Mapping autonomy: current developments in the military sphere

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New SIPRI project on LAWS

- **Objective:** produce an evidence-based picture of current developments of autonomy in military sphere
- **Purpose:** bring clarity to CCW discussion with empirical findings on automated and autonomous technologies: what they are, what they do or may do in the future, where they are available or are being developed and how states intend to use them
- **Outputs:** a series of short publications, a publicly available searchable dataset of key autonomous/automated weapon systems, a side-event at the CCW Review Conference
- **Timeline:** Started Feb. 2016; conclusions to be presented in December 2016
State of play: unmanned systems

- Nearly all unmanned systems require active control of their operation and behaviour → manpower intensive
- UAV for ISR. Provide raw information. Require off-board data processing by human analysts → manpower intensive
- Tele-operation – Limited reach, vulnerability to jamming / cyber-attacks
Key development areas

- **Self-Mobility**
  - Reduce cognitive burden on human operators

- **Multi-agents collaboration (swarming)**
  - Improve manpower efficiency, new operational concepts

- **Situational awareness**
  - Support decision making process
Hurdles to further use of autonomy in unmanned systems

- **Technological**: Limitations for use in complex and dynamic conditions
- **Cultural**: Lack of trust: will the autonomous function always perform as intended?
- **Bureaucratic**: Inappropriate acquisition process
- **Testing**: No reliable methodology to test performance of complex, non-linear, adaptive systems