates on AI-supported decision support rather than purely technical implementation.<sup>88</sup> At the same time, UNAp has experimented with AI-enabled educational tools, notably through adaptive e-learning platforms designed to personalise instruction and improve training outcomes.<sup>89</sup> The use of AI-enhanced simulations, including the Joint Conflict and Tactical Simulation System (JCATS), further exposes officers to complex, data-driven operational environments, strengthening AI literacy at the level of military planning and command.

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<sup>86</sup> Nicoară/Coroi, "The Challenges Associated with Digital Education in Higher Military Educational Settings."

<sup>87</sup> National Research Authority of Romania, "Scientific and Ethics Council on Artificial Intelligence."

<sup>88</sup> Ioniță, "Post-Industrial Society and Artificial Intelligence."

<sup>89</sup> Lehaci et al., "Artificial Intelligence in E-Learning Platforms for Military Education."

International initiatives complement the activities of these national military education institutions. For example, the AI Academy for Defence - Romanian Black Sea Readiness Track, signals a growing ambition to boost AI readiness through immersive and simulation-based training. This initiative was launched by EON Reality in 2025 and will use extended reality (XR) simulations to advance training on different Western weapons systems.<sup>90</sup>

In parallel a broader national framework helps embed military education related to the use of AI. The Romanian AI Hub (HRIA) connects universities and research institutions with the goal to provide a platform for AI research and skills development with potential defence applications. While HRIA creates an enabling environment for cooperation, its influence on shaping defence-specific training priorities remains indirect and largely depends on institutional initiative rather than strategic planning.

Overall, it is worth noting that digital and AI-related training initiatives are gradually spreading across Romania's broader (military) education system. There are increasing efforts to incorporate emerging technologies into curricula and training environments across multiple academies, reflecting a system-wide recognition that future military effectiveness relies on digital competence. However, these efforts remain inconsistent and often project-based, rather than grounded in a unified defence AI education framework.

At the same time, reliance on foreign commercial providers raises questions about long-term knowledge sovereignty, curriculum control, and dependency in sensitive defence areas. Eventually, meaningful human control over AI-enabled military systems cannot be achieved without sustained investment in training and education. Without deep institutional commitment to AI literacy, ethics, and operational understanding, Romania risks deploying increasingly complex systems without the human capacity required to govern, supervise, and adapt them responsibly.

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<sup>90</sup> "EON Reality Launches Initiative to Fortify Romania's NATO Eastern Flank Role with Spatial AI & XR Forging an AI-Ready Romanian Armed Forces,"

# 8 Conclusion

Romania's defence AI trajectory is best understood as a work in progress rather than a settled strategic affair. Romania's engagement with defence AI since the 2020s demonstrates the uneven path of a medium-sized frontline Euro-Atlantic ally striving to adapt to rapid technological change amidst significant security pressures and systemic challenges in the DTIB inherited from the Soviet era, along with decades of underinvestment in defence. Indeed, the country has unquestionably advanced beyond mere adoption to active involvement in defence AI initiatives. Conversely, progress remains slow, fragmented, and heavily reliant on external frameworks. Romania's experience highlights both the opportunities offered by Alliance and EU integration processes and the structural constraints that continue to limit national ambition and implementation, that can be summarized as follows:

**Accelerated by Adversity.** Russia's war against Ukraine and the growing hybrid threats in the Black Sea region have been key catalysts for Romania's defence modernisation programme, including its emphasis on AI and digital technologies. The proximity of conflict has created a sense of urgency in policy discussions and helped overcome longstanding inertia in procurement and planning. However, this threat-driven acceleration has also resulted in reactive decisions, rather than strategic policymaking, or radical institutional reforms for that matter. AI adoption is often seen as an urgent necessity rather than a carefully managed systemic transformation, which raises the risk of hasty solutions, untested systems, and inadequate attention to long-term sustainability and ethical safeguards. Urgency has thus enabled changes, but it cannot substitute true strategic vision.

**EU and Allied Integration as Force Multipliers.** Romania's dependence on NATO and EU innovation ecosystems has been its greatest strength and a source of structural reliance. Participation in allied programmes has enabled Bucharest to access capabilities, expertise, and funding that would otherwise be unavailable domestically. Yet this model also cements Romania's role as a secondary contributor rather than a leader in defence AI innovation agendas. Integration promotes interoperability, but it can also obscure the absence of a clear national vision and reduce the motivation to develop indigenous capabilities.

**From Strategy to Implementation – Bridging the Gap.** Romania has repeatedly recognised the strategic importance of dual-use AI systems, yet this acknowledgement has not resulted in a dedicated defence AI roadmap, clear priorities, or consistent funding. Defence AI remains scattered across high-level strategies, pilot projects, and partnerships without a unifying framework. The lack of explicit targets, institutional responsibility, and lifecycle planning will continue to hinder progress. Hence, without a formalised approach, home-grown defence AI solutions risk remaining an aspirational idea rather than transformative capabilities.

**Institutional Change and Human Capital – The Real Challenges.** The Romanian armed forces face significant organisational and cultural obstacles in adopting AI. Talent shortages, competition from the private sector, and limited AI literacy within military command structures diminish demand for advanced solutions. That is why innovation frameworks remain insufficiently institutionalised, and promising initiatives risk stagnation after pilot phases end. Without structural incentives, flexible career paths, tangible capability targets, dedicated budget lines, and a unified strategic vision, it could be argued that Romania will find it difficult to retain expertise and turn experimentation into operational benefits. Ultimately, cutting-edge technological innovation and adoption are as much a human challenge as a technical one.

**Punching Above Its Weight in Norms and Ethics.** Romania has increasingly aligned itself with allied principles on AI governance, especially regarding human oversight, legality, and responsible use in military contexts. This alignment indicates normative intent and a willingness to adhere to emerging standards, but it does not automatically constitute full normative leadership. While Romania can credibly position itself as a responsible participant in allied debates, alignment alone risks remaining superficial if not supported by domestic capacity-building. Ethical leadership in defence AI requires more than mere endorsement: it must be backed by concrete doctrine, dedicated training, and enforceable accountability mechanisms within the armed forces. Without these, a gap could form between Romania's external normative stance and its internal capacity to operationalise responsible AI in practice.

**Resilience to AI-Driven Threats.** Romania is increasingly aware that dual-use AI brings new vulnerabilities alongside operational benefits. In this regard, efforts to boost cyber resilience and combat disinformation are encouraging but still inconsistent. In this context, a credible defence AI approach requires consistent investment in counter-AI capabilities, fallback systems, and broader societal resilience, not just technological solutionism and adoption.

**Defence-Industrial Overhaul and Economic Benefits.** AI-driven defence innovation offers Romania industrial and economic prospects, particularly in niche areas like drones, software, and simulation. Nevertheless, without coordinated demand from the armed forces and predictable procurement processes, local companies will remain marginal players or be integrated into foreign ecosystems.

Overall, Romania's defence AI approach is pragmatic but limited. It demonstrates adaptation through coalition leverage rather than strategic leadership and a clear strategic vision. The Romanian case thus offers broader lessons for the other mid-sized allies navigating the promises and perils of defence AI amid heightened geopolitical stresses and ongoing defence industrial reforms. Whether Romania can transition from a cautious adopter to a confident contributor depends on its willingness to tackle structural weaknesses, institutionalise innovation, and align ambition with ongoing investment and governance.

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