

975th Forum for Security Co-operation  
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Agenda item 1

# Emerging technologies and conventional weapons

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## Introduction

- Driving role of technology
- Pace and scale of technological development
- Role of private sector
- Lower barriers to access
- Expanded range of technologies of concern



## Emerging technologies and warfare

- Artificial intelligence and autonomous systems
- Information and Communication Technologies
- Biology and chemistry
- Advanced missile technologies
- Space-based technologies
- Electromagnetic technologies
- Materials technologies

*Reference: Report of the UN Secretary General on Current developments in science and technology and their potential impact on international security and disarmament efforts*



## Emerging technologies and warfare

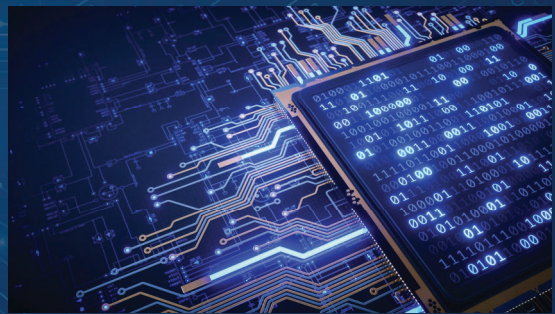
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## AI and autonomous systems

- Autonomy refers to the level of human input in undertaking processes and taking decisions
- Autonomy is characterized by a sliding scale from less to more autonomy and from less to more intelligence and analytical capabilities
- Examples of this technology includes:
  - Missile defence systems
  - Robotic swarms
  - Autonomous weapon systems



## Information and Communication Technologies

- Increased reliance on ICT in the civilian and military spheres
- Increased reliance can also lead to increased vulnerability
- Examples of this technology includes:
  - Drones
  - Connected and digital battlefield



Tapestry Solutions, n.d.

## Advanced missile technology

- Driven by developments within enabling technologies
- An example of this technology includes:
  - Hypersonic cruise missiles



Aviation Week, 2020



## Electromagnetic technologies

- These technologies can lead to both kinetic and non-kinetic impact
- Examples of this technology includes:
  - Directed-energy weapons
  - Electromagnetic railguns
  - Counter-UAS technology

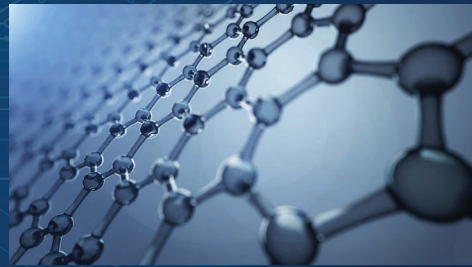


Defence News, 2018



## Materials technologies

- Materials technologies encompasses the discovery and creation of new materials and the manipulation of existing materials
- There are enabling technologies that work across a range of areas
- Examples of this set of technologies includes:
  - Graphene
  - Nanotechnology



Medium, 2019

## Impact on conventional weapons

Key features of emerging technologies



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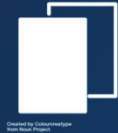
Impact of these technological developments



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## Impact on conventional weapons

Key features of emerging technologies



Impact of these technological developments



## Impact on conventional weapons

Key features of emerging technologies

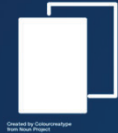


Impact of these technological developments



## Impact on conventional weapons

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## Impact on conventional weapons

Key features of emerging technologies



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Impact of these technological developments



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## Thank you!

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