



The Standards People

ETSI Research Conference 2023

Maximizing the Impact of European 6G
Research through Standardization

Overview of Spanish 6G R&I landscape

Fernando Rico Ríos



6/2/2023





Content

1. The strategy.
2. The implementation.
3. Links to JTI SNS.
4. Links to standardization.





Content

1. The strategy.
2. The implementation.
3. Links to JTI SNS.
4. Links to standardization.





The strategy (I)

- “España Digital 2025” (July 2020).
- **Updated** as “**España Digital 2026**” (July 2022): powered by **NGEU funds**.
- **Responsible: Ministry for Economic Affairs and Digital Transformation.**
- With regards to **R&I**: additional bottom-up funding in all digital areas by the **Ministry for Science and Innovation** in the context of the Spanish “**Strategy for Science, Technology and Innovation 2021-27**”
- In both cases, **synchronized by design** with EU strategies / programs.



The strategy (II)

“España Digital 2026”

- Indicative overall Budget (2021–26): Up to 31.8 b€ (including 2 “PERTE”)
- Comprehensively covers **most relevant digital areas** from **different perspectives**: R&I, technology uptake, deployment, skills, regulation and other investments.
- Includes a **specific chapter** called “**Boosting 5G Technologies**”.
- Many **links to 5G/6G technologies in other chapters**: cloud/edge, chips/processors, cybersecurity, etc.



The strategy (III)

Chapter “Boosting 5G Technologies”

- Indicative budget (2021-26): 1,514 M€
- Areas:
 1. **5G roadmap:** regulation (spectrum, deployment, 5G cybersecurity).
 2. **Public warning system.**
 3. **5G: sectorial applications**, network deployment.
 4. **R&I in advanced 5G and 6G .**



Content

1. The strategy.
2. The implementation.
3. Links to JTI SNS.
4. Links to standardization.



The implementation (I)

1. 5G Roadmap:

- Spectrum:

- ✓ 700 MHz band: auction completed (7/2021).
- ✓ 3,5 GHz band: frequency reorganization completed (2/2022) – auction completed in 2018.
- ✓ 26 GHz band: auction in progress (call closed 12/2022).

- 5G cybersecurity:

- ✓ 5G cybersecurity Act adopted (4/2022).
- ✓ Public consultation on the national scheme for the Security of 5G Networks & Services completed (6/2022).

Incorporates EU Toolbox
for 5G security



The implementation (II)

2. Public Warning System: Deployed and activated in coordination with Ministry for Internal Affairs (6/2022).

Implements directive (EU) 2018/1972 on
European Electronic Communications Code

3. 5G Network deployment (1/2):

- ✓ Call 5G network deployment in rural areas (backhaul connections): 450 M€, **evaluation in progress.**
- ✓ Call 5G network deployment in rural areas and transport corridors (passive infrastructure): 150 M€, **upcoming call.**



The implementation (III)

3. 5G Sectorial applications (2/2):

✓ 2022 Call (evaluation in progress):

- Indicative budget: 90.7 M€.
- Expected: 3 – 15 M€/Project; TRL 5-6.
- Duration: Up to 3 years.

- Building on 5G PPP calls' results.
- Security provisions (similar to STREAM D).
- "Open" results, innovative ecosystems.
- IPR protection assessed (and funded).

✓ 2023 Call (published on 12/2022):

- Indicative budget: 60 M€.
- Expected: 1 – 15 M€/project; Starting TRL 5-6.
- Duration: Up to 3 years.

Complementary to the previous call (2022).

✓ Other projects:

- 5G services and communications for emergency management and civil protection: local/regional public agencies (11/2022; 15 M€).
- 5G network deployment in logistic areas of the ES rail infrastructure manager (1/2023; 20.5 M€).



The implementation (IV)

4. R&I in advanced 5G and 6G :

✓ **2021 call** (projects awarded 11/2021):

- Indicative budget: 95,2 M€
- Expected TRL: 2-4.
- Duration: Up to 3 years.

✓ **2022 call** (evaluation in progress):

- Indicative Budget: 116 M€.
- Expected TRL (R&I): 3-6.
- Expected budget: 0,3 – 2 M€.
- Duration: Up to 3 years.

✓ **2023 call** (published on 12/2022):

- Indicative Budget: 62 M€
- Expected TRL (R&I): 3-6.
- Expected budget: 0,3 – 2 M€.
- Duration: Up to 3 years.

- Building on 5G PPP calls' results.
- Fully aligned with JTI SNS/NE 2020 SRIA.
- Includes complementary activities on skills and talent attraction.

- Building on the previous call (2021).
- Fully aligned with JTI SNS/NE 2020 SRIA.
- Fully aligned with 3GPP Rel-17 and Rel-18.
- Covering :
 - Capacity building (23 M€).
 - R&I ecosystem (93 M€).

- Building on the previous call (2022).
- Fully aligned with JTI SNS/NE 2020 SRIA.
- Fully aligned with 3GPP Rel-17 and Rel-18.
- Covering :
 - Capacity building (12,4 M€).
 - R&I ecosystem (49,6 M€).





Content

1. The strategy.
2. The implementation.
3. Links to JTI SNS.
4. Links to standardization.





Links to JTI SNS

- **Call 2021 R&I in advanced 5G and 6G :**

- **Requirements:**

- ✓ **Eligibility** : Coordinators beneficiaries in 5G PPP funded projects.
- ✓ **Expected projects' results** fully aligned with:
 - ✓ Networld Europe SRIA 2020: technological contents.
 - ✓ JTI SNS (COM proposal by then): political objectives.

- **Outcome:**

- ✓ Coordinators (**13**) manage **clusters of projects** (~ 1M€/project).
- ✓ **Multiple areas in NE SRIA 2020 covered** (to a greater or lesser extent!): system architecture, edge computing, radio technologies, optical networks, network and service security, SATCOM and HAPs, emerging technologies (AI, DLT).
- ✓ **Specific contributions** to Streams C and D.



Content

1. The strategy.
2. The implementation.
3. Links to JTI SNS.
4. Links to standardization.





Links to standardization

Call 2021 R&I in advanced 5G and 6G :

- **Requirements:**

- ✓ **Low TRL (2-4) projects targeted:** pre-standardization phase.
- ✓ **Contribution to 6G standards as a result of R&I activities:** IPR costs supported for new IPR generated by the projects (not previously).

- **Outcome:**

- ✓ **Use cases and 6G KPIs definition and assesment:** “general” KPIs (overall performance), “sectorial” KPIs (manufacturing, railroad transport, immersive applications, NTN) and “specific” KPIs (AI, DLT, cybersecurity).
- ✓ **Foreseen contributions to 6G standards:** AI applications (road transport, cybersecurity), manufacturing, emergency systems and NTN (beyond 3 GPP Rel-17), expanded Edge standards (ETSI MEC, 3GPPP Edge).



Financiado por
la Unión Europea
NextGenerationEU

Thank you for your attention !



GOBIERNO
DE ESPAÑA

MINISTERIO
DE ASUNTOS ECONÓMICOS
Y TRANSFORMACIÓN DIGITAL

SECRETARÍA DE ESTADO
DE TELECOMUNICACIONES
E INFRAESTRUCTURAS DIGITALES



GOBIERNO
DE ESPAÑA

MINISTERIO
DE CIENCIA
E INNOVACIÓN

