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**To,**

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**No.** BSNLCO-RGLN/36/3/2021-REGLN dated 10-01-2024

**Sub:** Comments on Consultation Paper on Digital Transformation through 5G Ecosystem-reg

Please find the comments of BSNL on Consultation Paper on Digital Transformation through 5G Ecosystem as below:

**Q.1. Is there a need for additional measures to further strengthen the cross-sector collaboration for development and adoption of 5G use cases in India? If answer is yes, please submit your suggestions with reasons and justifications. Please also provide the best practices and lessons learnt from other countries and India to support your comments.**

**BSNL Comments:** 5G enabled use cases hold tremendous potential to transform various sectors and improve the quality of life for citizens. These use cases & applications are diverse and span across a wide range of cross-sector industries, including smart cities and infrastructure, industry 4.0 and smart manufacturing, health care, smart homes & buildings, agriculture etc. Primary challenge in implementing cross-sector 5G based uses cases or application in developing countries like India is to ensure that citizens in rural and remote areas have access to the necessary technology and infrastructure for adopting these systems. Also, at the same time it may also be ensured that these technologies are not going to affect their employment, but will make their job easier and more efficient.

In addition to above regulatory framework, for the privacy and protection of data, it also needs to be framed for all the players involved in the ecosystem of 5G.

A new bill named“ Digital personal data protection” was also passed by Indian parliament on 9-08-2023.

**Q.2. Do you anticipate any barriers in development of ecosystem for 5G use cases, which need to be addressed? If yes, please identify those barriers and suggest the possible policy and regulatory interventions including incentives to overcome such barriers. Please**

**also provide the details of the measures taken by other countries to remove such barriers.**

**BSNL Comments:** For developing an ecosystem for 5G uses cases in developing country like India, additional measures are required for overcoming following barriers:

1. Availability of technology and infrastructure: Availability of necessary technology and infrastructure is required at urban, remote and rural areas for adopting 5G ecosystem for 5G use cases on fast track mode. As there will be hundreds and thousands of small cells required to be deployed on the available street furniture and providing power supply to the installed equipment in a cost effective manner. Policy framework is required for overcoming the administrative difficulties applying for permission for installing cells on individual street furnitures.
2. Regulatory framework for privacy and data protection: 5G ecosystem involves hundreds and thousands for cells, and IOT devices connected with each other and generating lots of data (personal data) stored in cloud. Hence, for privacy and data protection regulatory framework is required in line with General Data Protection Regulation "GDPR" as implemented in UK and European countries. On similar line, a new bill named "Digital personal data protection" was also passed by Indian parliament on 9-08-2023.
3. Interoperability and standardization: 5G ecosystem involved multiple stake holders across different sectors viz. Health, agricultural, transport, infrastructure etc. that may have different regulations and policies which may create challenges for interoperability, compliances, accountability and governance. To overcome these challenges an umbrella regulatory body may be appointed for preparing policies or regulatory guidelines for implementing seamless 5G ecosystem.
4. Policy framework for start-ups: For encouraging local manufactures and start-ups for implementing indigenous product and system a policy framework may be prepared.

**Q.3. What are the policy measures required to create awareness and promote use of 5G technology and its infrastructure so that the citizens including those residing in rural and remote areas may benefit from the 5G use cases and services to create new economic activities and increase employment opportunities and thereby promote economic growth of the country?**

**BSNL Comments:** Nil

**Q.4. What are the policy measures required to promote use of IoT technology and its infrastructure so that the citizens including those residing in rural and remote areas may benefit from these 5G enabled IoT smart applications and services to create new economic activities and increase employment opportunities and thereby promote economic growth of the country?**

**Q.5. What initiatives are required to be taken by the Government to**

**spread awareness among the citizens about IoT enabled smart applications? Should the private companies / startups developing these applications need to be engaged in this exercise through some incentivization schemes?**

**BSNL Comments:** In 5G ecosystem, IOT technology plays a major role. IOT use cases & applications are diverse and span across a wide range of cross-sector industries, including smart cities and infrastructure, industry 4.0 and smart manufacturing, health care, smart homes & buildings, agriculture etc. To fully leverage the potential of IOT, there is a need to acquire skill development for both developers and users. For developers or says start-ups needs a support from government for relaxed policies and regulation for them. So that more start-ups may implement IOT based use cases / applications. For users, more efficient way of learning is to “use and learn”. Hence, more use cases and applications based on daily activities will educate citizen and promote use of IOT technology and its infrastructure.

On the contrary part, as 5G IOT ecosystem involves hundreds and thousands for cells, and IOT devices connected with each other and generating lots of data (personal data) stored in cloud. Hence, for privacy and data protection regulatory framework is required in line with General Data Protection Regulation “GDPR” as implemented in UK and European countries. On similar lines, a new bill named “Digital personal data protection” was also passed by Indian parliament on 9-08-2023.

**Q.6. Industry 4.0 encompasses Artificial intelligence, Robotics, Big data, and the Internet of things and set to change the nature of jobs.**

**(a) What measures would you suggest for upskilling the top management and owners of industries?**

**(b) What measures would you suggest for upskilling the workforce of industries?**

**(c) What kind of public private partnership models can be adopted for this upskilling task?**

**Please reply with proper justification and reasons and also by referring to the global best practices in this regard.**

**BSNL Comments:**

- a. For up-skilling the Top management and owners of industries: In B-schools, industry based certifications for top management professionals and industry owners may be started with case studies from international arena.
- b. For up-skilling the workforce for industries: In diploma colleges, industry standard diplomas may be started for skilling up the workforce to compete in the fast evolving technology era and this will provide them an opportunity to skilled and upgrade themselves..
- c. Online certification courses may be started under public private partnership model. Where private companies may start and introduce short technology based courses on public or government portals like “igotkarmayogi” and “swayam” learning portal for learning new and upcoming technical skills like AI, Robotics, Big Data, IOT etc.

**Q.7. What are the policy, regulatory and other challenges faced by MSMEs in India in adoption of Industry 4.0. Kindly suggest measures to address these challenges. Provide detailed justification with reasons along with the best practices in other countries.**

**BSNL Comments:** Nil.

**Q.8. What additional measures are required to strengthen the National Trust Centre (NTC) framework for complete security testing and certification of IoT devices (hardware as well as software) under DoT / TEC. What modifications in roles and responsibilities are required to make NTC more effective? Kindly provide your comments with justification in line with the global best practices.**

**BSNL Comments:** In National Trust Centre (NTC) framework, all parameters are included related to testing certification of IOT devices, EMC, SAR security, safety etc.

But as we know that in 5G IOT ecosystem, hundreds and thousands of IOT/M2M devices are in network and creating lots of data (personal) available in cloud and also these IOT devices are more prone to cyber attacks. Hence more emphasis may be given to data privacy, data protection and cyber security.

**Q.9. IoT security challenges and requirements vary significantly across different industry verticals. Is there a need to develop sector-specific IoT security and privacy guidelines?**

**BSNL Comments:** No, as 5G enabled use cases hold tremendous potential to transform various sectors and improve the quality of life for citizens. These use cases & applications are diverse and span across a wide range of cross-sector industries, including smart cities and infrastructure, industry 4.0 and smart manufacturing, health care, smart homes & buildings, agriculture etc. Hence, single umbrella policy for all sectors is sufficient as this policy will bound all sector to follow similar guidelines and works in uniformity.

**Q.10. If answer to Q.9 is yes, is there a need for a common framework and methodology for developing such sector-specific guidelines.**

**BSNL Comments:** Nil.

**Q.11. Please suggest regulatory and policy interventions required to ensure privacy of the massive amount of sensitive user data generated by IoT applications specifically in light of the Digital Personal Data Protection Act, 2023. Kindly provide justifications along with the global best practices.**

**BSNL Comments:** 5G ecosystem involves hundreds and thousands of cells, and IOT devices connected with each other and generating lots of data

(personal data) stored in cloud. Hence, for privacy and data protection regulatory framework is required in line with General Data Protection Regulation "GDPR" as implemented in UK and European countries. On similar lines, a new bill named "Digital personal data protection" was also passed by Indian parliament on 9-08-2023.

**Q.12. What additional policy and regulatory measures are required to encourage research and development of IoT use cases in various sectors? Is there a need to incentivize startups for research and development of IoT enabled use cases in various industry verticals? If yes, kindly suggest measures for the same.**

**BSNL Comments:** Same as above for Q no 2, additionally, the following,

YES, incentivize startups for research and development of IoT enabled use cases in various industry verticals. Relaxation provisions under the said policy will encourage start-ups for doing more and R&D for development of IOT use cases/applications. For IOT use cases development, imported items are required, some relaxation in import duty may encourage startups for doing research and development more freely.

**Q.13. What measures should be taken to encourage centres of excellence to handhold startups working in the development of use cases and applications in 5G and beyond technologies? How can the domestic and foreign investors be encouraged to invest for funding the startups for these kinds of development activities?**

**BSNL Comments:** More easy-to-access test lab setups will encourage start-ups working in development of use cases and application in 5G and beyond technologies. As the several test equipment required by start-ups are quiet costly and need regular OPEX for their maintenance.

Relaxations are required for new start-ups and MSMEs in import and export T&C so that they are encouraged for development of use cases and applications in 5G and beyond technologies.

**Q.14. Whether there is a need to make changes in relevant laws to handle various issues, including liability regime and effective mechanism for redressal and compensation in case of accidents, damages, or malfunctions involving IoT, drones, or robotic systems. If yes, give detailed suggestions.**

**BSNL Comments:** YES, changes are required from time to time.

**Q.15. Is there a need to have a separate security mechanism for Multi-access Edge Computing (MEC)? If yes, please give your inputs and suggestions with regard to policies, rules, regulations and guidelines.**

**BSNL Comments:** Edge computing exposes data to more potential threats and vulnerabilities, as data is stored and processed on devices that may have

lower security standards or capabilities than centralized cloud servers. For MEC, several data centres to be developed in all across the world for data storing and processing.

Devices / Data centres used for Multiple-access edge computing (MEC) are more vulnerable to the threats and for this a more comprehensive mechanism needs to be incorporated in proposed national data centre policy or existing recommendation regarding establishment of data centres. As the existing and proposed policy and guideline mainly focuses on environmental related issues (Energy efficiency, water consumption etc.).

**Q.16. What are the policy measures required to create awareness and promote use of Metaverse, so that the citizens including those residing in rural and remote areas may benefit from the Metaverse use cases and services to create new economic activities and increase employment opportunities and thereby promote economic growth of the country?**

**BSNL Comments:** Building block of Metaverse comprises of all terminologies discussed above viz. 5G , IOT, M2M, Cloud, Data centres, MEC etc. All the policy measures taken for these terminologies and components can be made applicable for Metaverse also. For creating awareness and to promote use of Metaverse by citizens residing in rural and remote areas, emphasis on development of use cases for the sectors like Agriculture, Education, Govt. Schemes, etc. may be done.

Metaverse will be covered under the umbrella policy framework developed for data privacy and protection, National data centre policy etc.

**Q.17. Whether there is a need to develop a regulatory framework for the responsible development and use of Metaverse? If yes, kindly suggest how this framework will address the following issues:**

**i. How can users control their personal information and identity in the metaverse?**

**ii. How can users protect themselves from cyberattacks, harassment and manipulation in the metaverse?**

**iii. How can users trust the content and services they access in the metaverse?**

**iv. How can data privacy and security be ensured in the metaverse, especially when users may have multiple digital identities and avatars across different platforms and jurisdictions?**

**BSNL Comments:** Building block of Metaverse comprises of all terminologies discussed above viz. 5G , IOT, M2M, Cloud, Data centres, MEC etc. Hence, Metaverse will be covered under the umbrella policy framework developed for data privacy and protection, National data centre policy etc.

**Q.18. Whether there is a need to establish experimental campuses where startups, innovators, and researchers can collaborate and develop or demonstrate technological capabilities, innovative use cases, and operational models for Metaverse? How can the present**

**CoEs be strengthened for this purpose? Justify your response with rationale and suitable best practices, if any.**

**BSNL Comments:** Yes.

**Q.19. How can India play a leading role in metaverse standardization work being done by ITU? What mechanism should be evolved in India for making effective and significant contribution in Metaverse standardisation? Kindly provide elaborate justifications in support of your response.**

**BSNL Comments:** Nil.

**Q.20. (i) What should be the appropriate governance mechanism for the metaverse for balancing innovation, competition, diversity, and public interest? Kindly give your response with reasons along with global best practices.**

**(ii) Whether there is a need of a national level mechanism to coordinate development of Metaverse standards and guidelines? Kindly give your response with reasons along with global best practices.**

**BSNL Comments:** Nil.

**Q.21. Whether there is a need to establish a regulatory framework for content moderation in the metaverse, given the diversity of cultural norms and values, as well as the potential for harmful or illegal content such as hate speech, misinformation, cyberbullying, and child exploitation?**

**Q.22. If answer to Q.21 is yes, please elaborate on the following:**

- i. What are the current policies and practices for content moderation on Metaverse platforms?**
- ii. What are the main challenges and gaps in content moderation in the Metaverse?**
- iii. What are the best practices and examples of effective content moderation in the Metaverse or other similar spaces?**
- iv. What are the key principles and values that should guide content moderation in the Metaverse?**
- v. How can stakeholders collaborate and coordinate on content moderation in the Metaverse?**

**BSNL Comments:** Yes, Regulatory framework for content modernization in metaverse is essential. But, As Metaverse is in research phase/initial stage it is difficult to frame some concrete regulatory guidelines.

Also at international stage, US government is likely to take wait and watch approach in making metaverse regulations and initially focusing on US

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companies competitiveness in the field and exploring the enabling technologies of the metaverse, such as blockchain, VR & AR.

As Building block of Metaverse comprises of all terminologies discussed above viz. 5G, IOT, M2M, Cloud, Data centres, MEC etc. Hence, Metaverse will be covered under the umbrella policy framework developed for data privacy and protection, National data centre policy etc. For initial phase till specific regulation will be framed.

**Q.23. Please suggest the modifications required in the existing legal framework with regard to:**

- i. **Establishing mechanisms for identifying and IPRs in the metaverse**
- ii. **Creating a harmonized and balanced approach for Protection and enforcing IPRs in the metaverse, taking into account the interest of both creators and users of virtual goods and services.**
- iii. **Ensuring interoperability and compatibility of IPRs across different virtual environments. Kindly give your response with reasons along with global best practices.**

**BSNL Comments:** Nil.

**Q.24. Please comment on any other related issue in promotion of the development, deployment and adoption of 5G use cases, 5G enabled IoT use cases and Metaverse use cases in India. Please support your answer with suitable examples and best practices in India and abroad in this regard.**

**BSNL Comments:** Nil.

Regards



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