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TRAI/FY21-22/061
14th October 2022

Shri Anand Kumar Singh,
Advisor (QoS),
Telecom Regulatory Authority of India,
Mahanagar Door Sanchar Bhawan,
JawaharLal Nehru Marg,
New Delhi – 110 002

Subject : Bharti Airtel's Response to Consultation Paper on Leveraging Artificial Intelligence and Big Data in Telecommunication Sector dated 05th August 2022.

Dear Sir,

This is in reference to TRAI's consultation paper on Leveraging Artificial Intelligence and Big Data in Telecommunication Sector, dated 05th August 2022.

In this regard, please find enclosed our comments on the captioned Consultation Paper for your kind consideration.

Thanking You,

Yours' Sincerely,
For **Bharti Airtel Limited**


Rahul Vatts
Chief Regulatory Officer

Encl: A/a

CC:

Dr. P. D. Vaghela, Hon'ble Chairman, TRAI
Ms. Meenakshi Gupta, Hon'ble Member , TRAI
Shri. V. Raghunandan, Secretary, TRAI
Shri. Mahendra Srivastava, Pr Advisor (CA,QoS,IT)



Bharti Airtel's Response to CP on Leveraging Artificial Intelligence and Big Data in the Telecommunication Sector

Executive Summary:

We thank the Telecom Regulatory Authority of India (TRAI) for giving us the opportunity to submit our comments on the consultation paper "*Leveraging Artificial Intelligence and Big Data in the Telecommunication Sector*" released on 05th August 2022.

Artificial intelligence (AI) and big data represent the explosion of data that has taken place along with the new technologies that have evolved and have helped in sorting vast amounts of data and deriving value from combining and analysing large data sets.

However, the concept of AI and Big Data and its use across various sectors of economies, including Telecommunications, is still at a very nascent stage. It is important to be mindful of the fact that AI is not a telecom service or a connectivity solution, rather a wider ICT technology that is emerging as an IT capability that can be customized over a period of time to solve a lot of today's problems.

Given that its exploration and use is still at a nascent stage and will be very much driven by how the wider IT and computing capabilities of organisations develop, any specific regulatory intervention/mandate / regulation around its deployment in telecom networks or services will constrain not only its development but the adoption of it as well.

We are of the considered view that at this stage, the Regulator should leave the emergence, deployment and adoption of AI and Big Data in the telecom sector to the market players, as each player will have a different set of techno-commercial considerations and solutions to look at based on their own networks and service needs.

The TRAI should consider reassessing the situation in a couple of years from now, say 5 years, once wider adoption has happened within the Telcos, and any specific Telecom use cases/applications emerge which require light touch regulatory frameworks to accelerate its adoption.

In any case, Telcos have always been at the forefront of bringing such innovations not just as external service offerings, but also to optimise their own network and service operations. It goes without saying that it is in the Telcos' best interest to continue to bring more efficiency within their network operations and performances, to drive costs down, increase customer satisfaction and generate better efficiencies.

It is with this background in mind that we provide our response to questions raised by the TRAI in the paper.



Bharti Airtel's Response to CP on Leveraging Artificial Intelligence and Big Data in the Telecommunication Sector

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 a 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.

Airtel Response:

The Authority has rightly acknowledged in this consultation that till date there is no one-specific, globally accepted definition of AI. Globally, solution providers and organisations categorise AI applications based on their capabilities and functionalities. Therefore, it is probably best at this point to leave this definition to the market forces since there are still various moving factors that have to be taken into consideration.

Further, since AI is an evolving field, and, the basic requirements for developing and deploying AI models are the algorithms, data and infra (compute and storage) used for specific business outcomes that vary with each use case / sector/ service, we are still exploring how it might prove to be a benefit for telecom service providers/network services. Additionally, we also do not see any particular challenges as of yet to adopting it either, seeing as it is still in such a nascent stage of its development.

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

Airtel Response:

There are two aspects to this question.

First, it is true that in many cases AI does use large amounts of data for learning. It does so through big data technologies and frameworks. Big data technologies have been in use in various industries including Telecom for some time now. These technologies typically constitute large volumes of distributed storage & compute exposed through different software frameworks.

We believe that frameworks that are already being used to handle large data sets can be re-used for AI and there might not be any need to develop special programming models or software frameworks for this. However, as we mentioned earlier, this is an evolving field and there may be discoveries further down the line as adoption increases in the real world.



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With this in mind, we would like to urge that caution be exercised in defining or prescribing any specific AI models, platforms etc., as this may limit and constrain the adoption of AI or indeed its natural development.

And now to the second aspect. This is with specific regard to Telecom big data and using it to feed into non-Telecom AI systems. **We believe that Telecom operator data is a proprietary right and a competitive one. It costs a great deal to obtain, capture, store, process and analyse, and could even involve IPRs. Therefore, any applicability of Telco Big data with any party/agency/entity (within the Telco or outside) should only be governed under a mutual commercial framework, and absolutely no regulatory mandate should be prescribed for it.**

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

Airtel Response:

As the 5G commercial launch is at a very initial stage, it is difficult to comment on what it might bring. We have seen in the past that any new technology brings with it different usages which are often times difficult to predict. We would therefore want to see how individual users and organisations use 5G and how enterprises think of using 5G to create new use cases before commenting.

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 standardised meanings? If yes, whether there is a need to define or harmonise these terms? Please justify your response with rationale and global practices, if any.

Airtel Response:

We need to first acknowledge that AI is not a vertical-oriented term, rather it is a development in the wider information technology domain, which can be assessed and has potential to be customised as per business users' needs.

We also believe that such definitions have been debated over time and are still in flux. They are subjective and overlapping to some extent. AI, as an evolving technology, needs space to grow and get used by various organisations and entrepreneurs. In other words, we believe that a



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standardisation of such terms may not lead to any beneficial output as these are largely academic definitions and areas where research is still ongoing.

As an Industry, at this point in time, our focus should be on how AI technologies will be able to drive solutions rather than trying to define, and thereby perhaps limit, them.

Lastly, a lot of these terminologies will first have to settle at a much larger multinational and national level since they would horizontally impact all the sectors making use of AI, before any sector-specific definition can be attempted, however initial.

To conclude, **we believe that there is absolutely no need to attempt to standardise these terms just as yet. In fact, IT capabilities and technologies have shown that they work best in the absence of any such regulatory interventions to define terminologies, especially when they are at such a nascent stage of their development.** Once the market develops and adoption reaches a critical mass and standard patterns emerge in deployments, a review should be conducted. Till then, it should be left to the market to first develop itself.

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 for Security purposes? Please list out all such applications along with the level of maturity of such applications. Please specify whether they are at trial stage or pilot stage or have reached the deployment stage? Details should include type of AI models, methods to access data, and procedures to ensure quality of data.

Airtel Response:

Before answering the specifics of this question, we would like to reiterate that the use of AI and BD within our networks is driven more by our zeal to find innovative methods and approaches that will help bring internal efficiency and optimisation within our networks and services, than as a product solution to market. Hence, it is important that our following inputs to the question be viewed with this perspective in mind, rather than simply being taken as a mature practice which can be assessed from a regulatory standpoint.

For example, at present, we use AI in Network Planning to automatically discover rural locations for new site deployment. We used Deep Learning based computer vision techniques to analyse satellite images of these locations and assess the region using the clutter and household density extracted from these images. This is further combined with other information such as ARPU, cannibalisation, etc. to decide on new site deployment.



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Furthermore, Airtel designed and developed an AI-ML-driven, closed-loop, self-healing platform called Airtel SON (A-SON) to detect, analyse and correct network anomalies/degradations with high sensitivity. The system also does pre-post analysis and restores network settings to normal values. With future ready architecture, the platform is currently live across PAN India and is being used on critical business use-cases.

Having said that, we reiterate that AI and the use of BD to solve a problem or optimise a situation is a dynamic, evolving process, and a parameter or solution at a given time may not hold true for the new dynamic situation arising. Systems evolve over a period of time and then stabilise and only once they have stabilised and developed over the long term, can you start to think of them as the standard operating procedure. We are still very far off from that when it comes to AI and BD. We would strongly urge the Authority or licensor to keep a close eye on market developments, and not intervene, and continue to let the market grow on its own.

Also, the deployment of AI/BD is still so nascent that there is no risk of any market failure, which may invite regulatory intervention.

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.

Airtel Response:

Although AI is growing at a rapid rate, it is still in the process of evolving and therefore there are challenges to implementing it because of limited AI expertise and knowledge, access to quality data, and AI specific infrastructure.

We, therefore, believe that today AI is still at an evolving stage and it is important to let organisations use it freely to get relevant business outcomes. As with any new technology, challenges about explainability, skill set, accuracy and so on will arise, but people need to be empowered to solve these on their own.

From a policy angle specific to the Telecom sector, we do not see that any specific support is required at this stage.

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.

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Airtel Response:

We would like to re-iterate that AI is evolving very rapidly and as a TSP this holds potential as a significant opportunity in the long-term for major and measurable gains in business value. There are certain areas wherein AI has the potential to add more value:

- Transforming Customer Experience
- Improving Business Decision-making and Processes
- Achieving Operational Excellence
- Detecting Fraud

Having said that, we reiterate that such applicability and solution development will have to be carried out by TSPs depending upon the level and quality of data they have, the IT systems and capabilities they have – which in many cases may be dependent on vendors supplying such systems, again a techno-commercial decision of the particular Telco involved – and hence, be left on the industry to try, evolve and adopt. Once a critical mass is reached with discernible patterns across the ecosystem that can add value to a particular use case, the Authority may look at that as a solution for replicability.

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.

AND

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

Airtel Response:

As the Authority has also highlighted in this consultation paper, there is no one cure-all for the broad spectrum of risks associated with AI and organisations must apply an informed risk-prioritisation plan as the initial step in an effective, dynamically updated AI risk-management approach anchored in both legal guidance and technical best practices.

Further, learning from past experience, i.e., the review of past risk failures is helpful in AI risk mitigation because AI draws its predictive power from past events, deriving insights from databases of previous incidents will help in creating a strong risk mitigating system.



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Considering the same, we believe that any new technology will bring such challenges with itself. However, it is not the technology itself which creates the risks but rather the outcome for which the technology is being used.

We, therefore, don't believe that the risks are specific to AI – they are specific to any kind of data usage by any digital enterprise and that is an area that is already under governance.

We believe in doing what is best for our customers while ensuring we follow the laws of the land for which they were intended. It is our understanding, therefore, that regulatory or any other interventions should be outcome- rather than implementation-based.

For most organisations, AI is a way to better achieve the outcomes which they were anyway attempting to get to through traditional means – whether it be operational efficiency or improving customer experience and so on. Hence, the regulations should only intervene when there is a demonstrable market failure that has an impact on the consumers and that can clearly be attributed to AI/BD biases. It should not impose blanket restrictions on ways of implementing algorithms, which clearly is a domain internal to a user (e.g., a TSP).

Since the risks and rewards of AI deployment though evolving and gaining traction are still at a nascent level, it is too early to deliberate or prescribe measures in this regard. We reiterate that AI/BD adoption should be left to the market to be developed, especially since a lot of such aspects will likely automatically get addressed once India gets a data protection law.

Q.10. What measures do you suggest to instil 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 operationalising 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.

Airtel Response:

TSPs have an exceptional track record in terms of trust and keeping customer data secure right through the history of the ICT industry. In fact, TSP licenses T&Cs have been so stringent at times that TSPs have struggled to innovate and compete with various non-regulated entities. Hence, it is more about awareness than instilling trust among TSP customers through any regulatory measures.



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A customer's trust is based on the ethics of a brand or an organisation and its ways of doing business. We believe that technology or algorithms are a means to an end where the end is a brilliant customer experience or better operational efficiency or network planning, etc. We, at Airtel, believe that trust is built by actions which are beneficial for the customers and being transparent with our customers.

Today, we do not believe that AI or any technology needs an ethics model or regulation in itself. It does need healthy discussion between the industry, academia and the government. **However, for now, the right thing to do might be to let the technology mature and drive ethics through outcome-based regulations/laws which are common to all digital enterprises.**

While the concerns highlighted by the Authority in the Consultation paper are well noted, it is important for the regulator to adopt a cautious approach when intervening with ex-ante regulations. Any regulations that fail to reflect market realities can throttle growth of the data economy in India.

As stated at the start of our response to this question, in India, TSPs are operating under a well-defined, robust and stringent regulatory regime with regards to data privacy and security under their respective License's terms and conditions. TSPs are subjected to stringent financial penalties if there is any failure to comply with the same. They are under license obligations to collect, maintain and share personal data as per the directives of the Government.

In the light of above, **we submit, that presently there is adequate regulatory oversight for TSPs to ensure data privacy and data security of customer data in order to instil trust and confidence regarding robust and safe AI systems.**

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 suitable examples or best practices, if any.

AND

Q.12. In response to Q.11, if yes, under which present legal framework or law such authority or body or institution can be constituted and what kind of amendments will be required in the said law? Or whether a new law to handle AI and related technologies is a better option? Please justify your response with rationale and suitable examples or best practices, if any.



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Airtel Response:

At the outset, we would like to state that we do not believe that any existing or new authority/body/institution is needed or even that a regulatory intervention is needed to prescribe compliance w.r.t AI and related aspects.

As stated in the executive summary and in our answers to previous questions, the use and deployment of AI is still at a nascent stage; it is evolving; and it is an IT-driven capability that is more capable of helping optimise and bring efficiencies within a telecom network or service than any standalone parameter that enables a telecom service. Therefore, we believe, that there should not be any sectoral specific regulatory / legal interventions in this regard.

However, as and when an overarching national legislative framework encompassing all user sectors and the economy is finally developed, and when the principles and parameters of AI are finally defined, it may then be an appropriate time to review sector developments and assess whether a proportionate and appropriate intervention is apposite, in view of evidence at that time.

This is particularly so since the telecom and ICT sectors are in a very good place at present: ever evolving and well within compliance with guidance from DOT and TRAI from time to time.

Any new legal/regulatory requirements that come in need to be horizontal across the digital sector rather than just ICT or Telecom. Regulatory principles for AI should not single out TSPs and should be based on applying the same principles for the same service, ensuring a single, consistently-applied framework is in place covering all competitors/ecosystem players in the digital value chain regardless of technology or type of provider.

Further, in India, TSPs are operating under a well-defined, robust and stringent regulatory regime with regard to data privacy and security. TSPs are subjected to stringent financial penalties if there is any failure to comply with the same. They are under licensed obligations to collect, maintain and share personal data as per the directives of the Government issued from time to time. The Unified License conditions prevent misuse of personal data collected by a licensee. TRAI Direction of 2010 also mandates the TSPs to ensure confidentiality of information as provided in the license conditions and to put in place appropriate mechanisms so as to prevent breach of confidentiality of information of the subscribers and privacy of communication.

In light of the above, we submit that we strongly feel that at present there is adequate regulatory oversight for TSPs in terms of them ensuring the data privacy and data security of the customer **and there is no need for a telecom/ICT sector specific authority for AI at this stage.**



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Q.13. Whether telecom/ICT industry is facing constraints such as access to data, lack of computing infrastructure, lack of standards, and R&D in the adoption of AI and BD technologies? Please list out all such constraints with adequate details.

Airtel Response:

No, we do not believe that we are facing any constraints at this point in time in terms of adopting the AI and BD technologies.

With the evolving techniques in AI/BD, the compute and storage industry is also growing. This is helping in terms of taking advantage of enhanced compute requirements. TSPs are already deploying such new generation hardware and at present there are no constraints.

Q.14. What measures are required to make data and computing infrastructure available and accessible to developers and also to make data/AI models interoperable and compatible? Please respond along with examples, best practices and explanatory notes.

Airtel Response:

At present, the hyper scalars and big tech companies have already made their infrastructure available to entrepreneurs, start-ups and large enterprises, alike. Different large organisations also have on-premise solutions either custom-built or in collaboration with Indian or international organisations.

No specific measures are required at present and we believe the market should be allowed to evolve on its own here. Interoperability or compatibility standards will follow once major successes are found in different sectors, which currently are still evolving. At that time too, we believe that industry or academic bodies will be at a better place to define those than the regulatory interventions.

Specifically, from a telecom operator standpoint, we do not see any bottleneck or constraint, hence no specific regulatory measure is needed at present.

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.

Airtel Response:

AI is getting used across the Industry and new use cases are getting developed every day. There is explosion in terms of demand for a skilled workforce. With more and more AI/ML and BD courses



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being offered at undergraduate and postgraduate level by various universities, this demand is likely to be met. TSPs are also helping by training and building up their own teams to work in this area.

Also, as happens when any new breakthrough technology gains traction at a faster pace than available skilled manpower (the same happened when the computer revolution hit the IT industry in late 1990s), the entire ecosystem of stakeholders works together to scale up capabilities. In the age of digital adoption and easily available online education material, courses and the role that academia will play in such situation, we believe that AI manpower will emerge in due course.

Q.16. What initiatives do you suggest to democratise data required to develop AI models in the telecom sector? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

We believe that the Government has been very pro-active in setting up the data portal and making it available. We believe that this can be opened up and evangelised further to get citizen data with the right governance.

Q.17. Whether the authority or body or institution as suggested in response to Q.11 may also be entrusted with the task to manage and oversee collection, cataloguing and storage of data? Whether such authority or body or institution need to be entrusted to generate and make available synthetic data? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

Please refer our response to Q. No. 11. At this stage, there we do not see any need for any regulatory intervention.

Q.18. Whether the legal framework as envisaged in para 3.5.3 and Q.12 should also enable and provide for digitalisation, sharing and monetisation for effective use of the data in AI without affecting privacy and security of the data? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

There is no requirement to establish an authority or a body or an institution whose role should also be to act as manager and gatekeeper for data stored, to collaborate with various sectors and to prepare framework to share the data between different agencies.



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We believe the existing laws and regulations are enough. They may be reviewed periodically in new contexts (as with the data privacy bill). But there may not be a need to review specifically for AI or for TSPs. The analytics being created are majorly to identify patterns which help in better decision making

Presently there is adequate regulatory oversight to ensure data privacy and data security of customer data for the licensed service providers. In India, TSPs are operating under a well-defined, robust and stringent regulatory regime with regard to data privacy and security.

The extant regulatory framework ensures confidentiality of information of the subscribers and puts in place appropriate mechanisms to prevent breach of confidentiality and privacy of communication. Further, the provider of personal data is given the right to edit/ correct his/her data as provided to the service providers. The regulatory and judicial framework also provides for accommodating any changes to personal data.

As an additional safeguard, to boost data monetisation in the country, while preserving the privacy of the individual, all data monetisation initiatives need to pay heed to issues concerning intellectual property, logistical and technological delivery, security and privacy.

Applications should not include third-party codes that collect and analyse personal information to target users with advertising, without the active consent of the user. If third parties do collect or have access to user information, the user must be made aware at the earliest opportunity that their data will be shared, indicating:

- With whom it will be shared and for what purposes, and
- Providing links to those third parties and their privacy notices.

Users must be allowed to choose whether to allow this collection, access and use by third parties. Users must be told about a material change to the way an application will collect or use their personal information, before such a change is implemented, so that they can make an informed choice about whether to continue to use the application.

In addition, businesses should get explicit recognition that anonymous data is not personal data and that pseudonymisation can provide genuine safeguards without the need for consent. Regulatory bodies worldwide have introduced strict compliance mandates to control how businesses collect and manage data.

At an overall basis, we believe that issues related to this question relate to a much wider aspect of Data Protection and Privacy, which the proposed DP Act/Bill will try to address, and no overlapping institutions/mechanisms should be created lest they add avoidable costs and complexities.



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Q.19. (a) Which are the currently used privacy enhancing and privacy preserving technologies facilitating adoption of AI and BD? Are there any challenges in using these technologies? How these challenges can be addressed?

(b) Which are the potential technologies likely to be available in near future to further strengthen privacy? Please justify your response with rationale and suitable examples, if any.

AND

Q.20. Whether the list of technologies provided in response to Q.19 are adequate to handle all the perceived risks and concerns in the AI domain? Or is there a need to develop new privacy preserving architecture? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

We submit that Privacy is with respect to Data. We, therefore, don't believe that AI brings in specific concerns today. Data Privacy is already well handled in India.

Q.21. Whether the next generation telecom network architectures such as AI at edge, federated learning, TinyML or their combination can offer solutions to meet both privacy as well as intelligence requirements? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

We submit that that the next generation telecom network architectures such as AI at edge, federated learning, TinyML mentioned by the Authority for protecting privacy and giving enhanced experience are still at an evolving stage and we will have to wait to see if they can provide any additional capabilities to meet privacy and intelligence requirements.

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Q.22. What type of technological advancements are happening for running the AI models on the end user devices to overcome constraints in respect of processor, memory, battery etc.? Whether special tools, programming languages, and skills are required to be developed to build such AI models? Please justify your response with rationale and suitable examples, if any.

AND

Q.23. Considering availability of new privacy preserving architectures as suggested in response to Q.19 and Q.20, what is the likelihood of emergence of new business and operational models? Whether such models will raise issues related to ownership and responsibilities? What do you suggest to address these issues? Please justify your response with rationale and suitable examples, if any.

AND

Q.24. Whether the concept of "Operator Platform" would help in providing AI based solutions in a unified and more equitable manner? Apart from popular federated use cases of edge cloud federation, Cloud XR, Cloud Gaming, whether this concept may also be applied for public service delivery and in making public policies that are data-driven? Whether there is a need to take initiatives for developing and demonstrating advantages of concept of "Operator Platform"? If so, what steps and measures are suggested to launch such initiatives? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

No specific comment.

However, we would like to reiterate that the aspects touched upon in the questions above relate to futuristic developments which may or may not take place, and where IT, computing developments or capabilities of the future would only be able to indicate what the future could hold, and not to any certainty.

Q.25. Whether there is a need to create AI-specific infrastructure for the purpose of startups and enterprises in the telecom sector to develop and run AI models in an optimised manner? Whether such an infrastructure should cover various real-world scenarios such as cloud AI, edge AI and on-device AI? Please justify your response with rationale and suitable examples, if any.

Airtel Response:



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No. We submit that TSPs are building their infrastructure to work on AI use cases. There is no need to create AI specific infrastructure or any specific guidance to develop and run AI models in an optimised manner further. As regards start-ups, they have the freedom and option to choose the available infrastructure from Web Scalars if they choose to work in this area and in any case all the entities in the wider digital ecosystem keep on collaborating with each other on mutual and commercial terms.

Q.26. Whether the emerging trends of development of foundational AI models such as GPT-3, Gopher etc. are leading to democratisation of AI space by offering fine-tuned or derived AI models? Whether such a trend will also help in reducing costs for the AI developers? Whether similar approach will help in development of large-scale AI model for the telecom sector? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

The use case defines a model to be chosen and it is up to the developer which model or set of models is most appropriate. As this area is ever evolving, we request that at this stage, no specific intervention w.r.t Telecom sector be applied in the development activity.

Q.27. Whether there is a need to establish experimental campuses where startups, innovators, and researchers can develop or demonstrate technological capabilities, innovative business and operational models? Whether participation of users at the time of design and development is also required for enhancing the chances of success of products or solutions? Whether such a setup will reduce the burden on developers and enable them to focus on their core competence areas? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

No specific comment, except to state that this is a much wider area that should be dealt with at the level of a national AI policy/framework rather than a telecom-specific intervention.

Q.28. Whether experiments are required to be backed by regulatory provisions such as regulatory sandbox to protect experimenters from any violation of existing regulations? Whether participation of government entities or authorities during experimentation will help them to learn and identify changes required in the existing regulations or introducing new regulations? Please justify your response with rationale and suitable examples, if any.



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Airtel Response:

As stated earlier, it is too early for any regulatory mandate/intervention specific to the Telecom sector. The AI is still evolving at an overarching level across industries, and there is no market failure specific to our industry. IT is not a telecom service that should invite specific regulations or provisions at this stage.

At a much larger principle level, the adoption of a regulatory sandbox may help to achieve the goal of AI through experimentation. It should be explored whether a regulatory sandbox can provide the means to demonstrate the strength of privacy-preserving techniques, since it could help in building trust over a period of time. However, any such idea should be independently discussed among the relevant stakeholders to assess the outcomes that the intervention would like to achieve, which in absence of intervention is not happening.

Q.29. In response to Q.27 and Q.28, whether establishing such a campus under government patronage will enable easy accessibility of public resources such as spectrum, numbering and other resources to the researchers? Whether it would be in mutual interest of established private players as well as startups, innovators and enterprises to participate in such experiments? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

No specific comments. Please refer to our response to Q.27.

Q.30. Whether active participation in the international challenge programs such as ITU AI/ML 5G challenge will help India's telecom industry in adopting AI? Whether similar programs are also required to be launched at the national level? Whether such programs will help to curate problem statements or help in enabling, creating, training and deploying AI/ML models for Indian telecom networks? What steps or measures do you suggest to encourage active participation at international level and setting up of such programs at national level? Please justify your response with rationale and suitable examples, if any.

AND

Q.31. Whether AI/ML developers should launch bounty programs to establish trust in the public about robustness of measures taken by them to protect privacy in their products or solutions? Whether conduction of such programs will help companies or firms to improve their products or solutions? Whether such programs should be conducted under the supervision of the government or an institution established/assigned for this purpose? Please justify your response with rationale and suitable examples, if any.



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Airtel Response:

Yes, for adoption of AI, the DoT/TEC and TRAI may organise challenge-based programmes or bounty programmes to resolve the issues and improve the performance of AI solutions in the network with the close coordination of the TSPs. This may provide a platform from which to demonstrate innovative solutions and give opportunities to others to find vulnerabilities or issues in the solutions.

Solution providers may come up and demonstrate to prove that there are techniques strong enough to protect user privacy while harnessing data. Such demonstrations will build trust in the AI solution so developed and bring recognition to an operator's use of smart solutions and products to improve telecom networks.

And we believe that the various government agencies may also launch such programmes or bounties. However, we do not believe that there should be any specific framework or supervision.

Q.32. Whether the telecom industry is required to adopt a Machine Learning Operations (MLOps) environment to develop, train, validate and store ML models? Whether there is also a need to establish a DataOps feature store to help MLOps for training purposes? What standardisation is required in terms of interoperability and compatibility for MLOps to function in a federated manner? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

No. Any technology specific mandate/intervention should be avoided. **These developments should be left to market forces to adopt depending upon techno-commercial dynamics and outcomes an entity would like to achieve while using these approaches.**

Building a scalable backend for ML involves provisioning, integrating and scaling many tools for data versioning and labeling, as well as for feature stores, model management and monitoring, etc.

We believe that these standards are very specific to developers and no intervention is required in this regard.

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Q.33. Whether active participation in the international bootcamp programs such as MIT Bootcamps, Design Thinking Bootcamp by Stanford University etc. will help India's telecom industry workforce to find international developers community, navigate challenges and learn from experiences of others? Whether similar programs are also required to be launched at the national level? What steps or measures do you suggest to encourage active participation at the international level and setting up of such programs at the national level? Please justify your response with rationale and suitable examples, if any.

AND

Q.34. Whether the courses or programs related to AI/ML currently being offered by various institutions and universities in India are adequate to meet the capacity and competence required to develop and deploy AI solutions or products in the telecom networks? If not, what additional steps or measures are suggested to fill the gap? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

No specific inputs.

In any case, academia and professionals keen on upskilling themselves in these developments keep on participating in such global fora. At present, no telecom sector specific mandate or intervention is required. However, the government at national level should keep on assessing such global developments and integrate them as part of national curricula as appropriate.

Q.35. Whether establishing a system for accreditation of AI products and solutions will help buyers to purchase such solutions or products? If yes, what should be the process of accreditation and who should be authorised or assigned with the task of accrediting such products or solutions? Please justify your response with rationale and suitable examples, if any.

Airtel Response:

No specific comments. It is too early and AI itself is still developing worldwide. We do not see any need for any accreditation at this stage.

Q.36. Whether creating a framework to prepare a list of prequalified suppliers of AI products or solutions will help industry including government agencies to procure AI products or solutions? Whether there is a need to formulate a standard Code of Conduct or guidelines for AI related procurements? What should be the typical elements of such a Code of Conduct or guidelines



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including guidelines on trusted source and who should be tasked to formulate such a Code of Conduct or guidelines? Please justify your response with rationale and suitable examples, if any.

AND

Q.37. Whether there is a need to prepare and publish a compendium of guidance, toolkits and use cases related to AI and BD, to foster adoption in the telecom sector? If yes, what should be the process to prepare such a compendium and who should be assigned this task? Please justify your response with rationale and global best practices, if any.

Airtel Response:

No specific comments. Refer to our response to Q 35 and, in any case, a lot of these aspects will get addressed on their own as AI adoption evolves, gains scale.

Q.38. Whether there is a need to establish telecom industry-academia linkages specifically for AI and BD to accelerate the development and deployment of AI products and solutions? Whether there is a need to establish Centres of Excellence (CoEs) for this purpose or it can be achieved by enhancing the role of existing TCoE? Please justify your response with rationale and global best practices, if any.

AND

Q.39. Whether there is a need to establish telecom industry-academia linkages specifically for AI and BD for AI related skill development? Please give the suggestions for strengthening the industry-academia linkages for identification of the skill development courses. Please justify your response with rationale and global best practices, if any.

AND

Q.40. Any other issue which is relevant to this subject? Please suggest with justification.

Airtel Response:

No specific comments. The industry and academia already work closely together since TSPs require skilled manpower from time to time as technology evolves.
