

Date: 16-September- 2022

To,
Shri Asit Kadayan,
Advisor (QoS),
Telecom Regulatory of India

Sub: Response to consultation paper “Leveraging artificial intelligence and Big Data in telecommunication sector”

Dear Asit ji,

At the outset, would like to thank you for sharing the Consultation paper on “Leveraging artificial intelligence and Big Data in the telecommunication sector” dated. 5h August 2022. We are hereby attaching our response jointly from the **Artificial Intelligence and Innovation Driven Entrepreneurship Centre of Excellence IIT-Kanpur and Pinnacle Digital Analytics Private Ltd – a start-up** working in Analytics and AI against the relevant questions.

While we have attached our response; following are the salient points for consideration by the Government in deploying AI in telecom and related domains for meaningful benefits for this technology:

- Government must ensure to build an ecosystem with participation from Telecom operators, Premier Technology Institutes, and start-ups with an objective of creating IPR and ensuring technology lead.
- Must facilitate funding for start-ups and educational institutes to build an appropriate skill set and promote research around AI
- Availability of data set by the Telecom service providers in one place must be ensured. Currently, this is still a challenge.
- As the country is committed to 5G deployment, relevant use cases must be agreed upon by the industry in partnership with Premier technical institutes and also start-ups working in this space to leverage intellectual capabilities beyond the own resources of Telecom service providers.
- This is an excellent opportunity to build skilled resources in India for tapping global opportunities as an acute shortage of competent resources is a big challenge across the globe barring a few large companies.
- Regulatory framework must not stifle growth at this stage. It must set broader guidelines to ensure that technology is deployed for a genuine cause and inappropriate use of data deployment is avoided and the privacy of consumers is protected.
- AI at a large-scale needs process orchestration inside any company, it is even more relevant in the case of Telecom service providers. Telecom service providers need to focus on this from the strategic standpoint
- It would be very essential to build a Centre of Competence on AI for Telecom Sector in collaboration with Institutes like IIT-Kanpur or other institutes to support the industry in harnessing the power of AI.

We will be glad to be contacted for any clarifications or detailed presentation on the above points. Thanks for this opportunity.

With Regards,



Dr. Nikhil Agarwal
CEO – AIIDE CoE IIT Kanpur

Consultation paper for Telecom Regulatory Authority of India (TRAI)

On

*“Leveraging artificial intelligence and Big Data in
telecommunication sector”*

Paper submitted by

Artificial Intelligence and Innovation Driven Entrepreneurship

Center of Excellence

&

Pinnacle Digital Analytics Pvt Ltd



PINNACLE

Enabling Data Driven Decisions



**STARTUP
INCUBATION AND
INNOVATION
CENTRE
IIT KANPUR**

Issues for consultation

Q.1 What may be the most appropriate definition of Artificial Intelligence (AI)? What are the broad requirements to develop and deploy AI models in the telecom sector? Whether any major challenges are faced by the telecom service providers in adopting AI? Please justify your response with rationale and global practices, if any.

Res:

AI has got widely accepted definition globally. There seems to no need of any other definition here.

Broad Requirements:

Availability of historical and real-time data from a centralized data source needed for modeling, validation, and final implementation.

Building center of competence in partnership with educational institutes and analytics startups for leveraging knowledge and skill set beyond service providers.

Organizational set up to focus on AI-driven initiatives.

Investment plan with medium to near long terms benefits.

Major Challenges:

Routine operational challenges shift focus from such initiatives even from top management.

Sanity and diversity of data strewn across islands are major hurdles.

Building a culture of data and breaking the barriers of silos for accessing data needed for AI.

Q.2 Whether the big data in the telecom sector may be utilized for developing AI models? For efficient and effective handling of big data, whether there is a need for the adoption of special programming models or software frameworks? Please justify your response with suitable examples.

Res: Telecom sector has anyway mammoth data set. It has got Peta Byte of data in different forms and shapes. Big data as technology is any way would be needed for a centralized source of diverse data. AI model would need data for different use cases that are important to Telecom operators. In the overall AI framework, Data Engineering would play a critical role to extract the relevant data and normalize it for AI modeling.

With regards to special programming for big data, there are industry standard programming stacks and those can be used. Focus shall be open source-based stacks rather than expensive proprietary stacks developed by a specific company.

Q.3. Whether deployment of 5G and beyond technologies will help to accelerate the adoption of AI in all sectors and vice versa? Please justify your response with suitable illustrations including global practices, if any.

Res: Accelerated adoption of AI in the telecom sector should not be limited to 5G only. There are enough and more areas where AI can deploy even in 4G and also in adjacent areas of customer experience. There is a lack of focus in India on deploying AI relative to global practices.

Q.4. Do you think that a number of terminologies such as Trustworthy AI, Responsible AI, Explainable AI etc. have evolved to describe various aspects of AI but they overlap and do not have any standardized meanings? If yes, whether there is a need to define or harmonize these terms? Please justify your response with rationale and global practices, if any.

Res: Yes, These Terminologies have been coined without harmonized description. Any new technology has to be responsible and that entirely depends on the technology providers and also the use cases for which AI would be deployed.

Q.5. Which are the applications of AI and BD already being used by the TSPs in their networks to improve Quality of Service, Traffic Management, Spectrum Management, and Security purposes? Please list all such applications along with the level of maturity of such applications. Please specify whether they are at the trial stage or pilot stage or have reached the deployment stage. Details should include the type of AI models, methods to access data, and procedures to ensure the quality of data.

Res: These are to be answered by TSPs.

Q.6 What are the major challenges faced by the telecom industry, including policy and regulatory, in developing, deploying, and scaling applications of AI listed in the response to Q.5? How can such challenges be overcome? Please justify your response with rationale and suitable examples, if any

Res: Not Applicable

Q.7 In which areas of other sectors including broadcasting, existing and future capabilities of the telecom networks can be used to leverage AI and BD? Please justify your response with rationale and suitable examples if any.

Res: AI and ML can be leveraged in the space of communication service segments including Fixed line ISPs and Broadcasting for the domains like Customer Grievance and complaint management, sentiment analysis for improved customer experience, network capacity planning, Network fault prediction

Q.8. Whether risks and concerns such as privacy, security, bias, unethical use of AI etc. are restricting or likely to restrict the adoption of AI? List out all such risks and concerns associated with the adoption of AI. Please justify your response with rationale and suitable examples, if any.

Res: We do not think that these issues are restricting the adoption of AI. As part of deployment plan, all these concerns can be considered. In our view, right eco system shall be built with the participation of startups and educational institutes to develop relevant competence and skill set for larger role of AI .

Q.9 What measures are suggested to be taken to address the risks and concerns listed in response to Q.8? Which are the areas where regulatory interventions may help to address these risks and concerns? Please justify your response with rationale and suitable examples, if any.

Res: In our view, we do not see requirement of any regulatory control at the current stage of AI driven initiatives. That may stifle the growth and innovation until it impacts the privacy of an individual

Q.10 What measures do you suggest to instill trust and confidence regarding a robust and safe AI system among customers, TSPs and other related entities/stakeholders? Whether adopting general principles such as Responsible AI and ethical principles at the time of designing and operationalizing the AI models will help in developing ethical solutions and instilling trust and confidence in the users? What may be such principles and who should formulate these and how compliance can be ensured? Please justify your response with rationale and suitable examples, if any.

Res: As mentioned before, Regulator can at best share farm work with regards to trust, confidence etc., but focus shall be to develop a strong eco system around AI for Telecom and adjacent sectors to take lead globally and own IPR.

Q.11 Whether there is a need of telecom/ICT sector specific or a common authority or a body or an institution to check and ensure compliance of national level and sector specific requirements for AI? If yes, what should be the composition, roles and responsibilities of such authority or body or institution? Please justify your response with rationale and

Res: In our view, it is not needed.

Q.15 Whether there is a gap between requirement and availability of skilled AI workforce? If so, what measures are required to be taken to ensure availability of adequate skilled workforce in AI domain? Please respond along with suggestions with supporting details and best practices.

Res: There is huge skill gap in building a large eco system around AI. Acute need is blend of domain knowledge and AI related development skill set. Except few premier institutes, this skill set is missing. Focus shall be to fund premier institutes and also technology Startups engaged in Analytics and AI driven products to develop this skill set and plug in the gaps. Students coming out of even premier institutes have the difficulty in deploying AI in practical world for delivering measurable value. More focus shall be in research around AI and ML for generating IPR in our country.