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**Focus Group on Costing
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Abstract:

The ITU-T Focus Group on Costing models (FG-CD) Affordable data service using infrastructure sharing for robust 5G future for affordable data services is analysing the supply chain of telecom/ICT, the multiple cost models and pricing strategies used for mobile data services and Internet services and study the policy, economic, regulatory and standardization aspects related to cost models for affordable data services, including best practices of cost assessment methodologies and economic models. Additionally, FG-CD investigates best practices in cost assessment methodologies and economic models. As part of its activities, the Focus Group organised a series of webinars focused on the areas under study. Episode #1 of the webinar was regarding the Infrastructure sharing best practices for affordable data services.

It has been observed that there is a strong correlation exists between well-developed mobile infrastructure and affordable data prices. Countries with long-standing, ubiquitous 4G or new 5G networks tend to offer significantly more data in their mobile plans compared to the global average. These plans often come with caps in the hundreds of gigabytes, or even unlimited data options. Consequently, the cost per gigabyte of data in these countries is typically much lower. Israel has been a global leader in the provision of 5G and continues to top the global table when it comes to the price of data.

ITU-T in its recommendation D.264 proposes a set of possible methods to help telecommunication providers save costs and enhance efficiency through the shared uses of the telecommunication infrastructure, including passive and active infrastructure sharing. The Recommendation indicates that there is a potential savings up to 30% with Passive infrastructure sharing and up to 50-60% for Active infrastructure sharing.

Here are some of the most significant benefits of infrastructure sharing:

1. Reduced Costs: 5G network deployment requires significant investment in infrastructure, including towers, fiber optic cables, and base stations. Sharing this infrastructure between multiple operators can significantly reduce the upfront costs for each individual company. This allows for faster network rollout and frees up capital for other investments in the network, like expanding coverage or improving service quality.

2. Faster Network Rollout: By eliminating the need for each operator to build their own infrastructure from scratch, infrastructure sharing allows for a quicker deployment of 5G networks. This is crucial to meet the growing demand for high-speed mobile data and capitalize on the potential of 5G applications.

3. Expanded Coverage: Infrastructure sharing can be particularly beneficial in extending 5G coverage to underserved or remote areas. Since the cost burden is shared, operators are more likely to invest in deploying infrastructure in these areas, which can bridge the digital divide and provide equal access to advanced mobile data services.

4. Environmental Sustainability: Building and maintaining duplicate infrastructure can have a negative impact on the environment. Infrastructure sharing reduces the overall amount of infrastructure needed, minimizing resource consumption and visual pollution from towers and base stations.

5. Promotes Competition: Infrastructure sharing lowering the barrier to entry for new players, it allows smaller operators to compete with established ones in offering 5G services. This can lead to more innovation and potentially lower prices for consumers.

6. Increased Efficiency: Sharing infrastructure can lead to more efficient network utilization. Operators can coordinate their network usage, avoiding situations where multiple base stations are close together with overlapping coverage. This can improve overall network performance and resource allocation.

7. Monetization of 5G Network: 5G promises a lot, faster speeds, lower latency, and the ability to connect a massive number of devices. But there's a hitch - monetizing 5G networks has proven trickier than expected, due to give more and get less trap. Building and maintaining 5G infrastructure is expensive. Infrastructure sharing can reduce costs for carriers, it can also lead to complexities.

8. The possibility for smaller operators to actually scale up more quickly by leveraging the assets of larger players so that can allow some of the smaller operators to reach new areas or to grow faster.

On February 7th, 2024, FG-CD hosted a webinar (Episode #1) focusing on Infrastructure Sharing. The episode featured presentations from GSMA Intelligence, ANATEL (Brazil), and ANACOM (Portugal).

GSMA Intelligence, a research arm of the GSMA, presented their findings on passive and active infrastructure sharing in Europe. Their research, spanning 20 years (2001-2019), analysed data from 30 countries and 140 operators. The presentation delved into following three key models of infrastructure sharing, providing valuable insights for the audience.

1. Passive – sharing of Masts, Sites, Cabinet, Power and Air-conditioning
2. Active – two types
    (a) MOCN – Multi-Operator Core Network, a single cell tower can broadcast signal of multiple operators simultaneously. Sharing of Base Station, Radio Access Network and Spectrum.
    (b) MORAN – Multi-Operator Radio Access Network. Sharing of Base Station, Antenna and Radio Network Controller.
3. Roaming – a lighter form of infrastructure sharing.

GSMA intimated that the sharing agreement in Europe are market driven and not governed by any regulation. In Europe, since 2000 to 2010, passive sharing was popular and from 2011-2019, both passive and active sharing became popular.

ANATEL Brazil shared the experiences of network sharing, as very popular in Brazil. Passive Infrastructure sharing does not require specific approval, but Active Infrastructure sharing requires approval and there are 16 such agreements approved by the ANATEL.

ANACOM Portugal, shared their experience regarding Suitable Infrastructure Information System (SIIS) portal, highlighted its effectiveness in promoting infrastructure sharing. SIIS provides a central platform for all communication companies to easily access information about existing infrastructure. This transparency reduces network deployment costs for companies and minimizes the risk of damaging existing infrastructure during construction, ultimately benefiting both businesses and the environment.

Proposal:
Different models of infrastructure sharing exist, such as passive sharing (towers) or active sharing (radio equipment). The best approach depends on the specific context and needs of the operators

involved. The success of infrastructure sharing depends on establishing clear sharing agreements for towers, fiber, and other resources to ensure fair network performance, maintenance responsibilities, and revenue sharing.

Infrastructure sharing will enhance the deployment of 5G technologies and will help MNOs meet the dense coverage, high capacity and reduced latency requirements. Passive infrastructure sharing will spread the infrastructure expenditure of 5G implementation among multiple players, which will reduce cost & increase profitability, so the cost of per GB data will reduce, to make it more affordable. Overall, infrastructure sharing presents a win-win situation for operators, governments, and consumers. By reducing costs, accelerating deployment, and promoting efficiency, it paves the way for a more accessible and robust 5G future.

IAFI proposed that telecom regulators should introduce infrastructure sharing policy, to mitigate the challenges in sharing of infrastructure by MNOs, Radio, TV companies and ISPs. New tower should be allowed to be built in areas where there is no tower and service quality is affected, as high quantity of infrastructure will increase energy consumption and CO_2 emission.

To streamline infrastructure development, IAFI also proposed to all member states to create web portals similar to SIIS, the system shared by ANACOM Portugal. This standardized approach would provide telecom companies with a centralized platform to access critical information when planning new infrastructure in any member state.

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