

**ASSETs+ – WP1 – Description of results from T1.2 “Technology Mapping”**

The technology analysis consists on:

1. **Identifying, scoring and categorizing relevant technologies** – this was achieved both with automatic data driven approaches and using expert knowledge.
2. **Identifying potential application domains** – this consists in finding relevant defence applications where technologies can be a game changer.
3. **Mapping the technologies to applications** – this consists in estimating the relevance of a given technology for a specific application domain using scores.

The total number of potential defence-related applications identified in the three domains of knowledge is 59, presented in the following table.

Domain	Potential defence-related applications
Robotics, artificial intelligence (AI) and autonomous-systems	Aeronautics, Anomaly detection, Assignment, Coverage, Combat simulation, Cyber resilience, Cyber security, Fighter aircrafts, Land armours, Military vehicle manufacturing, Missile, Mission control, Mission planning, Naval, Path planning, Reconnaissance, Rescue, Routing, Scheduling, Space technologies, Surveillance, Target tracking, Trajectory tracking, Underwater, Satellites, Weapons
C4ISTAR	Authentication, Command, Communication, Control, Data Analysis, Data Fusion, Data Processing, Decision Making, Encryption, Identification, Imagery, Information processing, Information Sharing, Intelligence, Logistic, Messaging, Mission, Monitoring, Navigation, Planning, Positioning, Programming, Reconnaissance, Remote control, Simulation, Surveillance, Target Acquisition
Cybersecurity	Defence industrial base (DIB) collaboration, Cyber security awareness and training, Operations Security (OPSEC), Cyber Operations (CO), Military Information Support Operations (MISO), Command and Control Support, Secure Communication (COMSEC), Cyber electronic warfare activities (CEWA)

The 100 technologies identified in the three domains are classified based on qualitative and quantitative measures, following described.

The maturity level of a technology is the achieved state of a specific technology in its evolution, considering the interest from research and industrial parties, with references to the growth production of new scientific and technical knowledge. A technology can be labelled as:

- *Outdated*: technologies that were relevant in the past but are now replaced with other technologies;
- *Emerging*: technologies that are starting to attract researchers and industries;
- *Mature*: technologies that have reached a high level of maturity in the research community but are not yet widely adopted in industry;
- *Established*: technologies that have been well documented and studied by the research community and that are widely adopted in industry.

The abstraction level of a technology is defined as the process of extracting the underlying structures, patterns, or properties of some objects, with the intention of generalizing these findings to a broader class of objects. Therefore, based on this definition, a qualitative evaluation of the Abstraction Level is provided:

- *High*: less detailed technologies (e.g. an entire system);
- *Medium*: more detailed technologies (e.g. a group of components that constitute a finite element of the whole system);
- *Low*: specific technologies (e.g. a single part of a group component).

The relationship between applications and technologies are described in the *relevance matrix*, where each row is a technology, each column is an application, each cell contains the relevance score that quantifies the importance of each technology for a given defence application.