



## Security-relevant Technologies

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Technology-Cluster	Technology / Application	<b>Capability areas</b> 1 Command & Control 2 Intelligence 3 Effectiveness in operation 4 Mobility 5 Protection of own forces 6 Support and sustainability
antenna technologies	adaptive antennas	1
radar technologies	digital surveillance radar	1
radar technologies	operational picture / recognized air picture	1
radar technologies	IFF technologies	1
communication technologies	COMINT ESM	1
communication technologies	COMINT ECM/ECCM	1
communication technologies	routing technology	1
communication technologies	software defined radio technologies	1
communication technologies	software encryption (cryptology)	1
communication technologies	optical networks	1
countermeasures (ECM)	radar warning technology	1
computer technologies	operating systems	1-6
computer technologies	VPN technologies	1-6
computer technologies	firewalls	1-6
computer technologies	virtualization (desktops, networks, datacenters)	1-6
computer technologies	hadoop server technology (big data server technology)	1,2
information technologies	information fusion technology	1-6
information technologies	C2/ISR	1
information technologies	authentication technology	2
information technologies	hacking technology	1-6
information technologies	malware technology	1-6
physical effect	ballistics (interior-, transitional-, external- and terminal ballistics)	3

physical protection	vulnerability models	3, 5
platforms	fixed wing jet fighters	4
platforms	UAV	4
antenna technologies	AESA	1
antenna technologies	MIMO technology	1
antenna technologies	adaptive beamforming	1
antenna technologies	multifrequency antennas	1
antenna technologies	conformal/integrated antennas (textiles, aircraft)	1,2
radar technologies	analogue tracking radar	1
radar technologies	synthetic aperture radar SAR	2
radar technologies	multi target tracking	1
radar technologies	cognitive radar	1
radar technologies	MIMO technology	1
radar technologies	multistatic radar	1
radar technologies	data processing	1
radar technologies	geo referencing	1
radar technologies	sensor data fusion	1
radar technologies	signature databases	1
radar technologies	signature identification algorithms	1
radar technologies	TCAS technologies	1
radar technologies	ADS-B technology	1
navigation technologies	global navigation satellite system (GNSS, i.e. GSP, GLONASS, Galileo) / satellite-based timing, navigation and positioning (PTN)	1
navigation technologies	geoinformation technology	1
navigation technologies	GNSS ECM/ECCM	1
navigation technologies	inertial navigation systems	1
navigation technologies	multilateration	1
optical sensors	analogue cameras	1
optical sensors	digital vis/IR cameras	1
optical sensors	longwave IR sensors	1
optical sensors	shortwave IR sensors	1
optical sensors	multispectral IR-sensors	1
optical sensors	UV/VIS sensors	1
optical sensors	residual light amplifier 3rd gen (GaAs-photocathode)	1
optical sensors	residual light amplifier 4th gen (thin filmed, autogated)	1
optical sensors	LIDAR sensors	1
optical sensors	signature databases	1
optical sensors	signature identification algorithms	1
communication technologies	HF radio technology	1
communication technologies	VHF/UHF radio technology	1
communication technologies	VoIP	1

communication technologies	wireless WAN/MAN/LAN technology	1
communication technologies	mobile adhoc networks (MANET)	1
communication technologies	cognitive radio technology	1
communication technologies	directional beam technology	1
communication technologies	hardware encryption	1
communication technologies	wired network technologies (electroplating)	1
communication technologies	time allocation (synchronization)	1
countermeasures	visual camouflage	1
countermeasures	IR camouflage	1
countermeasures	multispectral camouflage materials	1
countermeasures	adaptive camouflage	1
countermeasures	stealth technology	1
countermeasures	radar absorbing materials	1
countermeasures	laser absorbing materials	1
countermeasures	hardening against electromagnetic pulses	1
countermeasures	chaff technology	1
computer technologies	Si-chip technologies	1-6
computer technologies	storage media technologies	1-6
computer technologies	application development software (C, Fortran, ...)	1-6
computer technologies	virus scanner	1-6
computer technologies	cloud technologies	1,2,4
computer technologies	hadoop ecosystem (software)	1,2
computer technologies	semantic data structures	1,2
information technologies	big data analysis	1,2
information technologies	onthological analyses	2
information technologies	social network technologies	2
information technologies	intrusion detection	1-6
information technologies	phishing techniques	1-6
information technologies	denial of service techniques	1-6
information technologies	data traffic sensor technologies	1-6
information technologies	anomaly detection algorithms	1-6
information technologies	voice recognition / natural language processing	1,2
physical effect	assault rifle	3
physical effect	grenade launcher / mortar	3
physical effect	artillery guns	3
physical effect	medium calibre guns	3
physical effect	explosives	3
physical effect	vulnerability modelling software	3
physical effect	software for mission planning and simulators	3

physical effect	software and networks for fire control	3
physical protection	active protection technologies	5
physical protection	ERA technology	5
physical protection	NERA technology	5
physical protection	stowage concepts	5
physical protection	composite armour technologies	5
physical protection	ceramics and composite materials	5
physical protection	electromagnetic armour	5
physical protection	mine detection technology	5
energy technologies	propellants	3
energy technologies	explosives	3
energy technologies	pyrotechnics	3
platforms	lightly armoured vehicles	4
platforms	fixed wing aircrafts	4
platforms	transport helicopters	4
antenna technologies	multi polarization	1
radar technologies	analogue surveillance radars	1
radar technologies	SAR blending	2
radar technologies	filter technologies	1
radar technologies	signal and data processing	1
radar technologies	deep learning technologies	1
radar technologies	simulation and mission planning software	1
optical sensors	spectral resolution sensors	1
optical sensors	hyperspectral sensors	1
optical sensors	interferometry	1
optical sensors	laser sensors (e.g. measurement)	1
optical sensors	wide angle sensor technology	1
optical sensors	panoptical sensors	1
optical sensors	3D mapping technology (software)	1
optical sensors	change detection	1
acoustic sensors	analogue microphones	1
acoustic sensors	digital microphones	1
acoustic sensors	seismic microphones	2
acoustic sensors	directional microphones	1
acoustic sensors	2D- and 3D-microphone arrays	1
acoustic sensors	infrasound microphones	1
acoustic sensors	acoustic direction finding and localisation (software)	1

acoustic sensors	acoustic filter technologies	1
communication technologies	EHF/SHF radio technology	1
communication technologies	Terahertz technology	1
communication technologies	repeater- and amplifying technologies	1
communication technologies	quantum encryption	1
computer technologies	GDI technologies	1-6
computer technologies	embedded software	1-6
computer technologies	middleware	1-6
computer technologies	network application development (HTML, JAVA...)	1-6
computer technologies	neuronal networks	1-6
computer technologies	SQL server technology	1-6
computer technologies	indexed data structures	1-6
computer technologies	active RFID technologies	6
computer technologies	passive RFID technologies	6
information technologies	web crawling technologies	2
information technologies	crowd sourcing technologies	
physical effect	rifle cartridges	3
physical effect	small arms and handguns	3
physical effect	pistol cartridges	3
physical effect	hollow-jacket projectiles	3
physical effect	hard core projectiles	3
physical effect	smooth-bore guns (Leo 2)	3
physical effect	metallurgy and barrel production	3
physical effect	mines	3
physical effect	solid rocket propellant technology	3
physical effect	liquid rocket propellant technology	3
physical effect	rocket ballistics	3
physical effect	fragmentation grenades (natural fragments)	3
physical effect	fragmentation grenades (pre-fragmented fragments)	3
physical effect	flash-bang grenades	3
physical effect	shotgun rubber cartridges	3
physical effect	shaped charge / hollow charge cartridges	3
physical effect	EFP charges	3
physical effect	metallurgy for liner materials	3
physical effect	APFSDS technology	3
physical effect	metallurgy for APFSDS	3
physical effect	HESH charges	3
physical effect	pressure charges	3
physical effect	thermobaric technology	3
physical effect	mechanical detonators	3
physical effect	electronic detonators	3
physical effect	frangible technology	3

physical effect	AHEAD technology	3
physical effect	bunker penetrators	3
physical effect	high energy laser weapons	3
physical effect	high power microwaves	3
physical protection	concrete technology (HPFRC)	5
energy technologies	batteries and accumulators	4, 6
energy technologies	electric fuel cells (e.g. hydrogen)	4, 6
energy technologies	solar collector technologies	4, 6
energy technologies	wind energy technology	4, 6
energy technologies	energy supply systems	4, 6
energy technologies	fuels and lubricants	4, 6
platforms	heavily armoured vehicles	4
platforms	track / caterpillar technology	4
platforms	multi-wheel off-road technology	4
platforms	terramechanics	4
platforms	drive and drive transmission technology	4
platforms	robots (e.g. IED, Rescue)	4
platforms	avionics and aerodynamics	4
platforms	sense and avoid technology	4
platforms	micro and mini UAV	2
platforms	simulator technologies	4
radar technologies	DMTI (dismount moving target indication)	1
platforms	transport vehicles	4
platforms	autonomous or semi-autonomous vehicles	4
platforms	alternative drive concepts / locomotion concepts (e.g. legged)	4
platforms	diagnostic systems	4
CBNRE sensors	ion drift detectors	5
CBNRE sensors	B-antibodies	5
CBNRE sensors	immunoassay detectors	5
CBNRE sensors	mass spectrometers	5
CBNRE sensors	Ge-gamma detectors	5
CBNRE sensors	As-gamma detectors	5
CBNRE sensors	wet chemical colour change sensors	5
countermeasures	IR flares	3, 5, 6
countermeasures	IR spectral flares	3, 5, 6
countermeasures	broad band jamming	3, 5, 6
countermeasures	selective jamming	3, 5, 6
computer technologies	meta applications (MatLab, Mathematica ...)	1-6
computer technologies	hierarchical data structures	1-6
information technologies	pattern recognition	1,2