Towards European Strategic Autonomy in Future Connectivity Systems

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26th November 2020
Europe’s strategic autonomy…

“…is about reducing dependence on others for things we need the most: critical materials and technologies, food, infrastructure, security and other strategic areas”

“Europe’s digital transformation, security and future technological sovereignty depends on our strategic digital infrastructures”

“The EU will support the development of key enabling technologies that are strategically important for Europe’s industrial future”
A key target at EU Level


- A Europe fit for the digital age – 1 of the 6 Commission priorities
- Achieve technological sovereignty in some critical technology areas

**Commission’s strategy on Shaping Europe’s Digital Future**

- Europe should retain its technological and digital sovereignty and be the global digital leader
- European technological sovereignty starts from ensuring the integrity and resilience of our data infrastructure, networks and communications

**Commission Communication on a New Industrial Strategy**

- Climate neutrality and Digital leadership
- Europe has everything it takes to lead the digital technology race
- We must invest now if we want to be a frontrunner in 6G networks

**Recovery Plan**: need to accelerate the green and digital transitions
Serving new Policy agenda with Horizon Europe Digital Partnerships

**nano-components & systems**
- low-power processor, network components (RF, net processor), AI hw/sw, bio-photonics basis for complex systems

**light-based technologies**
- high-precision sensing underpinning AI-systems, IoT, optical communication

**computing technologies**
- low-power processor, quantum simulations/computing, neuro-inspired software, extreme-parallelism, self-healing systems

**networking**
- 6G, resilient interconnect protocols, reconfigurable software, extreme network throughput interactions, quantum communication

**AI and Robotics**
- data discovery, data staging, deep-learning, bio-physic control systems, augmented reality, light-based sensors
Smart Networks and Services towards 6G
SNS value chain approach for EU autonomy

Requirements Industrial & Consumer Applications
- Telemedicine
- Construction
- Connected Mobility
- Environment
- Factory
- Immersive tourism
- 8K movie
- Sport & events

Service provisioning
- Computing and Storage Data Analytics

Networks
- Versatile Infrastructure & Multiple Topologies

Devices: Multiplicity of Connected Devices

New opportunities Enabling Technology Components
- Mobile & Last Mile
- High density access
- Corporate nets
- Indoor Short Range
- Dense IoT
- Fixed wired access
- Industrial Automation
- 360° VR/XR
- Fully Automated Vehicles
- Haptic Communications for surgery
- Agri sensors
- Smartphones
- Computers
- Drones

End-to-end Resource Management and Energy Efficiency
End-to-end Security and Trust
Draft SRIA 2021 – basis for overall ECS future R&I also for KDT

Connectivity and 6G challenges included

“Ensuring European leadership in terms of connectivity technologies”
Our Vision

- Leadership in components is a required condition to strategic autonomy
- Strong European know-how and industrial leadership + global momentum
- Early involvement of European ECS community in the 6G debates is key target
- Based on a roadmap of critical technologies from industry perspective
- Towards a top down approach, potentially driving a future high level agenda for 6G components in Europe
- Planning cross-partnerships collaboration, particularly SNS / KDT (more?)
- Influencing standards and EU technological production
COREnect expected outcomes

• Identify the gaps in Europe in the core hardware components of future connectivity systems

• Analyse the related strength and opportunities

• Identify the priorities and requirements for 6G R&I, for industrial investments, for emergence of new market actors and for public actions

• Build a European roadmap for hardware enabling technologies for connectivity platforms and end-devices (including feasibility cartography)

• Establish collaboration between microelectronics and telecommunications European stakeholders, including towards standardisation strategies
Where are the opportunities for Europe?

- Critical role of ECS for 5G competitiveness demonstrated
- Telecom industry increased interests in components
  - Nokia Reefshark, Ericsson/Kathrein
- New frequency bands, ultra-low latency, real-time, sensing, …
  => new HW challenges (including costs)
- Open RAN, HW/SW cooperation
- Devices, IoT, MEC, Computing continuum => EU processors opportunities?
- Energy reduction, security and trust for connectivity systems
  => essential role of components
Thank you

Political guidelines for the next Commission (2019-2024)

Shaping Europe’s digital future

Recovery plan for Europe
https://ec.europa.eu/info/strategy/recovery-plan-europe_en

Digital Partnerships webpage (including industry proposals)