

'Ethical 6G' Project – Preliminary Findings

**National Conference on
'6G Spectrum, Technologies, and Standardization'**

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Project Partners



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Project Brief

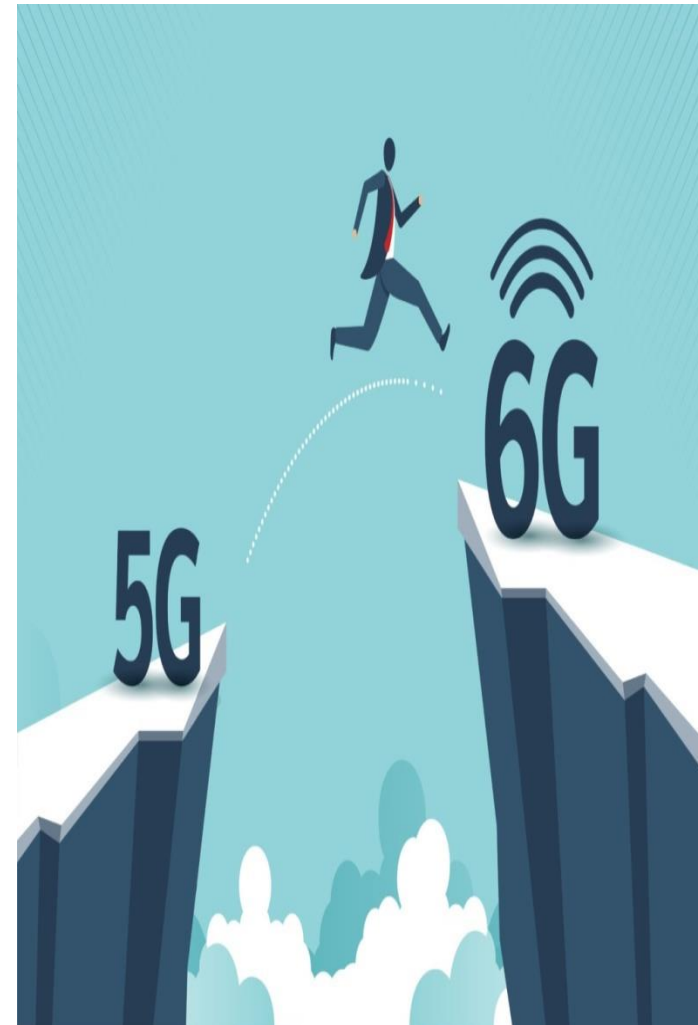
- **Funded** under Australia-India Cyber and Critical Technology Partnership (AICCTP) Grant, by D/o Foreign Affairs and Trade, Australian Govt.
- **AICCTP:**
 - Cooperation in cyber governance, cyber security, capacity building, innovation, digital economy, cyber & critical technologies
 - Commitment to an open, secure, free, accessible, stable, peaceful, and interoperable cyberspace and technologies
 - Mutual cooperation in multilateral fora in developing standards, norms and frameworks for cyber, critical and emerging technologies
 - Commitment to secure, resilient and trusted technology, its supply chains, including trusted sources and products
 - Technology to be designed, developed, governed and used by shared democratic values and respect for human rights

Project Brief...

- **Objective:** To take forward AICCPT thought process vis-à-vis 6G
- **Project partners:** CUTS, ARPI and IIITB
- **Research Components:**
 1. Understanding 6G, trends and challenges
 2. Understanding strategic issues in Indo-Pacific, and opportunities for India and Australia
 3. Understanding standard-making for 6G, enhancing interventions from India and Australia
 4. Identifying elements of ethical framework for 6G.

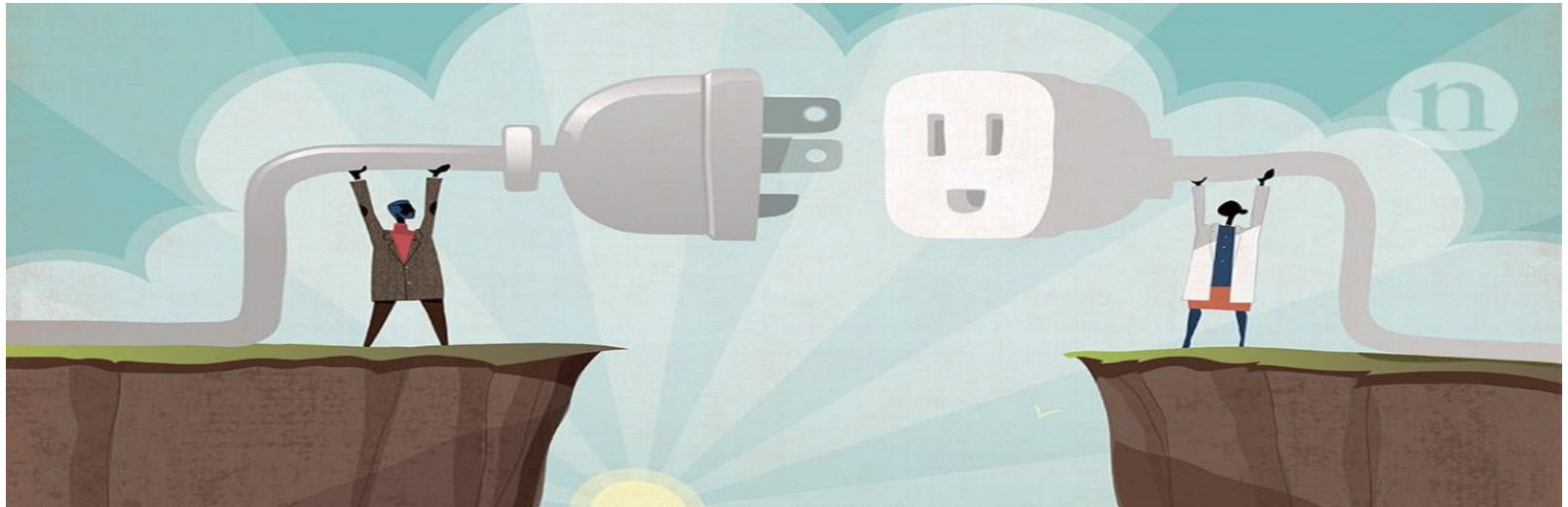
Preliminary Findings

- 6G superior to 5G in all technical parameters (Various new use cases)
- Communication capabilities expected to be merged with sensing, location, imaging, and other capabilities (will support in achieving SDGs).
- Convergence of terrestrial and non-terrestrial networks
- 6G not another industry vertical but an essential foundation for most industries
- Larger surface area for cyber attacks – Security-by-Design essential (Artificial immune system, bio-chemical cryptography, privacy-preserving federated learning (ppFL) etc. could provide technological solutions)



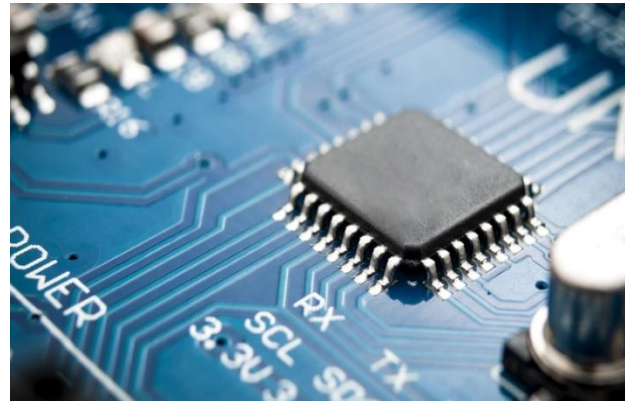
Preliminary Findings...

- Significant scope for improvement in Industry-Academia collaborations (enabling R&D ecosystem).
- Public Funding; Target Tier II institutes; Ease import of equipment; Promote competition
- Flexible regulations; anticipate risks; dialogue b/w regulator and industry



Preliminary Findings...

- Local manufacture of equipment – e.g. semiconductor chips.
- Both India and Australia are in mission modes, but does not seem to have a coordinated effort.
- Australia has good repository of critical minerals.
- US-India iCET can serve as a good model.
- Silicon diplomacy is pivotal to India's Act East Policy to build resilient ties in Indo-Pacific.



Preliminary Findings...

- Shortage of cyber security skills – huge scope for India-Australia educational/skill development collaboration.
- The Ind-Aus FTA facilitates setting up of educational institutions.
- India - shortage of 1.5mn cyber professionals by 2025; for Australia it is around 30,000.
- Centre of Excellence for Critical and Emerging Technology Policy, to be located in Bengaluru.



Preliminary Findings...

- 6G related patents filing in several countries, thus risks of fragmentation of technology standards (geopolitics).
- It is imperative to build global consensus on having harmonised standards for 6G. QUAD plus can come together on this.
- Efficient use of spectrum.



Ethical Framework

- Privacy and Cyber Security (Privacy-by-design, security-by-design)
- Consumer Protection (CGR2.0)
- Competition (SEP-FRAND, Net Neutrality, Interoperability, Open RAN, Concentration of market power in telecom and digital markets)
- Inclusivity (Digital divide, Gender)
- Green 6G (Power consumption - localised data centres)

Thank you!

<https://cuts-ccier.org/ethical-6g-identifying-elements-of-ethical-framework-for-6g-and-creating-opportunities-for-india-and-australia/>

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