Consultation for the Global Symposium for Regulators (GSR-25) Best Practice Guidelines on "What does it take for regulators to become digital ecosystem builders?"

Question 1:
Fostering innovation in regulatory approaches: How can regulators cultivate an innovation-driven culture in regulatory work and decision-making? What new skillsets and mindsets do they need today?
Fostering Innovation in Regulatory Approaches

Regulators can cultivate an innovation-driven culture by:

- Implementing Agile Regulatory Tools: Utilizing instruments like regulatory sandboxes, test beds, and Regulatory Impact Assessments (RIAs) allows for controlled experimentation with emerging technologies, enabling regulators to adapt swiftly to market changes and technological advancements.
- Promoting Collaborative Regulation: Engaging with industry stakeholders, academia, and civil society through public consultations and joint initiatives ensures that regulatory frameworks are inclusive and reflective of diverse perspectives. in addition to setting long-term regulatory priorities and aligning them with national and international digital economy agendas].
- Adopting Evidence-Based Decision Making: Leveraging data analytics and foresight tools helps regulators make informed decisions, anticipate market trends, and assess the potential impact of new regulations before implementation.
- Embedding Strategic Planning tools: Establish strategic planning tools to systematically scan for emerging trends, disruptive technologies, and evolving market structures. This will enable proactive regulatory strategies that anticipate, rather than react to technological shifts.]
- Experimenting innovative approaches with new and emerging technologies (AI, IoT, blockchain, 6G, etc.) and new business models, through institutionalized regulatory and technology **innovation hubs** that foster collaboration with academia, innovation-based startups and SMEs and established businesses, as well as key adopting verticals, all towards exploring and fostering a safe, conducive, sandbox-like environment for innovative regulation and value creation].

Essential Skillsets and Mindsets for Regulators

To effectively build and nurture digital ecosystems, regulators need to develop:

- Strategic Foresight: The ability to anticipate technological developments and their potential societal impacts, enabling proactive regulatory measures.
- Collaborative Mindset: A focus on building partnerships across sectors and borders to address complex digital challenges and promote inclusive growth.
- Adaptability: The capacity to revise and update regulatory frameworks in response to evolving technologies and market dynamics, ensuring continued relevance and effectiveness.

Question 2:

Adapting and enhancing regulatory capacity: How should regulatory mandates, capacity and decision-making evolve to balance market innovation with digital inclusion and support the achievement of broader social and economic policy goals? What institutional mechanisms can enhance regulatory responsiveness to emerging digital business models and evolving risks?

To effectively govern the countries' digital transformation, regulatory frameworks must evolve to simultaneously foster innovation while ensuring inclusive growth. This requires modernizing mandates, building institutional capacity, and creating responsive governance mechanisms.

1. Adaptive Regulatory Frameworks

- Update legislation/regulations to address emerging technologies (AI, digital currencies, IoT, e-commerce, online platforms) while maintaining flexibility for future developments
- Maintain a level playing-field for all market players to ensure a positive market behavior towards growth and healthy competition that empowers user choice while encouraging innovation, accelerate adoption of new technology, and promote market attractiveness for new investments]
- Expand regulatory sandboxes.

2. Institutional Capacity Building

- Establish specialized units (e.g., Tech Futures Unit) focused on new and emerging technologies.
- Develop capacities to effectively manage data analytics and monitor developments in digital markets.

3. Data-Driven & Inclusive Governance

- Deploy AI-powered market monitoring systems for real-time risk detection and trend analysis
- Institutionalize Regulatory Impact Assessments (RIAs) to evaluate effects on economies and societies.
- Form multi-stakeholder committees to advise on digital policy, align regulatory approaches with societal needs, and ensure inclusive decision-making.
- Enhance transparency through public consultations and plain-language policy briefings.
- Capitalize on a centralized data Information Center for analytics to support cross-sectoral data sharing, real-time monitoring, and evidence-based decision-making across Industry partners.]

4. Implement risk mitigation strategies through early detection of market abuses and enhanced regulation on cybersecurity and data privacy.

5. Implementation Roadmap

1. Conduct pilot projects to assess the effectiveness of regulatory frameworks for the new and emerging technologies.
2. Continually assess impact of regulatory decisions in the short and longer terms, and design and implement adaptive strategies to maximize on envisaged outcomes while actively monitoring market evolution**]**
3. [Update regulatory frameworks to accommodate emerging technologies (e.g., 5G, edge computing, AI risk management).

Question 3:

Harnessing transformative technologies for regulatory excellence: How can regulators better leverage Artificial Intelligence, big data, Internet of Things, blockchain and other digital technologies to enhance decision-making, compliance monitoring and regulatory agility? What technology tools and applications can regulators use to strengthen transparency, stakeholder engagement and public trust in regulatory processes?

1. **Enhancing Decision-Making:**

   Regulators can leverage Artificial Intelligence (AI) and big data analytics to support evidence-based policymaking. These tools allow for the identification of market trends, early detection of risks, and assessment of the socioeconomic impact of regulations. Real-time data analysis helps regulators respond swiftly to emerging challenges, ensuring timely and informed decisions.

   The Information Center at NTRA was established in 2020 to serve as a centralized data hub for both internal and external stakeholders. Its primary role is to collect periodic data on a regular basis from telecom operators and service providers. In addition, it functions as the central repository for infrastructure data, customer complaints, and service quality indicators. By collecting, integrating, and analyzing this wide array of data — including big data — the center generates valuable insights (periodical reports, interactive dashboards) that support evidence-based decision-making across NTRA. These insights are also shared with ministries, government entities, service providers, and telecom users, contributing to greater transparency, improved policy formulation, and enhanced service delivery.

   To achieve regulatory excellence, regulators like NTRA must evolve into digital ecosystem enablers. By embedding AI and big data analytics, into their core operations, they will not only improve efficiency and oversight but also build public confidence, stimulate innovation, and ensure inclusive digital development.

   Recommendation to regulators to have Open Data Platforms & Interactive Portals; tools like Power BI, Tableau, and public dashboards showing for example QoS/QoE indicators, complaint resolution metrics, and regulatory actions foster trust.]

   The NTRA utilized crowdsourced Quality of Service (QoS) data to award performance incentives to Mobile Network Operators (MNOs), contingent upon improvements in a predefined set of key performance indicators (KPIs).

   NTRA continually experiments with new emerging AI-based tools to test their viabilities for implementations in different regulatory functions that enhances efficiency and stakeholder engagement.]

2. **Advancing Compliance Monitoring**

   The integration of Internet of Things (IoT) sensors, geolocation data, and automated reporting systems enhances the ability to monitor networks, service quality, and spectrum usage dynamically. Blockchain technology further strengthens compliance by enabling tamper-proof auditing and secure digital transactions, especially in domains like mobile financial services and e-commerce. In this context, **the "Myntra" Application** plays a valuable role by providing real-time monitoring of market performance, and service indicators—allowing regulators to track compliance more efficiently and respond proactively to irregularities and at the same time empowering end users to make informed choices when selecting the most suitable telecom service provider.

3. **Strengthen transparency, Engagement, and Public Trust**

Regulators should engage stakeholders through public consultations and user-friendly digital platforms. In addition, there should be national strategies and awareness programs.

4. **Improving Regulatory Agility**
   Digital sandboxes and pilot projects offer regulators the flexibility to test new business models and technologies within a controlled environment. This approach helps balance innovation and consumer protection, while regulatory technology tools contribute to the agility of regulatory institutions by enabling automated reporting, performance tracking, and dynamic rule adjustments.
5. **Institutional Capacity Building**
   To fully harness these tools, regulators must invest in internal capacity—upskilling staff in these new and emerging technologies. Cross-sectoral partnerships with academia, private sector innovators, and civil society are also vital to ensure a balanced and inclusive regulatory ecosystem.
6. **Strategic Considerations for Implementation**

   - **Interoperability**: Use open standards to ensure data and tools can work across agencies and sectors.
   - **Regulatory Vision and Leadership Alignment:** Define a clear digital regulatory vision aligned with Egypt's broader digital transformation strategy.
   - **Ethical and responsible use**: Embed principles like fairness, explain ability, and accountability into AI and data systems.

Question 4:

Cross-border cooperation for building national, regional and global digital ecosystems: How can regulators leverage regional and international cooperation to foster harmonized regulatory approaches, knowledge exchange and capacity-building?

- Regulators can foster harmonized digital ecosystems by actively engaging in regional and international platforms to align policies, share best practices, and coordinate on emerging technologies. Participation in joint initiatives, Research and Development activities, capacity-building programs, and cross-border regulatory forums enables consistent standards, reduces fragmentation, and strengthens collective digital resilience.
- NTRA has aligned with the Smart Africa Alliance and Arab Regulators Network (AREGNET), which harmonizes spectrum policies, cybersecurity standards, and digital inclusion strategies across Africa and the Arab world. Additionally, Partnerships with international organizations such as the ITU, GSMA, and EU will help regulators adopt global best practices in AI governance, 5G deployment, and data protection, while joint regulatory sandboxes with neighboring countries can accelerate tech innovation.