# AI and the Future of Warfare

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## AI and the Future of Warfare: India’s Strategic Challenge

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### Context

With the emergence of **Artificial Intelligence (AI)** as a transformative force in global security, warfare is no longer limited to physical combat. Countries like **China** are swiftly integrating AI into their defence systems, reshaping modern military strategies.
This shift poses **strategic and technological challenges** for India, especially in terms of **AI deployment**, **energy security**, and **multi-domain military preparedness**.

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### AI’s Role in Modern Warfare

- AI is redefining warfare by enabling:
    - **Autonomous weapon systems**
    - **Real-time data-driven decision-making**
    - Advanced **cyber and electromagnetic warfare**
- The effectiveness of AI systems depends on:
    - **Large-scale data processing**
    - High computing power
    - **Reliable and uninterrupted energy supply**

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## China’s Lead in Military AI Deployment

- Even before its **DeepSeek AI model**, China’s **People’s Liberation Army (PLA)** began integrating AI under the concept of **“intelligentised warfare.”**
- Key developments:
    - AI-enhanced artillery systems now fire faster and more accurately.
    - **Generative AI** is integrated into drones to autonomously locate and strike enemy radar.
    - DeepSeek is expected to further expand PLA’s AI capabilities across all military branches.

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## China-Pakistan Military AI Collaboration: A Strategic Concern

- China is actively supporting **Pakistan’s Centre of Artificial Intelligence and Computing (CAIC)**, set up in **2020**.
- Experts note:
    - Focus areas include **cognitive electronic warfare** and **AI-based decision-making**.
    - During **Operation Sindoor**, Pakistan possibly used:
        - AI-powered systems for **real-time targeting**
        - **Chinese satellite data** and analytics for **vector tracking**
- This collaboration amplifies the **strategic threat** for India.

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## C4ISR and the Need for Civil-Military Fusion in India

- China is advancing rapidly in **multi-domain operations**, combining:

- **Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)**
- Virtual domains like **cyberspace, space**, and **electromagnetic spectrum**

- India must:
  - Strengthen **civil-military tech integration**
  - Enhance **indigenous capabilities** in AI and cybersecurity

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## Energy: The Hidden Backbone of AI-Driven Warfare

- AI applications require:
  - Continuous and **high-capacity power supply**
  - Energy to run data centres handling military operations across **land, air, sea, space, and cyberspace**
- Technologies like **machine learning, big data, and NLP** depend on:
  - **Stable and scalable electricity**
- **Nuclear energy** is seen as a reliable solution to power these critical systems.

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## India’s Nuclear Energy Shortfall: A Strategic Limitation

- India’s nuclear power capacity is just **7.5 GW**, only **one-third** of **South Korea’s**.
- Key concerns:
  - Insufficient to support future **AI-powered defence systems**
  - Overdependence on **renewables** without effective storage

- Past reduction in **thermal capacity** has destabilised the power grid

- Solutions suggested:
  - Install **Small Modular Reactors (SMRs)** near AI defence centres
  - Encourage **private sector investment** in thermal and nuclear energy

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## India's Early Start in Military AI

- India initiated AI defence research in **1986** through **DRDO's Centre for Artificial Intelligence and Robotics (CAIR)**.
- Focus areas:
  - **Combat automation**
  - **Logistics optimisation**
  - **Surveillance systems**
- However, **China's rapid progress** and its **strategic AI partnerships** have outpaced India's early efforts.

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## Global Examples: Lessons from Ukraine and Israel

- **Ukraine** has deployed **AI-enabled drones** during conflict.
- **Israel** used the **"Lavender" AI system** to identify over **37,000 Hamas targets** in the Gaza conflict, regarded as the first **AI-driven war**.
- These examples underline how AI is **already operational** in modern conflicts.

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## Conclusion

The future of warfare is increasingly defined by **Artificial Intelligence**, but its success depends on robust **energy infrastructure**.
For India, it is critical to:

- Invest in **AI development**
- Reduce dependence on external tech and energy
- Ensure **energy security** through nuclear and thermal capacity

This will enable India to remain **strategically autonomous and competitive** in the evolving global security architecture.