

# AI Ethics & Governance in India: TEC's Fairness Standard

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Technical arm/ attached office of DoT

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Standards Setting Organization (SSO) for telecom & related ICT sector

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Defacto sector specific National Standards Body (NSB)

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Responsibility to implement Mandatory Testing & Certification of Telecom Equipment (MTCTE)

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Voluntary testing and certification of telecom equipment and interfaces

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Designated National Enquiry point for WTO –TBT (Technical Barrier to Trade) for telecom sector

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Complaint resolution under PPP-MII for Telecom products and services

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An ISO 9001:2015 certified organization

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Formulation of Standards for telecom, broadcasting, and related ICT sector.

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Ratification/ Adoption of international standards as National Standards.

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Formulation of Technical Regulations i.e. Essential Requirements (ERs).

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Contributes in the standardization process of international organizations - ITU, APT, IEEE,...

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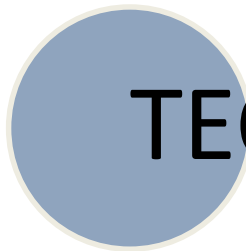
Nodal organisation for ITU-T.

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Leads National Working Groups (NWGs) corresponding to the ITU-T Study Groups

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TRAI designated agency for testing and certification of Conditional Access System and Subscriber Management System for Broadcasting sector



# TEC's Standard on AI fairness



मानक  
सं: टीईसी 57050:2023

STANDARD  
No.: TEC 57050:2023

आर्टिफिशियल इंटेलिजेंस सिस्टम की निष्पक्षता मूल्यांकन  
और रेटिंग

Fairness Assessment and Rating of Artificial  
Intelligence Systems



ISO 9001:2015

दूरसंचार अभियांत्रिकी केंद्र  
दूरसंचार विभाग, संचार मंत्रालय

खुर्शीदलाल भवन, जनपथ, नई दिल्ली - ११०००१, भारत

TELECOMMUNICATION ENGINEERING CENTRE

DEPARTMENT OF TELECOMMUNICATIONS, MINISTRY OF COMMUNICATIONS

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[www.tec.gov.in](http://www.tec.gov.in)

## AI and ML applications

In all domains

Telecom 5G/6G, Smart Cities, Smart Homes, Finance, Defence, Transport, Logistics, NLP...

Used by Governments, judiciary

For delivery of public services and e-governance.

## Learn from

Training datasets

real-life or synthetic data

Keep learning from their experience.

## Sources of biases

Imperfect training datasets

Algorithms used for learning and predictions

User interactions.

## Biases

Demographic attributes

Age, gender, marital status, race, caste, religion, nationality

Other attributes

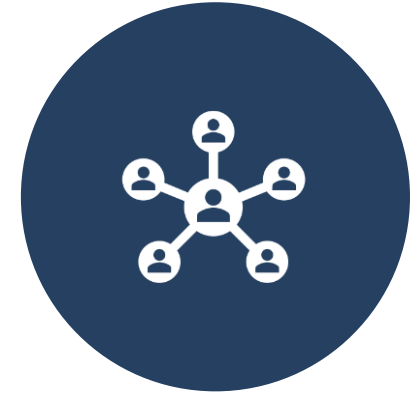
temperature, time, etc.



Legal



Ethical



Social

## National Digital Communications Policy 2018 - enumerates the role of Dept. of Telecom in the field of AI:

### 2.2 Ensuring a holistic and harmonised approach for harnessing Emerging Technologies

- (a) **Synergising deployment and adoption of new and emerging technologies** by:
  - i. Creating a roadmap for emerging technologies and its use in the communications sector, such as 5G, **Artificial Intelligence**, Robotics, Internet of Things, Cloud Computing and M2M.
- (g) **Leveraging Artificial Intelligence** and Big Data in a synchronized and effective manner to enhance the overall quality of service, spectrum management, network security and reliability.

### 2.3 Research and Development

- (a) Promoting research & development in Digital Communication Technologies by:
  - iii. **Creating a framework for testing and certification of new products and services**

## Niti Aayog - National Strategy for Artificial Intelligence

### National Strategy for Artificial Intelligence #AIforAll, June 2018.

- Focuses on how India can leverage the transformative technologies to ensure social and inclusive growth in line with the development philosophy of the government.
- India's approach to implementation of AI has to be guided by optimisation of social goods, rather than maximisation of topline growth.
- **Underlines the importance of a trusted ecosystem for accelerated adoption of the technology.**

### Approach Document for India Part 1 – Principles for Responsible AI, February 2021

- This approach paper aims to establish broad ethics principles for design, development and deployment of AI in India
- An essential roadmap for the AI ecosystem, encouraging **adoption of AI in a responsible manner in India** and **building public trust in the use of this technology**, placing the idea of 'AI for All' at its very core.

### Approach Document for India: Part 2 - Operationalizing Principles for Responsible AI, August 2021

- This paper identifies a **series of actions** that the **ecosystem** must adopt to drive responsible AI.
- These actions are divided among three stakeholders; governments, the private sector and research institutions.

**For the government –** designing ideal regulatory and policy interventions, creating awareness, accessibility and capacity building, and facilitating precise procurement strategies.

**For the private sector and research institutions –** incentivising ethics by design, **creating frameworks** for compliance with relevant AI standards and guidelines, and the **promotion of Responsible AI practices** in research.



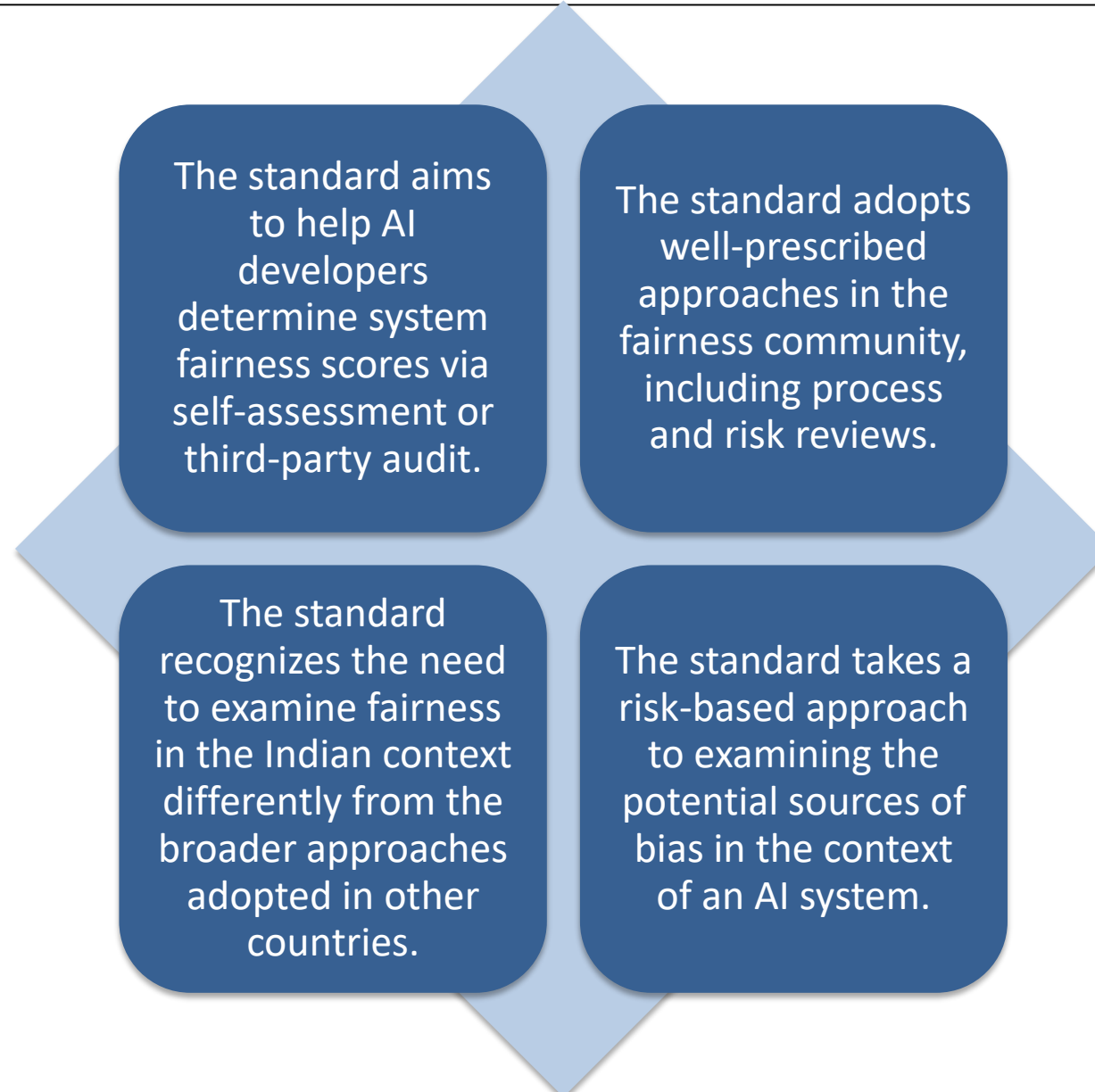
- Fill the gap regarding fairness assessment of AI systems
- Facilitate startups & MSMEs
- Implement the mandate of NDCP-2018
- Complement NITI Aayog's National Strategy for AI

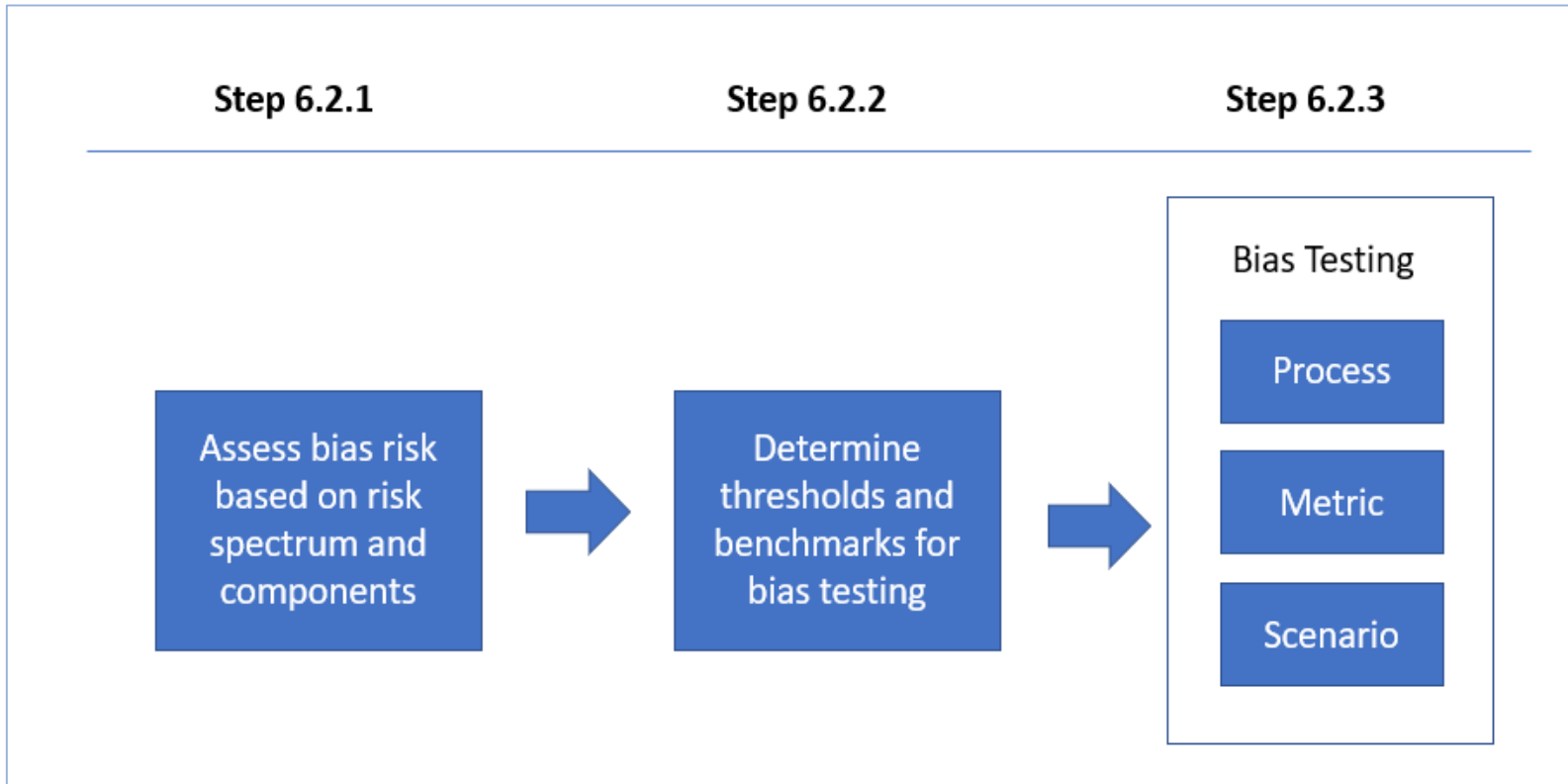
Framing a Standard  
for assessing and  
rating AI Systems for  
fairness

Assessing data-driven  
AI Systems for  
fairness/ bias **on  
voluntary basis**

Issuing fairness  
rating/ certification as  
a benchmark of  
fairness







**Source:** Standard for Fairness Assessment and Rating of Artificial Intelligence Systems, Telecommunication Engineering Centre, DoT, India. July 2023 <https://tec.gov.in/ai-fairness>

## Assessing Bias Risk

The standard defines a risk spectrum to cover risks contributed by AI system components, types of data, and types of models through a self-assessment questionnaire.

Assessing risk helps to identify potential sources of bias in the AI system.

## Determining Thresholds

These thresholds help to identify whether the AI system is unfairly biased.

The standard guides developers on determining thresholds or benchmarks for bias testing.

## Conducting Bias Testing

These techniques help to identify and mitigate bias in the AI system.

The standard provides a set of techniques for conducting bias testing, including reviewing processes, examining metrics, and exploring scenarios.

Develop tools for fairness evaluation - Libraries, software development kits (SDKs), APIs

Assume role of fairness auditors – IIT/IIT labs designated by TEC

Collaborate with  
TEC

Partner to extend the standard to other data modalities like text, image, speech, etc. and other kinds of ML models.

Include AI fairness and need for standards in curriculum

# Thank You !