

Infographic: AI Use-Case Prism for Defense and Intelligence

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Initiatives: [Artificial Intelligence](#)

We present the 22 of the most prominent AI use cases in the defense and intelligence space for cutting edge clients (highly classified use cases are not a part of this research). Defense and intelligence leaders can use this as a frame of reference to look at potential AI applications in intelligence.

More on This Topic

This is part of an in-depth collection of research. See the collection:

- [Applying AI in Industries](#)

Figure 1: AI Use Case Prism for Defense and Intelligence

Use-Case Glossary

The above infographic highlights the following use cases for the clients in the defense and intelligence space:

- **AI-Assisted Humans:** Typically for soldiers/actors – identifies critical response targets to reduce reaction timelines; optimizes priorities for relief operations; optimizes manpower allocations. Provides warfighters advanced early warning and enhanced battlefield awareness through the automated integration and exposure of critical information. Includes AI-assisted pilots for air force, navy and other tactical units.
- **AI-Assisted Military Command and Control:** Provides decision advantage through the integration of battlefield awareness data; optimizes course-of-action analysis to recommend the most viable based on operational capabilities and constraints.

- **AI-Based Supply Chain Engineering:** Includes AI-based logistics engineering (weapon systems readiness, inventory readiness, etc.) especially to support the crisis management supply chain. During peacekeeping times, supply chain operations can be BAU with rule-based systems, optimization or simulation engines. However, during escalation and wartime, advanced analytics can factor in features like risk, vulnerability, and uncertainty to accurately model such situations and augment decisions. Also uses AI to enable route optimization by identifying optimal routes based on both operational objectives and intelligence information.
- **AI-Driven Autonomous Fleet:** Using machine, federated and active learning among other AI techniques to perceive the environment, recognize obstacles, fuse sensor data, plan navigation, and communicate with other vehicles.
- **AI-Enabled Data Management:** Automates routine data integration tasks to provide the most critical data for operational and/or intelligence datasets. Supports automation of tracking data lineage for data security; identifies trends in how users interact with data internally; recommends datasets to users based on their needs; automates high-value data preparation and cleaning tasks.
- **AI-Enabled Remote Sensing and Target Acquisition:** Orchestrates target recognition and acquisition with the use of computer vision, DNNs, includes remote weapon target assignments (UAV launch).
- **AI-Enabled Stealth Technology:** Using smart sensors and antenna arrays embedded with fortified ML to enrich streaming data and use it for real-time analytics without increasing the vehicle radar signature (esp. in aircrafts) to reduce cognitive burden on soldiers.
- **AI-Enabled Swarming:** Uses DNNs and federated ML on a fleet or swarm of low-cost autonomous vehicles (drones, naval vessels) with image data to get a holistic view of the environment, defend local areas, perform scouting operations for ground troops, and set up communication nets through which the vehicles coordinate and provide information. Applicable for urban search and rescue missions, defensive and offensive operations setup.
- **Business Process Transformation for Military/Intelligence Processes:** Transform existing military and intelligence business processes to increase warfighter productivity and reduce costs
- **Cyberdefensive Operations:** Identifies vulnerabilities in systems; monitors and identifies anomalous behavior and activities; supports detection and remediation of threats arising internally as well as externally.

- **Cyberoffensive Operations:** Identifies cyberpatterns of life using AI; identifies potential cybertargets; orchestrates cyberattacks; supports reconnaissance of cybertargets
- **Early Crisis Detection:** Identifies anomalous events in open source and/or classified information to inform military planners/intelligence analysts of potential activity; used especially to intelligence and reconnaissance operations.
- **First Responder and Humanitarian Assistance/Disaster Relief Dispatching:** Identifies critical response targets to reduce reaction timelines; optimizes priorities for relief operations; optimizes manpower allocations. First responders accelerate their work by identifying victims. For unconscious individuals, this helps to accelerate retrieval of medical information and first aid.
- **Information Operation Detection:** Supports intelligence operations to identify the use of deep fakes in combatant information operations, for instance, to use ML to support correspondence routing based on message content, and NLP to support policy analysis.
- **Intelligence Analysis:** Among applications, uses natural language processing techniques to support the automation of language translation (foreign communications) for intelligence analysis. Also includes sentiment analysis in open source and/or classified information to understand the perceptions of sentiments in support of intelligence analysis, computer vision techniques to detect and classify images to support intelligence analysis.
- **Live Warfighter Health Monitoring:** Identifies health challenges facing warfighters to proactively recommend healthcare and increase warfighter readiness levels; supports planning for military health providers to optimize availability and decrease wait times.
- **Mass Surveillance:** Using satellite, drones or video camera feeds to analyze the audio and images to recognize humans, vehicles, objects and events, and take actions accordingly.
- **Pattern Recognition for Intelligence:** Supports the analysis of large, diverse intelligence reporting datasets by identifying and providing the most relevant information to analysts for human validation and additional context; supports anomaly detection using ML; uses semantic/graph approaches to combine disparate findings into meaningful information.

- **Physical Perimeter Security:** Identifies friendlies within a secured perimeter using computer vision and ML.
- **Predictive Equipment Maintenance:** Identifies and optimizes maintenance intervals for critical defense equipment (e.g., vehicles, aircraft, naval vessels, and/or associated major subcomponents), using ML; obtains insights to optimize performance; improves demand forecasting for supply chain planning; improves maintenance efficiencies; and troubleshoots assets using natural language processing.
- **PTSD Identification and Diagnosis:** Using AI and ML to identify and diagnose PTSD using speech analytics, identifying bloodstream markers using AI. This must be used with caution because it involves using medical diagnosis data, which is considered personal health information (PHI). AI helps identify individuals that could be a risk to themselves, risks to the organization and risks to the society at large.

About This Research

Please note: These use cases have been selected and positioned based on an assessment by Gartner analysts and customer feedback. Their applicability may vary across organizations and industries. For detailed customization, use Gartner's prism toolkit (see [Toolkit: How to Rank and Prioritize Your Use Cases With a Gartner Prism](#)).

Recommended by the Authors

[Uncovering Artificial Intelligence Business Opportunities in Over 20 Industries and Business Domains](#)

[Toolkit: How to Rank and Prioritize Your Use Cases With a Gartner Prism](#)

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