

## **SAMENA Leaders' Summit 2024**

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### **Technology, Infrastructure, and the Digital Environment**

**New Technologies, New Paradigms for the Region, Intelligence, Security, Sustainability**

#### **Strategy Panel**

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**Which are the policy and regulatory initiatives in European Union to address challenges and to achieve future connectivity infrastructure targets.**

1. European Union has still way to go to achieve the connectivity targets set in the Digital Decade Policy Programme for 2030 and lags behind other regions of the world (e.g South Korea, China, USA, Japan, UAE, Singapore) as regards 5G/FTTH coverage and penetration of services.
2. The deployment of telecommunication networks infrastructure is capital intensive. The investment needs to achieve the EU Digital Decade Policy Programme targets of 2030 are optimistically estimated to be larger than 200 BEuros.
3. The financials of the EU Telecom Sector are not good. Revenues/ARPU keep decreasing leading to decreased investment capability and the sector is not attractive for investments. This means that the investment needs represent an investment gap (relevant data are included in the White Paper).
4. Our policy objectives should be:
  - to create an investment friendly environment,
  - to reduce networks infrastructure deployment costs (including optimization of relevant administrative procedures),
  - to address the demand side in order to make networks accessible (competitively priced in a challenging economic environment of high inflation and high interest rates) for the

end users but also financially sustainable (as regards day to day operations and maintenance) in the long run,

- to achieve economies of scale that ensure reasonable returns for those investing while still achieving competitive prices for the end-users. A tough exercise for our ex-ante and ex-post universe.
5. From a Regulators point of view, in principle the most important driver in a market is competition as it creates incentives for innovation, investment in infrastructure and better services to consumers.
  6. The EECC, back in 2018, has included among policy objectives efficient investment & competition:
    - Investment particularly targeted to infrastructure in VHCNs still complemented by regulation, where necessary and
    - Infrastructure-based competition with the rationale that bottlenecks and barriers to entry remain at the infrastructure level. On that respect several new (at that point) provisions of the EECC pointed at the direction of incentivizing investment in VHCNs, through lighter regulation, i.e commitments on co-investments in VHCNs
    - Along with promoting the interests of the citizens, by ensuring connectivity and the widespread availability and take-up of VHCNs, inter alia by enabling maximum benefits in terms of choice, price and quality on the basis of effective competition.
  7. The recently published by the EC White Paper “How to master Europe's digital infrastructure needs?” introduces a number of regulatory proposals to address connectivity infrastructure deployment, to attract investment and foster innovation:
    - Creation of a level playing field in the converged telecommunications – cloud ecosystem
    - Harmonization across the EU when it comes to market entry, spectrum authorization processes and security/ resilience
    - Access policy for fiber networks including a proposal for a pan-European wholesale access product, no recommended markets susceptible to ex ante regulation to promote investments and emphasis on copper switch off
    - Cross-border consolidation (including the idea of a pan-European core network) as a solution against market fragmentation.
  8. As regards future networks we need to:
    - Prioritize their financial sustainability as regards their day-to-day operations and maintenance
    - Stop treating telecommunications (networks) as a consumption only ‘game’ but a potentially value and revenue generating opportunity, for the majority of its users.

## **Which is the key technology in which future networks will be based on? What is going to be the key security challenge in future networks?**

Future telecommunication services will not need 'just' a faster version of our current type of network. They will need a new type of Secure and Resilient network. They need a new, Software Defined type of network. They need 'Network Slicing' kind of services in 5G language. They need a different type of Quality of Service. They need us to go beyond Best Effort networks or 'just' encrypted ones.

These software-defined, new-services carrying, future networks will need to get hardware-level supply-chain traceability to avoid having our ultra-flexible ICT infrastructure from getting 'poisoned' in its very own 'silicon roots', compromising all concepts of cyber-security. There is no room for not thinking cybersecurity in semiconductor scale.

It is without doubt that performance critical - thus cybersecurity critical too - semiconductors are leading edge node semiconductors, currently utilizing 5nm or 3nm technologies, practically only made by a handful (only three actually) companies around the world.

Building a leading-edge node semiconductor fab requires a 10-20 billion USD investment, and that is the 'relatively easy' part of the cost because manufacturing at nanoscale needs a large ecosystem of world class engineers and scientists to go along with it, so it really looks and certainly feels like an impossible endeavour.

However, does everything else really make sense if the hardware we use is not secure?

Introducing unique features in (otherwise) standard silicon for secure chip identification or encryption key storage, IS a fair compromise AND something that can and should be done

Future networks will be Software Defined Networks, running on supply-chain traceable ICs, offering new, socio-economically transforming types of services. That's the new platform where cyber-security will truly shine to its full potential!