

Drones, swarming and collaborative robots

Hard Power · Critical Technology · Space, Robotics & Mobility

Drone swarms and collaborative robots refer to multiple unmanned systems or robots working together autonomously to accomplish tasks through coordination and collective behavior.

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DEFINITION

What this capability measures

Drone swarms and collaborative robots refer to multiple unmanned systems or robots working together autonomously to accomplish tasks through coordination and collective behavior.

NATIONAL CAPABILITY

Foundations of long-term power, prosperity and resilience

How nations rate on this capability across the GINC framework — from frontier (A) producers and operators down through the tiers. The full ratings band runs across every nation; the highlights surface the leaders, risers and laggards.

Frontier nations	Fastest risers	Lagging the frontier
Top-rated in this capability	5-year rating change	Gap to leaders widening
 United States AA	 Türkiye ↑3	 Brazil BB
 China AA	 Iran ↑2	 South Africa BB
 Israel A	 Ukraine ↑2	 Indonesia B
 Türkiye A	 India ↑1	 Mexico B
 South Korea A	 Azerbaijan ↑1	 Egypt CCC

NATIONAL RESEARCH

National research foundations and scientific frontiers

The research frontier behind this capability — scholarly output, growth and the institutions driving drone and autonomy science across the GINC nation set.

Research output	Top institutions	Fastest-growing
Last-5-year papers (L5Y)	By drone & autonomy output	5-year growth in output
 China 18.4K	 Chinese Academy of Sciences 1.9K	 China +167%
 United States 11.2K	 Beihang University 1.2K	 India +142%
 India 5.1K	 MIT 980	 South Korea +88%
 United Kingdom 3.0K	 Georgia Tech 840	 Türkiye +76%
 Germany 2.7K	 NTU Singapore 620	 Iran +71%

BILATERAL ENGAGEMENT

Partnerships, alliances and asymmetries of dependence

How this capability shapes bilateral relationships — co-development partnerships, technology transfer, and the export controls that restrict its most sensitive flows.

Key partnerships		Export controls	
Co-development & transfer		Most-restricted flows	
 United States	Strong	 China	High
 Israel	Strong	 Iran	High
 Türkiye	Growing	 Russia	High
 Ukraine	Growing	 North Korea	High
 South Korea	Stable	 Pakistan	Med

How leaders frame power, partners and priorities

How this capability features in sovereign speech — the emphasis, framing and dimensions leaders use when they talk about drones and autonomy, and how that has shifted over time.

Recent mentions

Speeches referencing this capability

 United States	Jan 2026
 China	Dec 2025
 Türkiye	Nov 2025
 Ukraine	Oct 2025
 Israel	Sep 2025

RELATED CAPABILITIES

Where else this capability reaches

Aviation, Rotary Wing & Unmanned Systems	aviation rotary wing unmanned systems
Advanced robotics	advanced robotics
Innovation Networks	innovation networks
Crisis Coordination	crisis coordination