SNS-CO-OP Annual Questionnaire Technical Section Results

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TECHNICAL SECTION

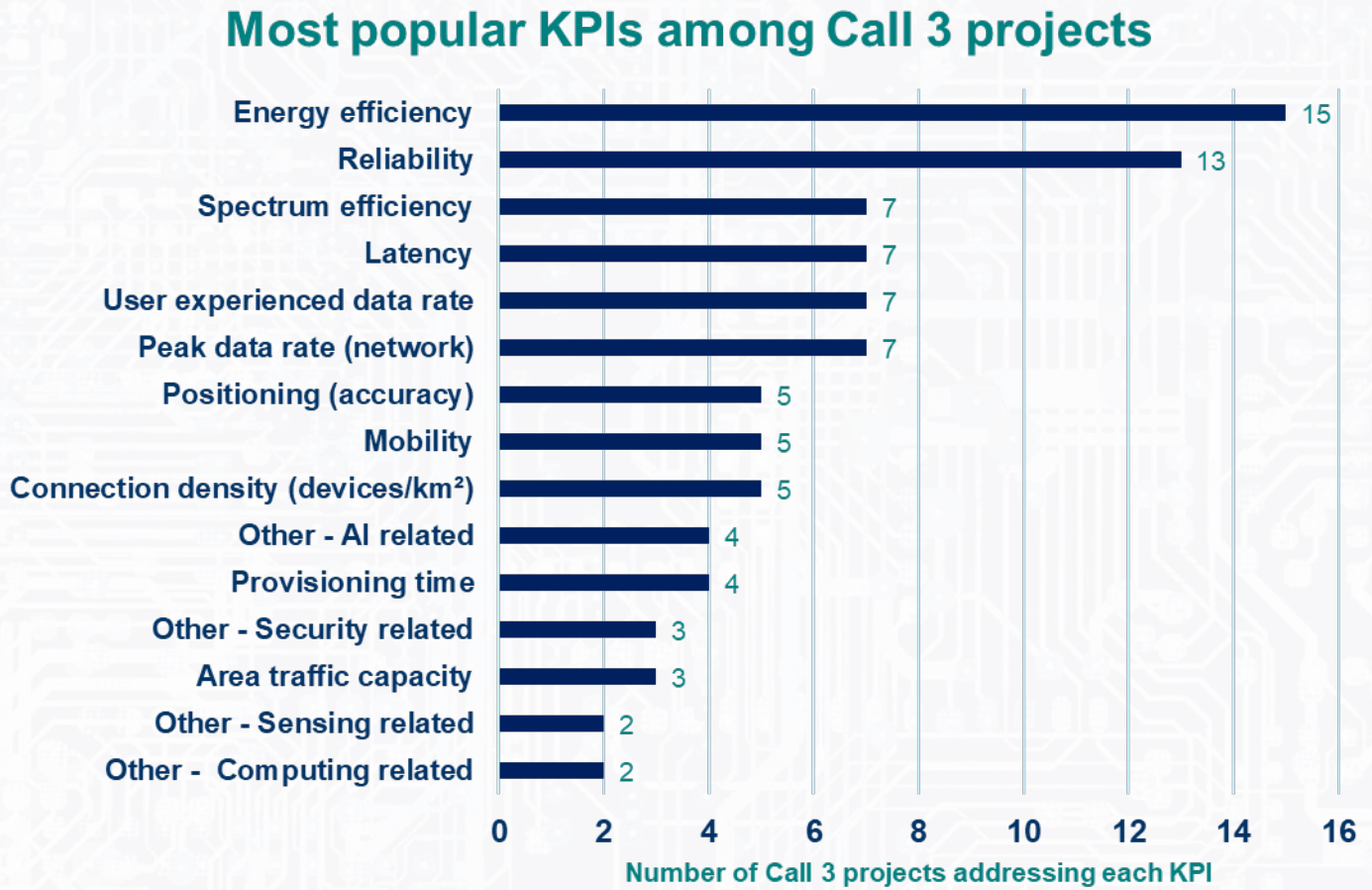
Technical Section

- Key Performance Indicators (KPIS)
- B5G/6G Technological Enablers
- Network Aspects Addressed
- Verticals
- Use Cases & Applications
- Use of AI/ML
- Standardisation Targets
- Validation Methodologies
- End User Equipment
- Trials & Pilots (Planning)
- Open Source Solutions
- Energy Efficiency Issues

Question

Technical, T1:
Which of the following main KPIs will your project address?

Call 3 (15 projects)



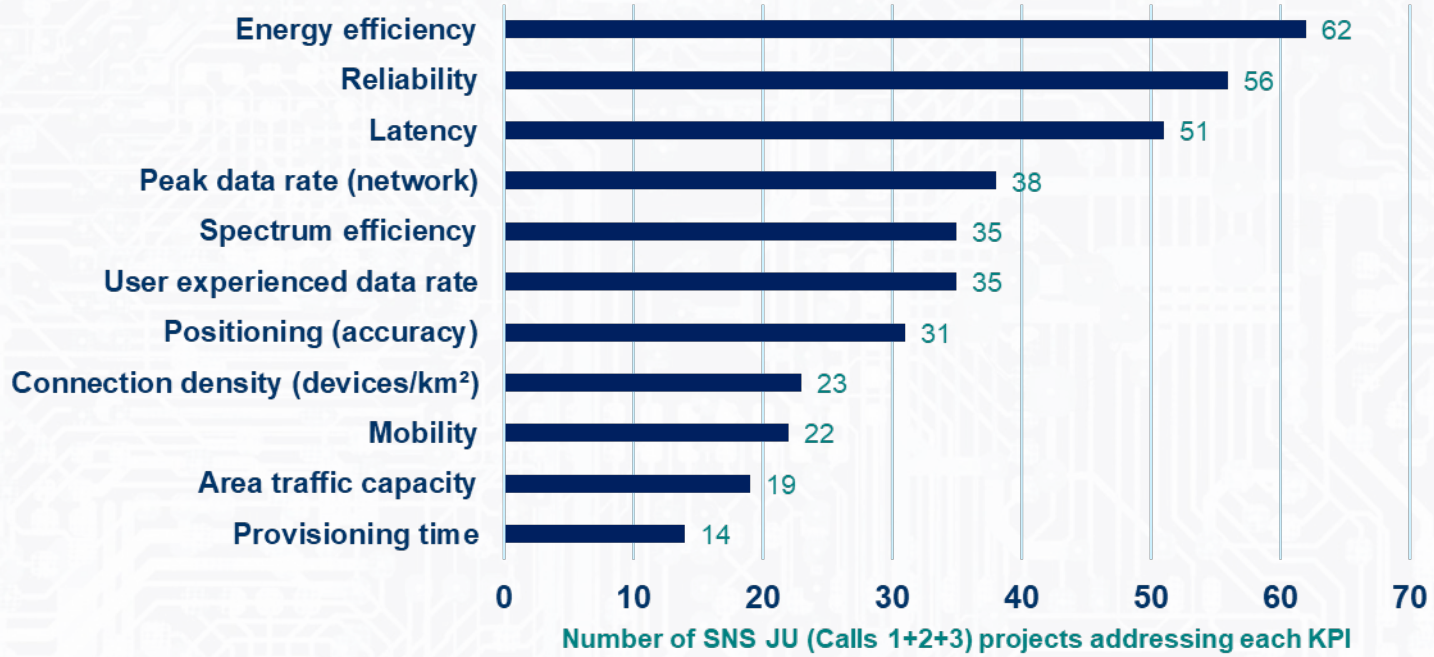
Key Insights

- Energy Efficiency & Reliability by far the most addressed KPIs (following the scope of the WP2024)
- Traditional Network KPIs maintain a solid momentum in Call 3
- AI-related and Security-related KPIs receive increased attention in Call 3 (reported under other)

Question

Technical, T1: Main KPIs across all active SNS projects (Call 1 + Call 2 + Call 3)

Call 1+ Call 2 + Call 3 (78 projects)



Key Insights

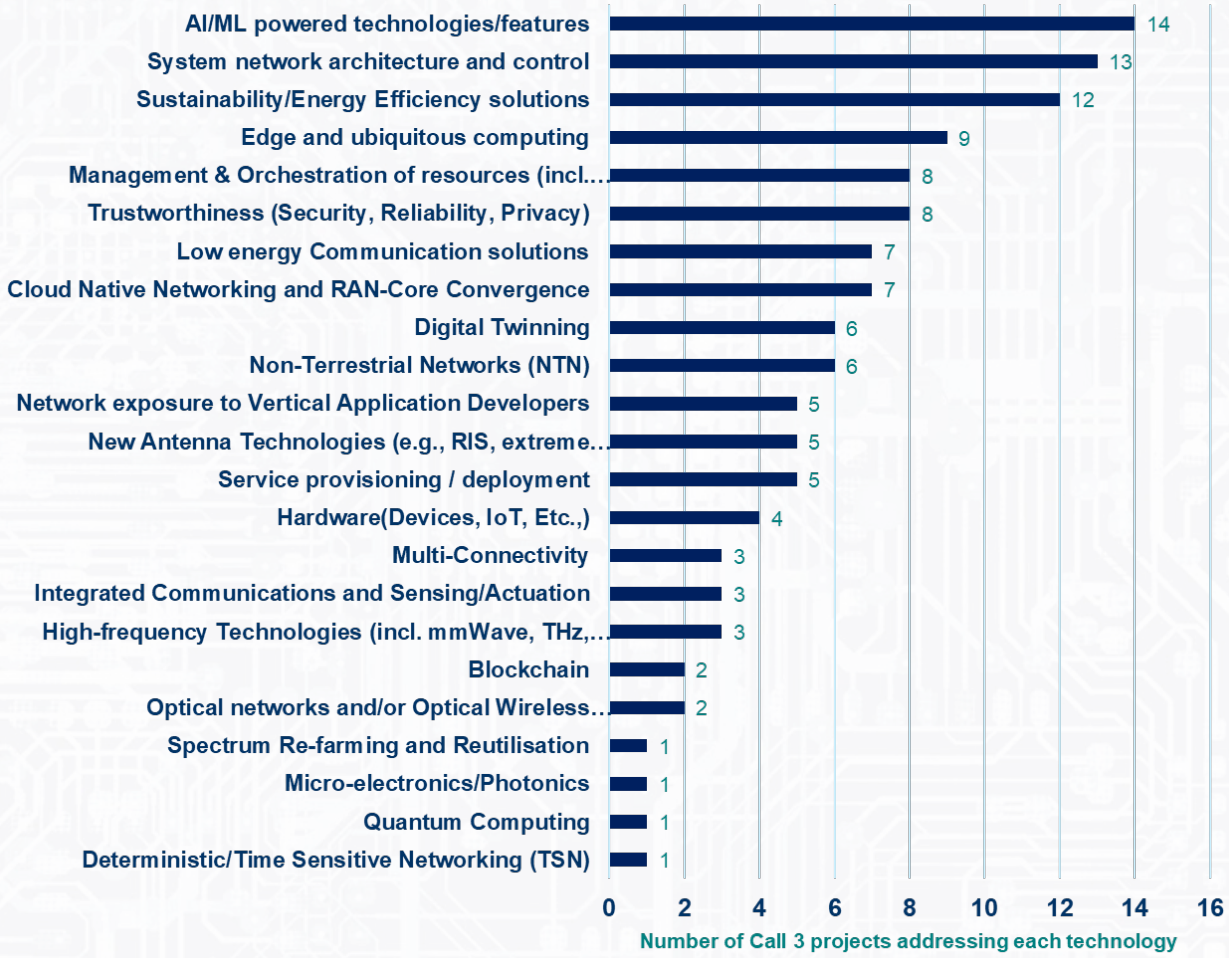
- A total of 78 projects are currently active in SNS JU
- 3 main "priority" tiers can be observed
  - 1s Tier: Energy Efficiency, Reliability, Latency
  - 2nd Tier: Peak data rate, User data rate, Spectrum efficiency, Positioning
  - 3rd Tier: Connection Density, Mobility, Area traffic capacity, provisioning time
- Similar trends with previous years

Question

Technical, T2:
Which of the following technological issues/aspects will your project address?

Call 3 (15 projects)

Technologies addressed by Call 3 projects



Key Insights

- Broad range of technologies / solutions / enablers researched by Call 3 projects
- AI/ML and System Architecture remain at the top of the preference of SNS JU researchers
- Call specific technologies have been boosted (e.g., Sustainability, Edge and ubiquitous computing,, Trustworthiness, Low energy communication)
- Technologies targeted by previous calls are less prominent as expected (e.g., micro-electronics, TSN, Optical)

Question

Technical, T2:
Which of the following technological issues/aspects will your project address? (Call 1 + Call 2 + Call 3)

Key Insights

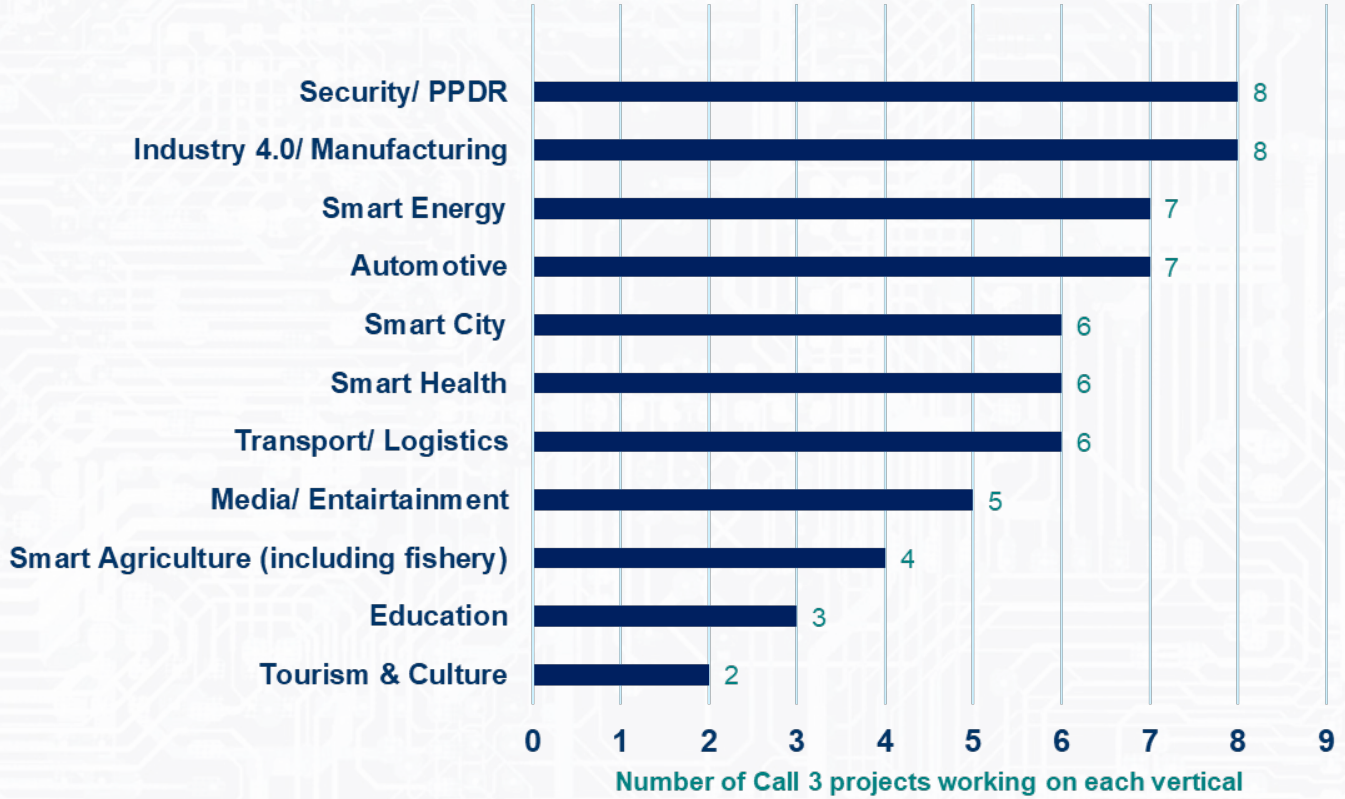
- A total of 78 projects are currently active in SNS JU
- AI/ML functionality & System Network Architecture are by far the most investigated issues among SNS projects
- A very broad range of technologies/issues (22+) are investigated by SNS projects
- Cross-comparison of results will assist the validation of the outcomes and extraction of common insights.

Question

Technical, T3:
Which of the following Vertical sectors will your project support?

Call 3 (2025) - Verticals

Most popular Verticals among Call 3 projects



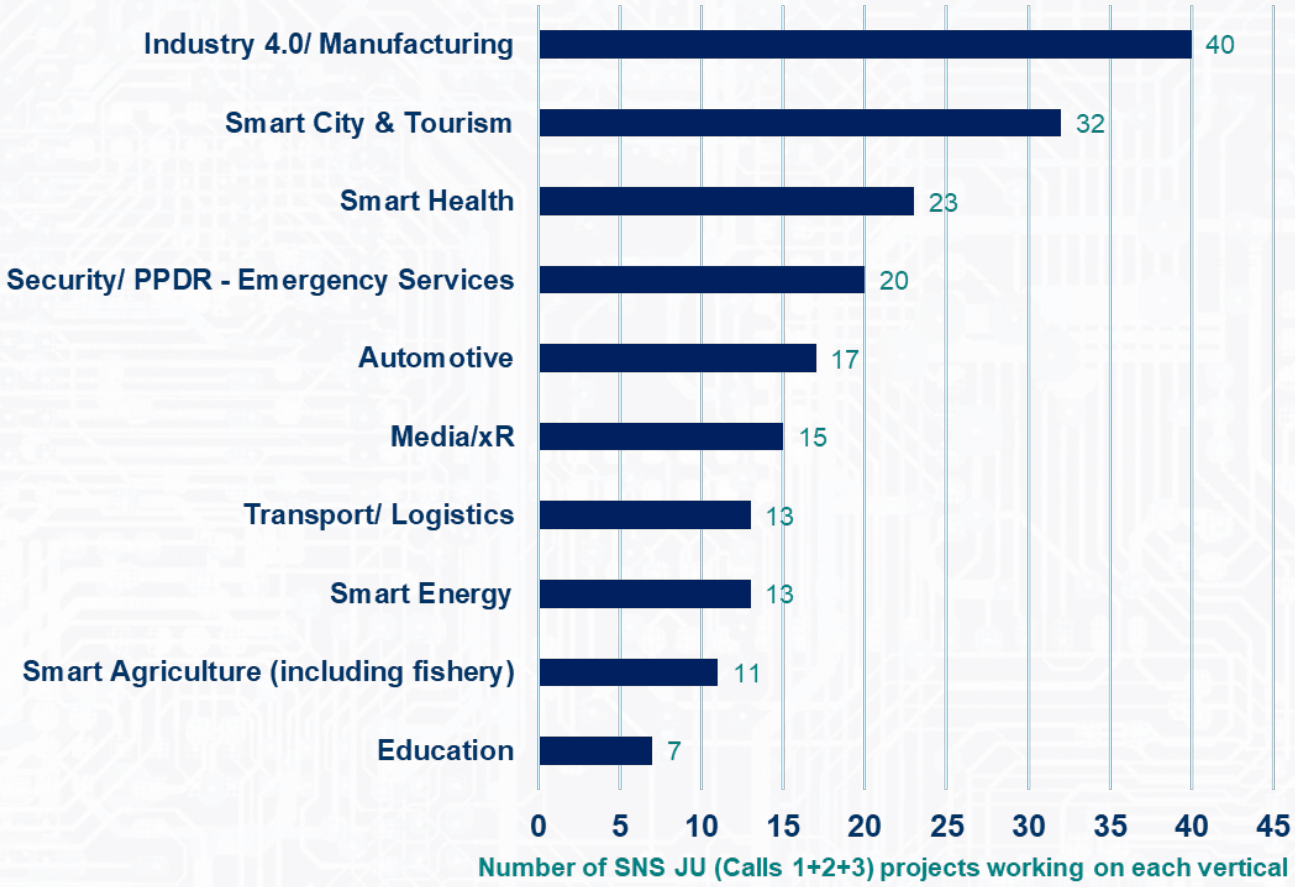
Key Insights

- More than 11 different vertical sectors addressed
- Security & I4.0 remain at the top of preference
- Smart Energy & Automotive are more popular with Call 3 projects
- 3 projects developing technologies which are applicable to almost all verticals
- 5 projects addressing very specific vertical sector (focused research)

Question

Technical, T3:
Which of the following Vertical sectors will your project support??

Call 1+ Call 2 + Call 3



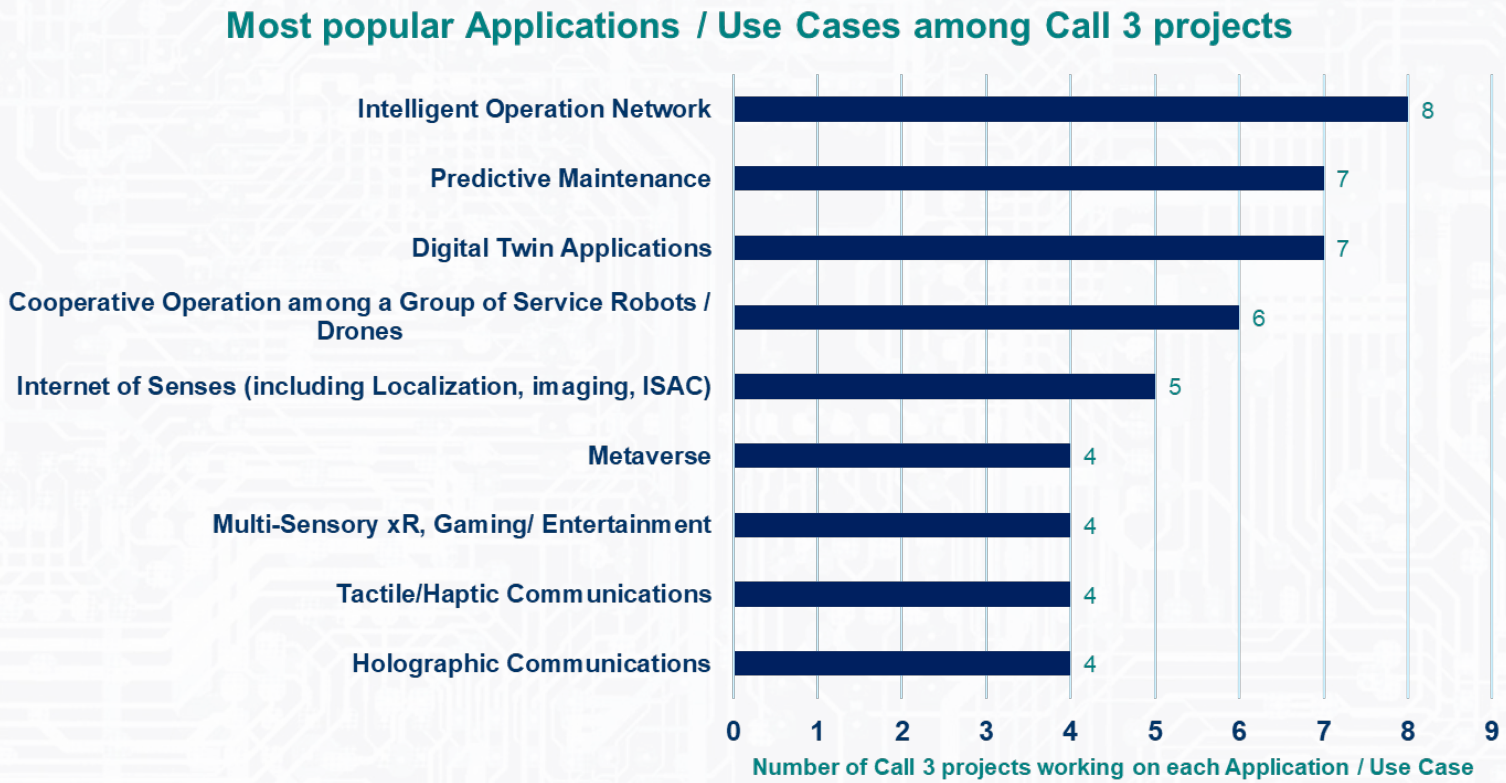
Key Insights

- Trends remain similar to previous years with I4.0 & Smart City sectors at the top of preferences
- Broad coverage of vertical sectors with good overlap, ensuring cross-validation opportunities

Question

Technical, T3b: Which of the following Applications / Use cases will your project support?

Call 3 (2025) – Applications / Use cases



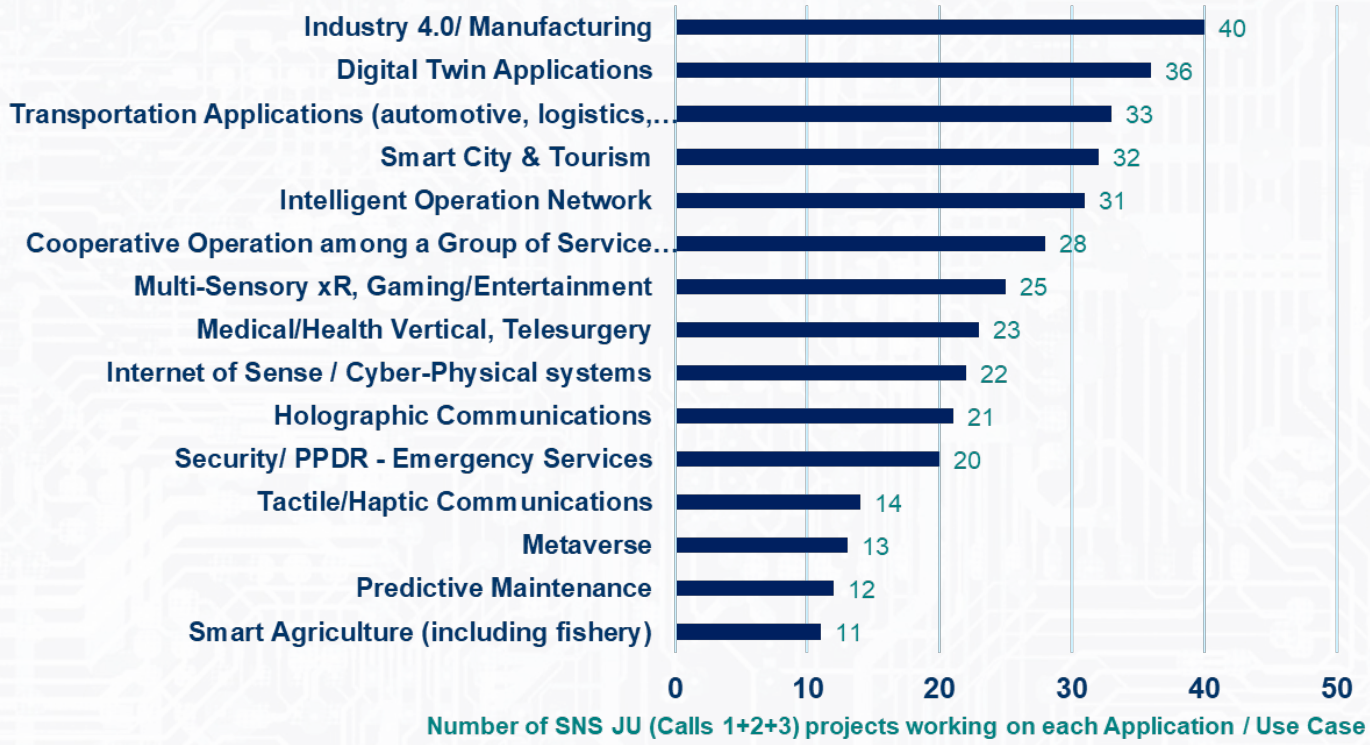
Key Insights

- Intelligent Operation Networks at the top of preferences of Call 3 projects
- Predictive maintenance & Digital Twins present increased interest with Call 3 projects
- Very good coverage of multiple Applications / Use cases
- Additional applications for niche markets also developed

Question

Technical, T3b: Which of the following Applications / Use cases will your project support?

Call 1+ Call 2 + Call 3



Key Insights

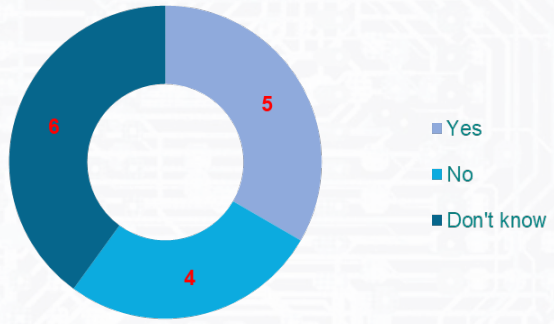
- Significant number of applications / use cases developed across all SNS Ju projects
- I4.0, DT, Transportation and Smart City applications are the most popular
- Broad coverage of applications / use cases with good overlap, ensuring cross-validation opportunities

Question

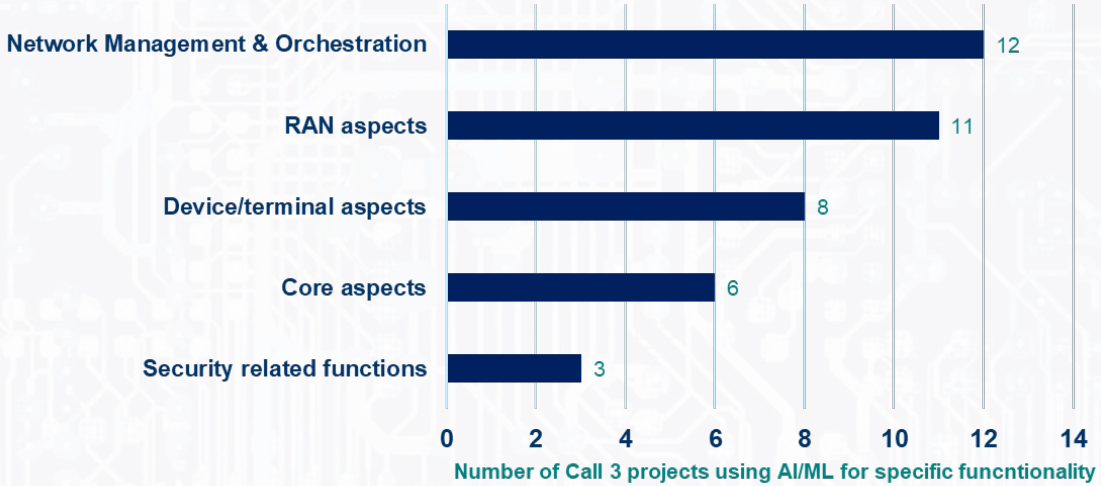
Technical, T4:
Will your project make use of AI/ML?
Do you plan to deliver/provide access to your AI training data sets?

Call 3 (15 projects)

Do you plan to provide access to your AI training data sets?



AI/ML Functionality uses within Call 3 projects



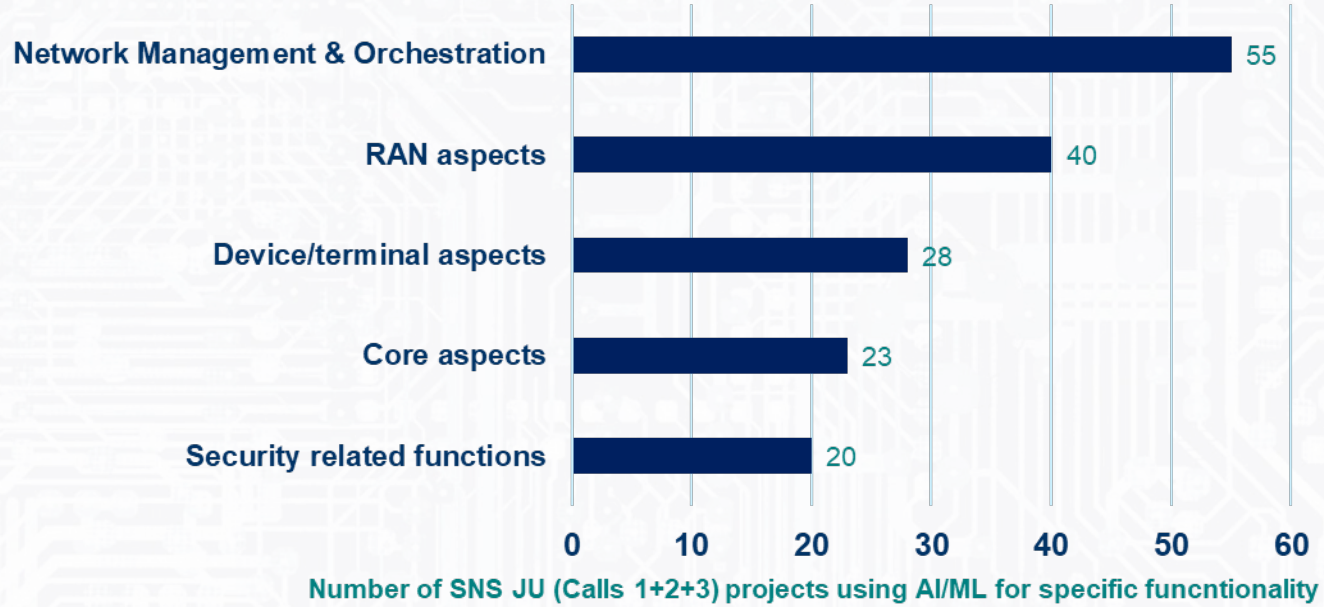
Key Insights

- **All** Call 3 projects will make use of AI/ML
- 40% of them are still not certain that they can provide their training data sets (needs to be clarified)
- The targeted functionalities present the same trends as previous years / calls

Question

Technical, T4:
For which of the below items do you plan to use AI/ML functionality?

Call 1+ Call 2 + Call 3



Key Insights

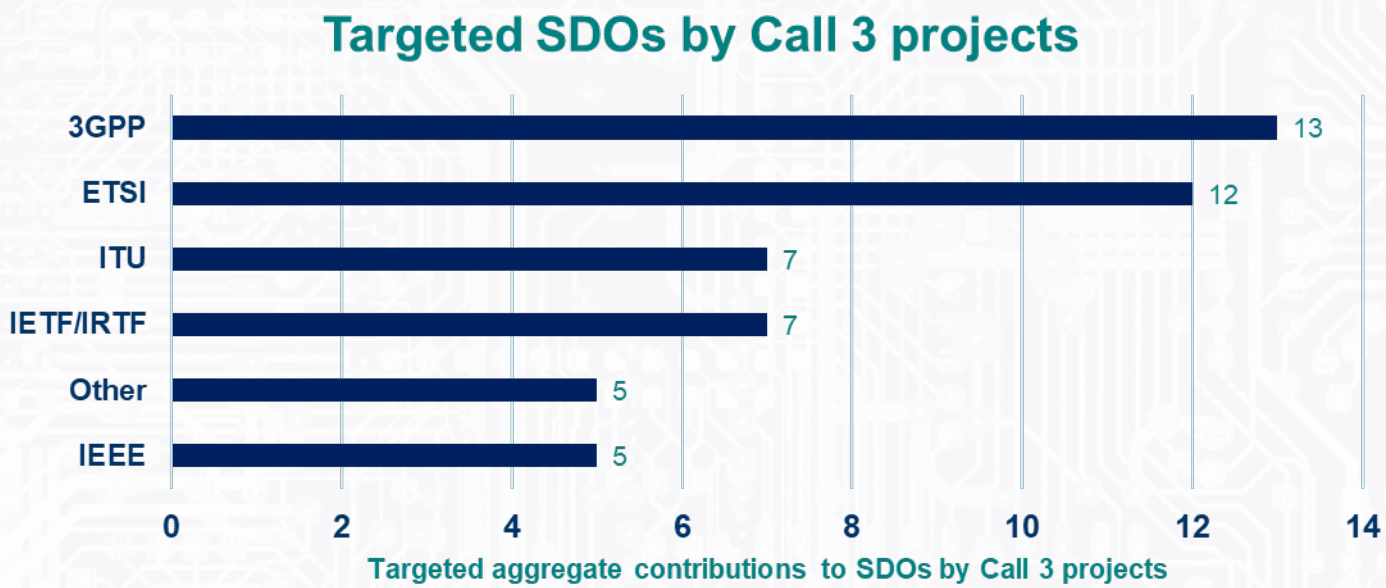
- Network Management and Orchestration is by far the most popular functionality for implementing AI/ML
- RAN is also very popular, offering multiple different optimization opportunities
- All layers of the network and devices are very well covered.

Question

Technical, T5:

- Which standardisation/specification bodies will your projects target for contributions?

Call 3 (2025) – Targeted SDOs



Key Insights

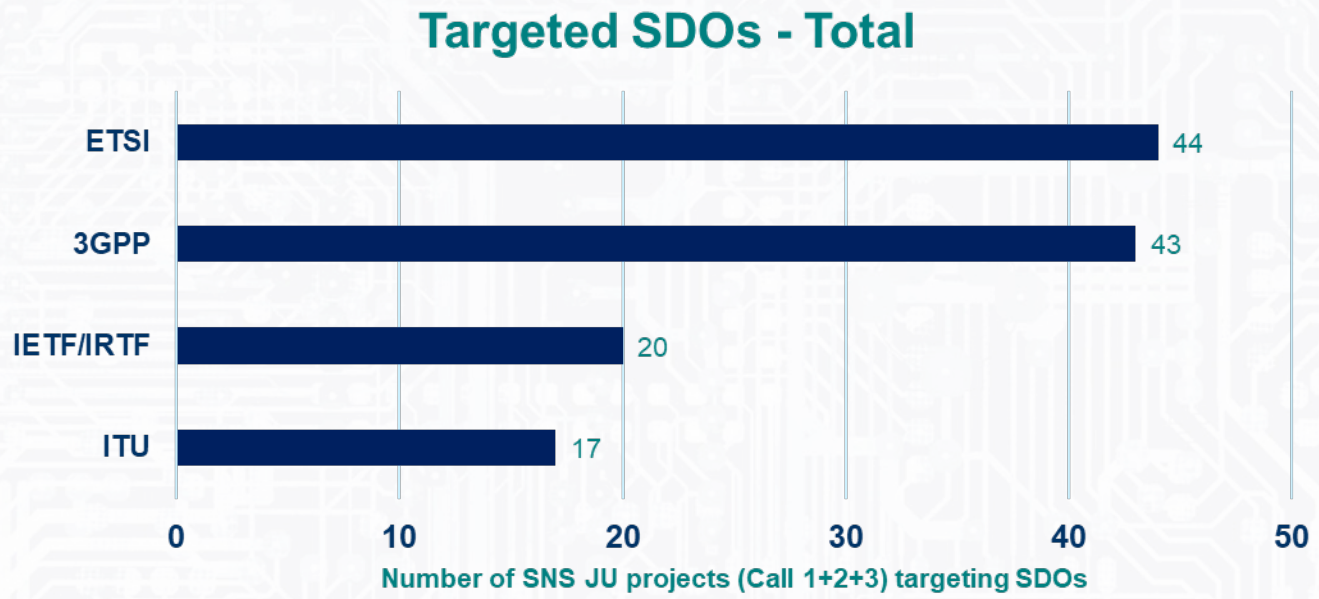
- ETSI and 3GPP are steadily the most popular SDOs (87% and 80% of Call 3 projects targeting these SDOs respectively)
- O-RAN, ITU and IETF/IRTF are also quite popular
- Similar trends to previous Calls observed

Question

Technical, T5:

- Which standardisation/specification bodies will your projects target for contributions?

Call 1+ Call 2 + Call 3



Key Insights

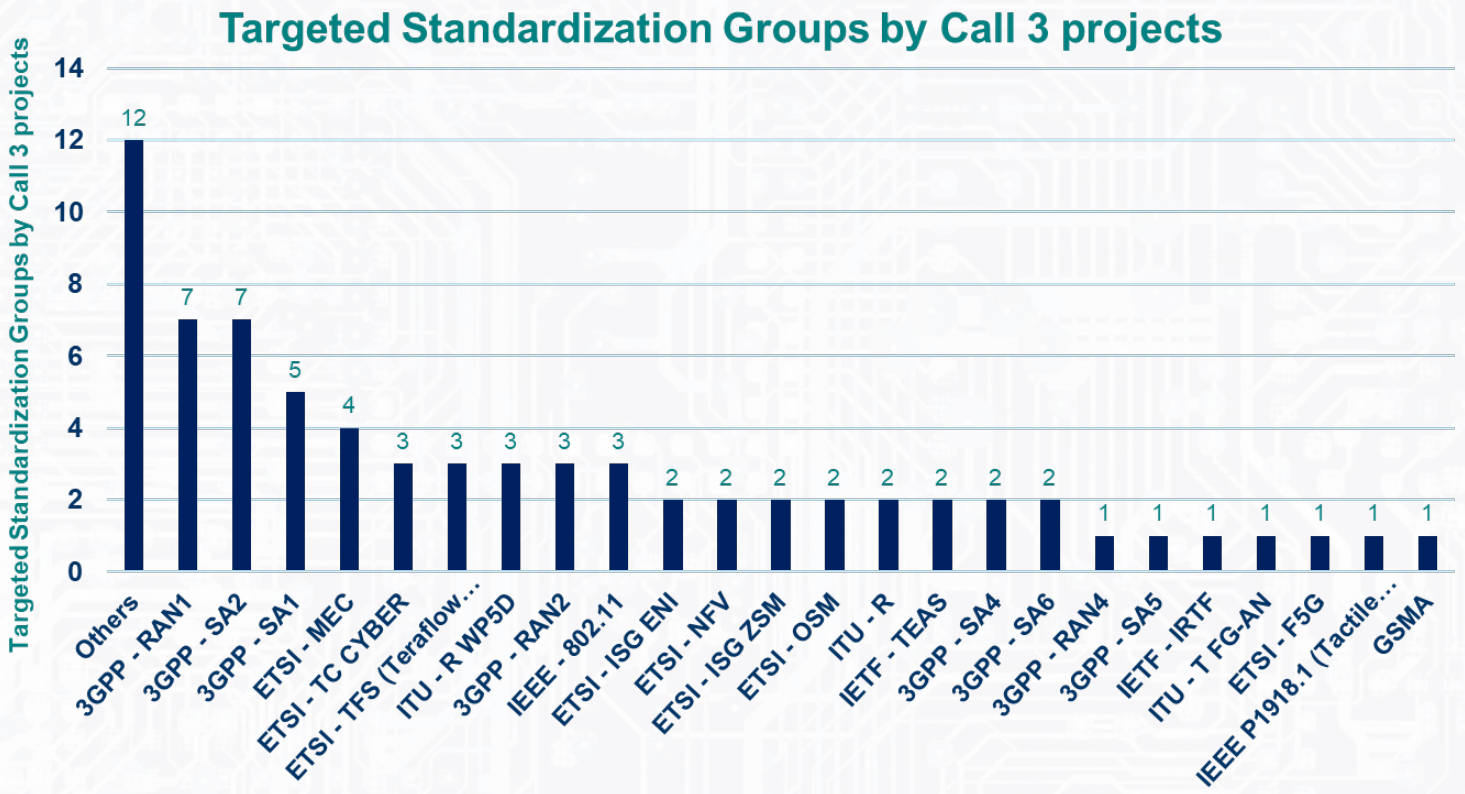
- ETSI and 3GPP are steadily by far the most targeted SDOs throughout all 3 Calls
- Very good representation to the other major SDOs as well.
- Trends do not present significant variation throughout the years / calls

Question

Technical, T5:

- Which standardisation/specification bodies will your projects target for contributions?

Call 3 (2025) – Targeted Standardization Groups



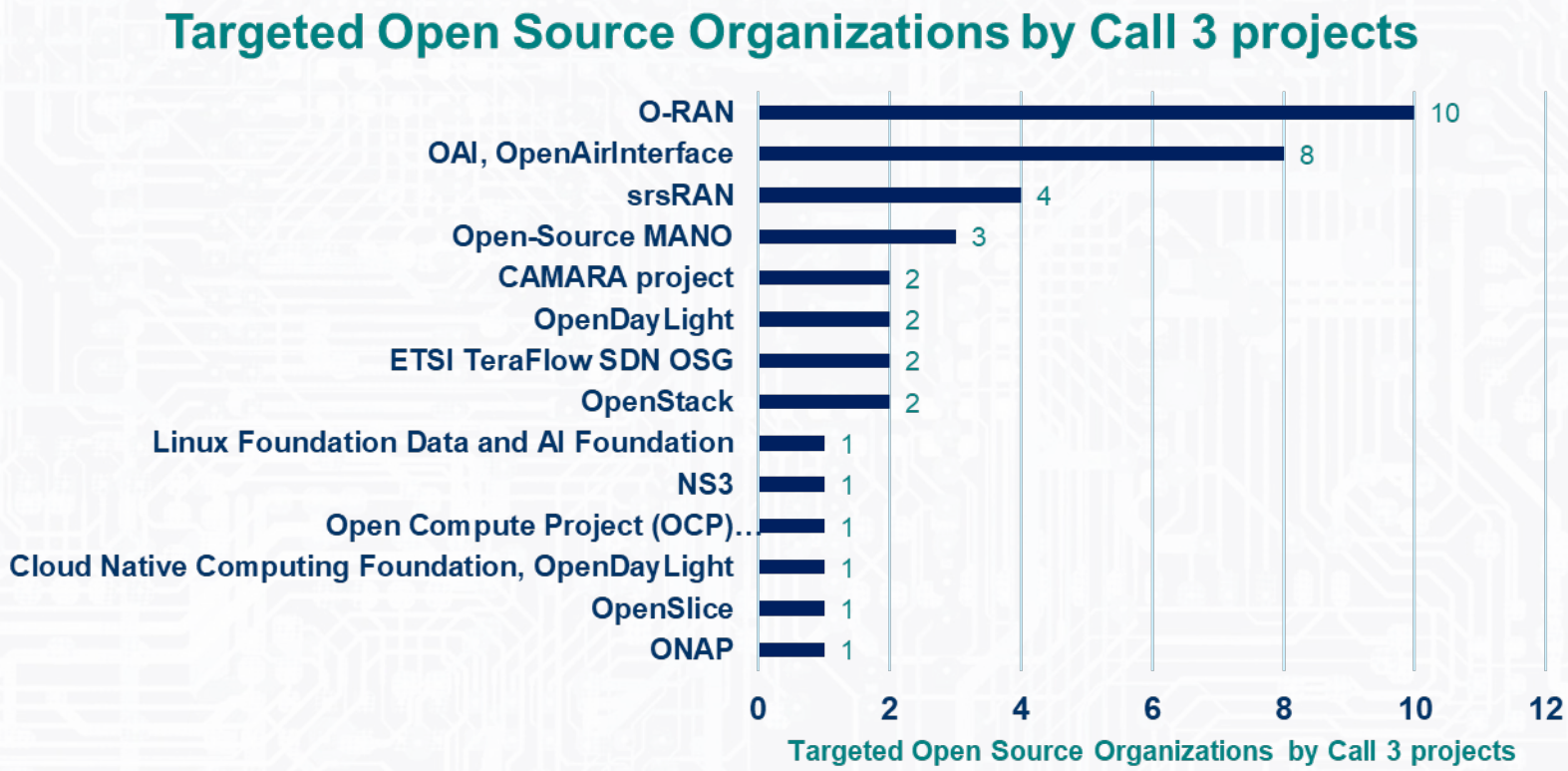
Key Insights

- 3GPP RAN1 & SA2 are the most popular groups
- Healthy spread of contributions across multiple SDOs and sub-groups (more than 30 sub-groups targeted)
- ISO, CAMARA and CEN-CENELEC sub-groups among the “other” category

Question

Technical, T6:
To which Open-Source organisations does your project contribute?

Call 3 (2025) – Open-Source Targeted Contributions



Key Insights

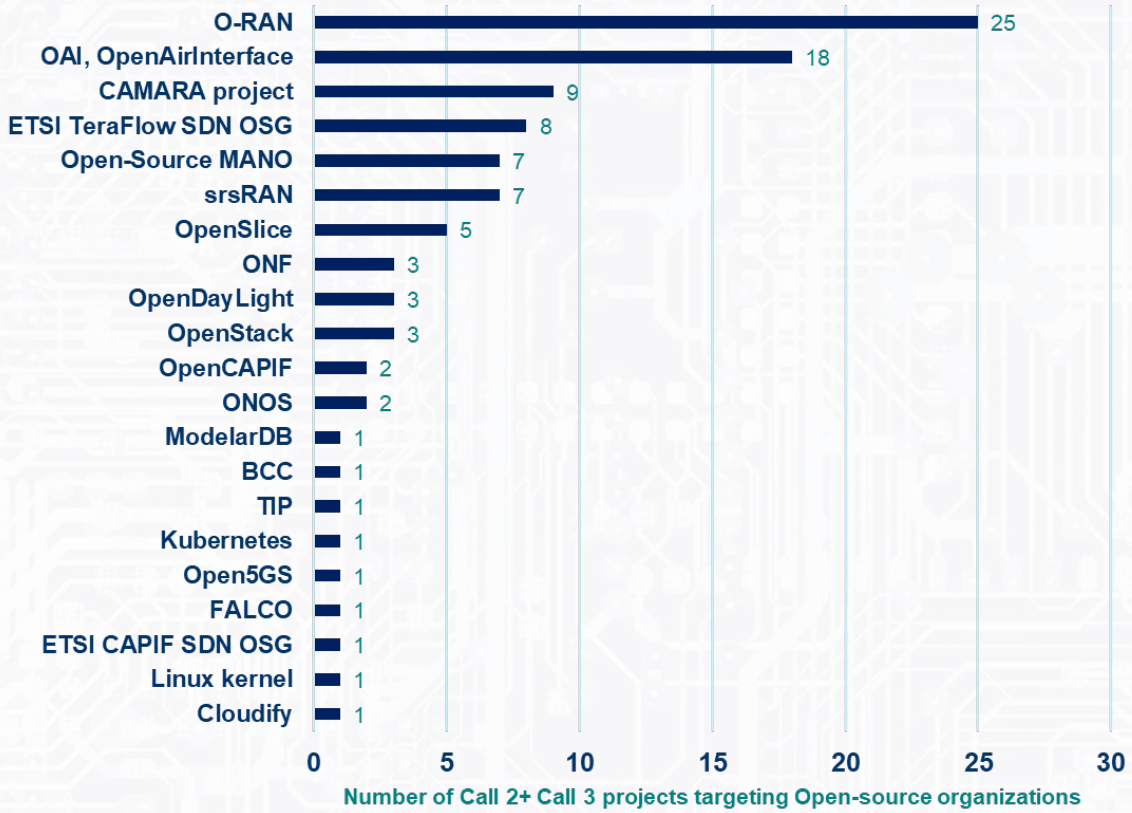
- ORAN and Open Air Interface are by far the most popular organizations
  - Same trend as previous years / calls
- Multiple other organizations targeted, with significant coverage from SNS JU projects

Question

Technical, T6: To which Open-Source organisations does your project contribute?

Call 2 + Call 3

*No Call 1 Data Available



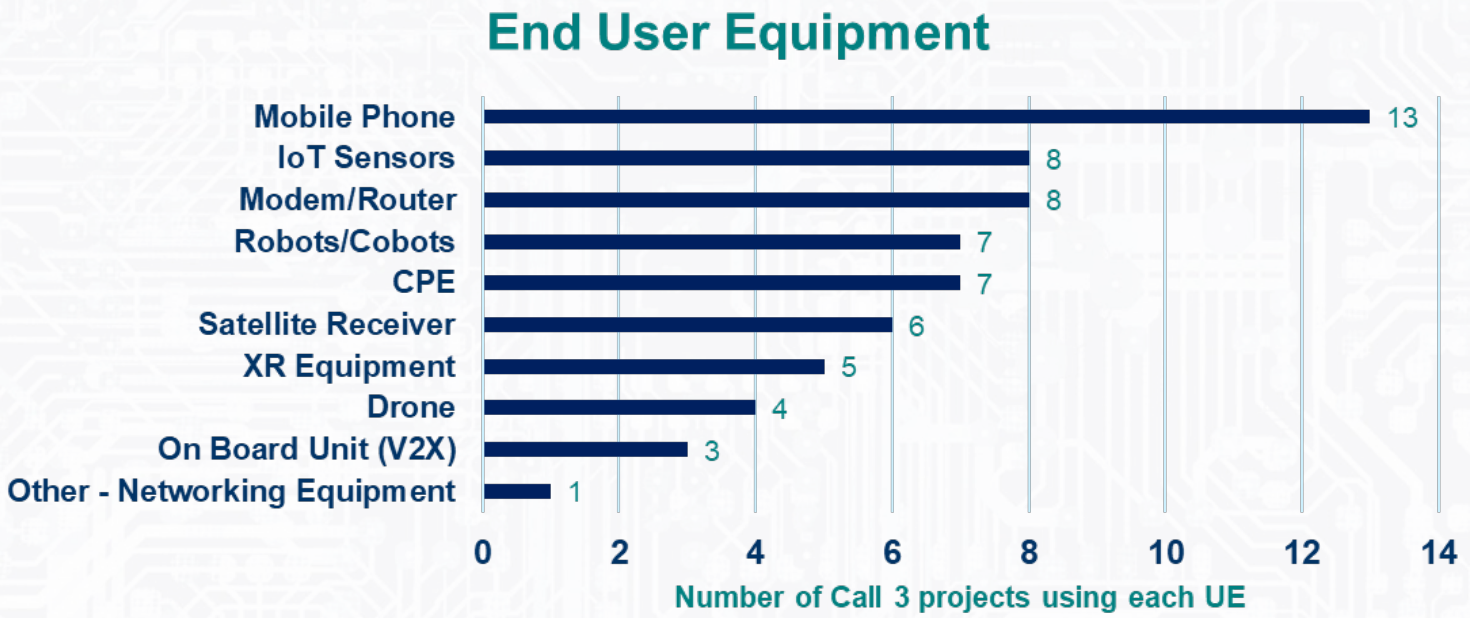
Key Insights

- Same trends observed among Call 2 and Call 3 projects
- Some less popular organizations targeted more or less per call, depending on the work of the projects

Question

Technical, T7:
What type of (End User) Equipment will be used for testing/trialling in your project?

Call 3 (2025) – Types of UEs



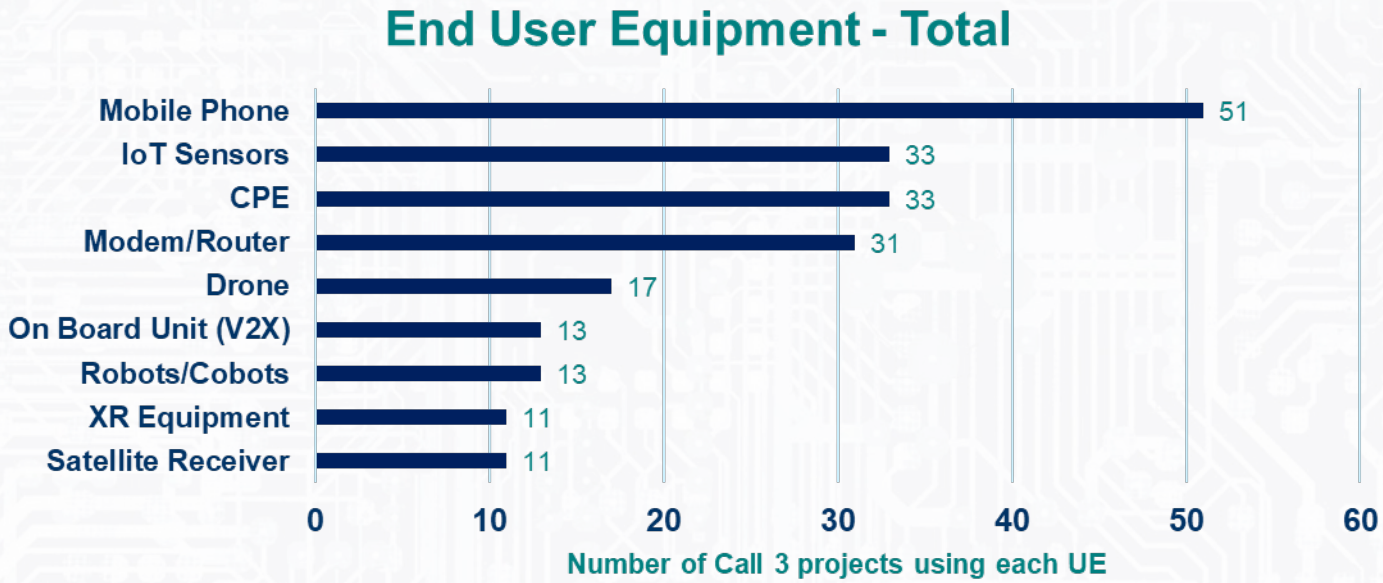
Key Insights

- Mobile phones are steadily the most popular UE
- Broad range of UEs used
- Different UEs depending on the focus of the project

Question

Technical, T7:
What type of (End User) Equipment will be used for testing/trialling in your project?

Call 1+ Call 2 + Call 3 - Types of UEs



Key Insights

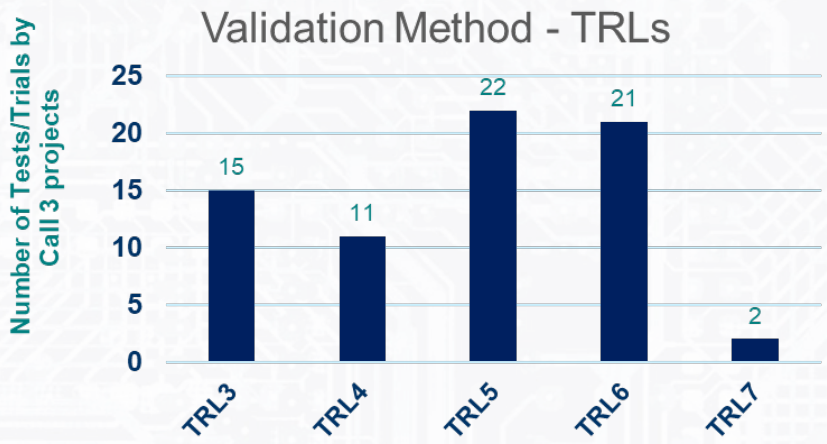
- Mobile phones confirmed as the most popular UE by far
- Good coverage of multiple types of UEs across the SNS projects
- CPEs, IoT sensors and Modem/Routers are very popular among SNS projects
- More specialized UEs only used by projects with specific targeted Use cases

Question

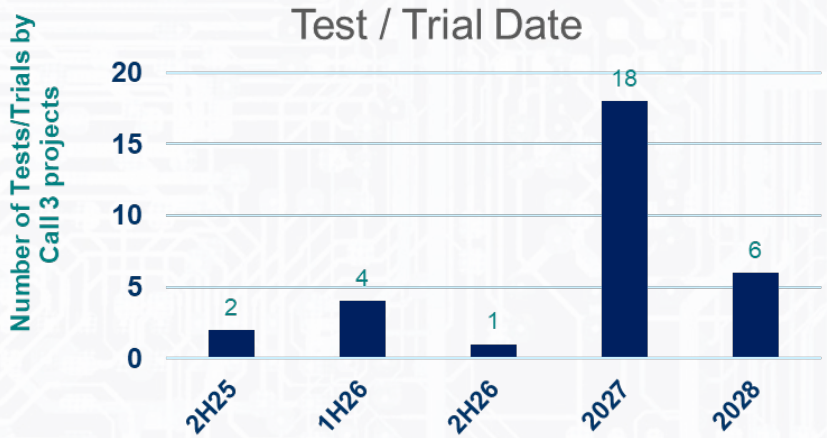
Technical, T8: Which methods will your project use to validate the technologies developed?

Call 3 (15 projects)

Validation Method - TRL



Test / Trial Date



Key Insights

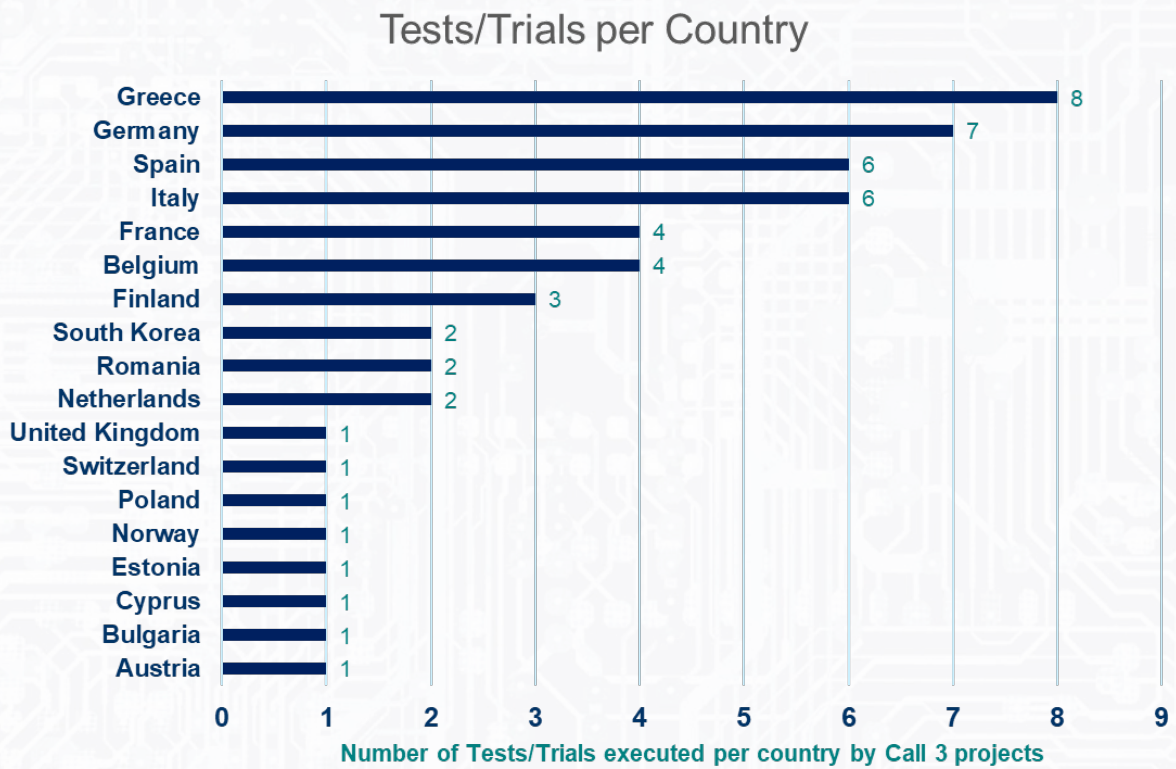
- Trials (TRLs 5-6) is the most popular validation method among Call 3 projects
- TRL3 PoCs and TRL4 Lab Validation are also well covered within Call 3 projects
- 2 Pilots currently targeted
- Most experiments targeted in 2027
- Early experimentation set to begin by end 2025/2026

Question

Technical, T8: Which methods will your project use to validate the technologies developed?

Call 3 (15 projects)

Test/Trials per country



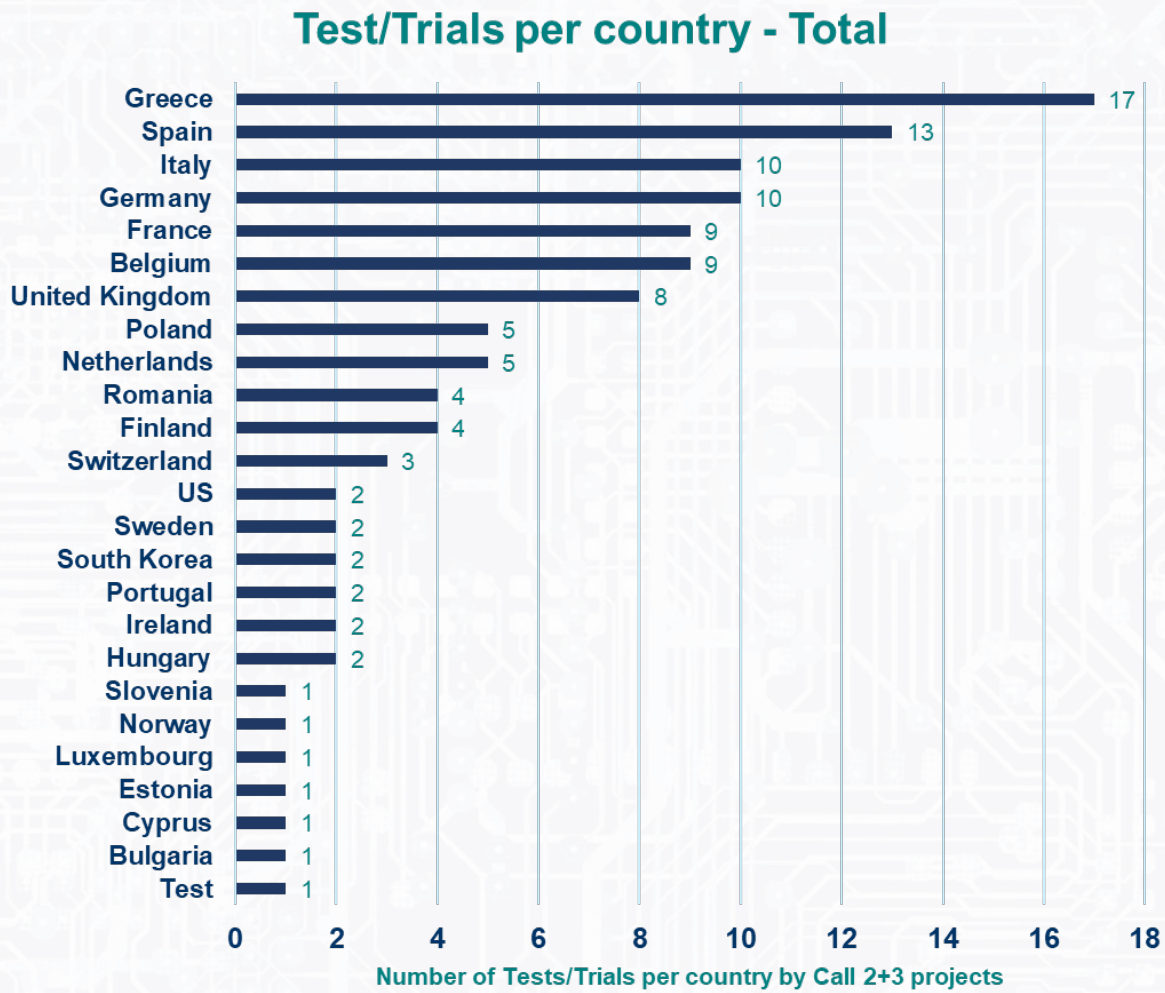
Key Insights

- Good spread of test/trial sites across Europe for Call 3 projects
- Some inputs still TBD in the answers
- Experiments/trials to take place in 17 EU countries and South Korea (EU-ROK project)
- Greece, Germany, Italy and Spain among the top locations for experimentation
- Additional insights expected from the Vertical Engagement Tracker (VET)

Question

Technical, T8: Which methods will your project use to validate the technologies developed?

Call 2 + Call 3



*No Call 1 Data Available

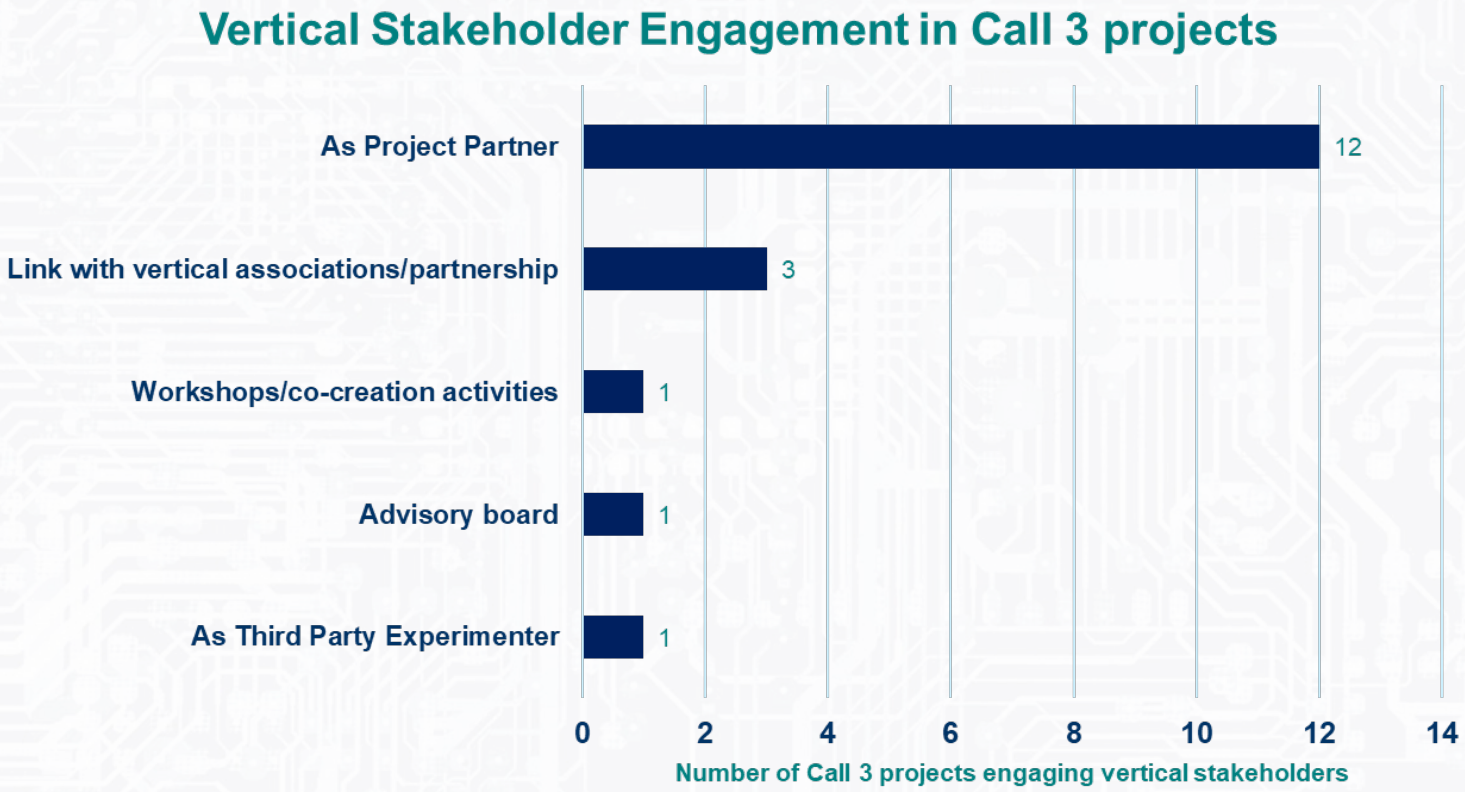
Key Insights

- Tests / Trials taking place in more than 25 EU countries + International Trials
- Southern-European countries are leading in terms of tests/trials
- Good spread of test/trial sites across the EU

Question

Technical, T9a: How do you engage verticals in your project?

Call 3 (2025) – Vertical Engagement



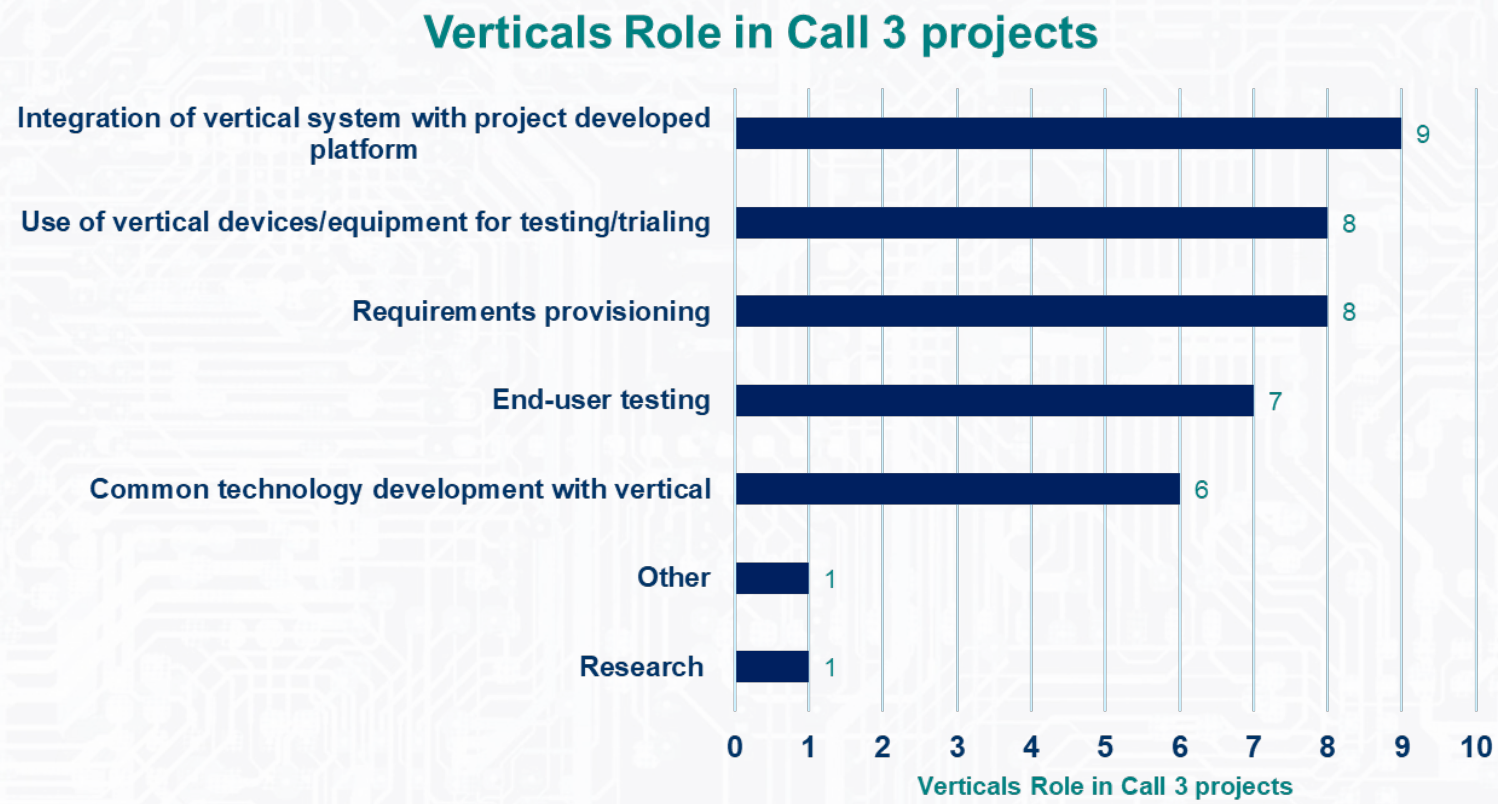
Key Insights

- Most of the projects are involving vertical stakeholders as project partners
  - Secure greater commitment from the vertical side
- Other engagement strategies are via, co-creation activities, Advisory boards and workshops

Question

Technical, T9b:
What is the role of verticals in your project?

Call 3 (2025) – Vertical Role



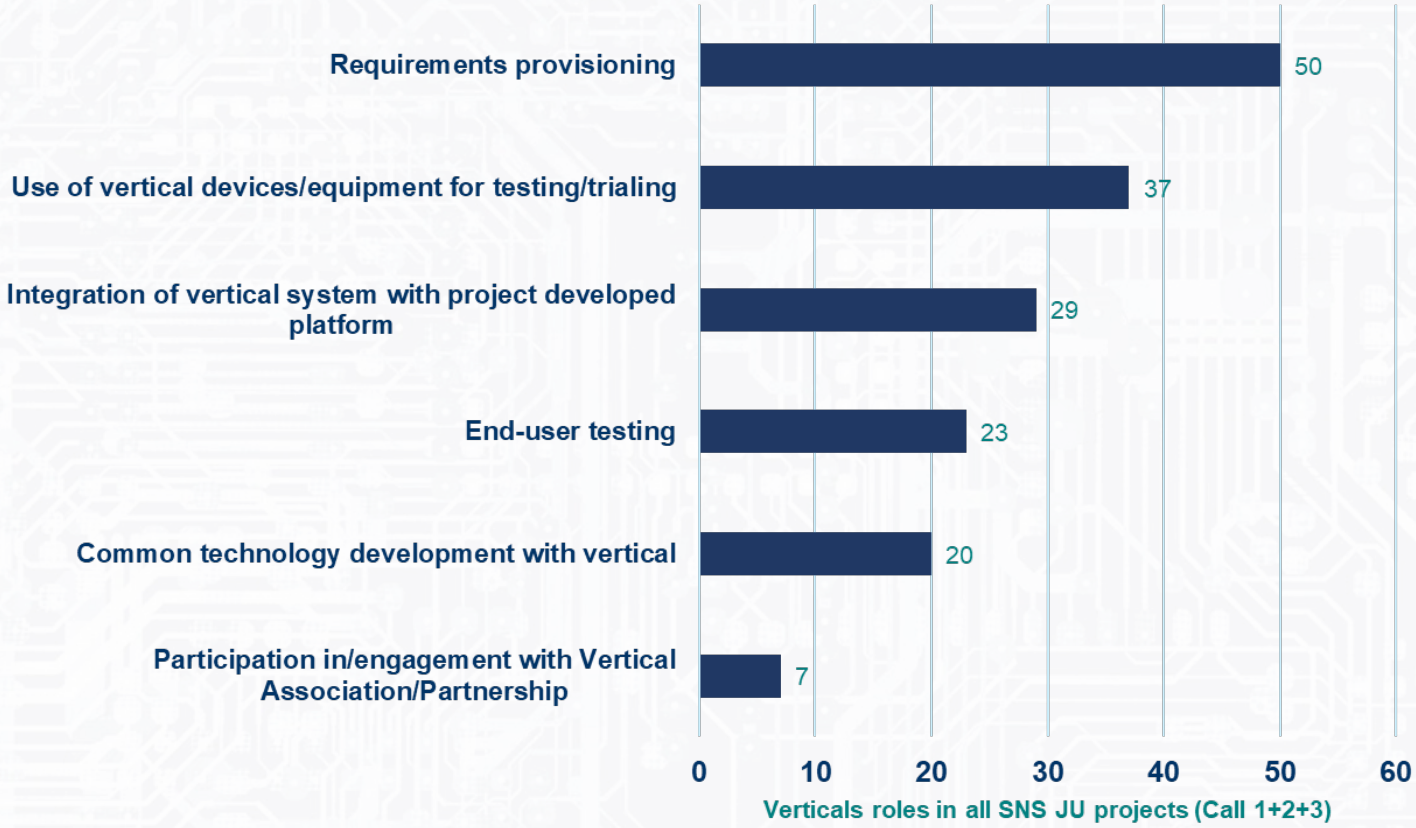
Key Insights

- The role of verticals is well balanced between the different options but “Integration of vertical system with project developed platform” is the most popular one.
- End-to-End Involvement of vertical stakeholders

Question

Technical, T9b:
What is the role of verticals in your project?

Call 1+ Call 2 + Call 3 – Verticals Role



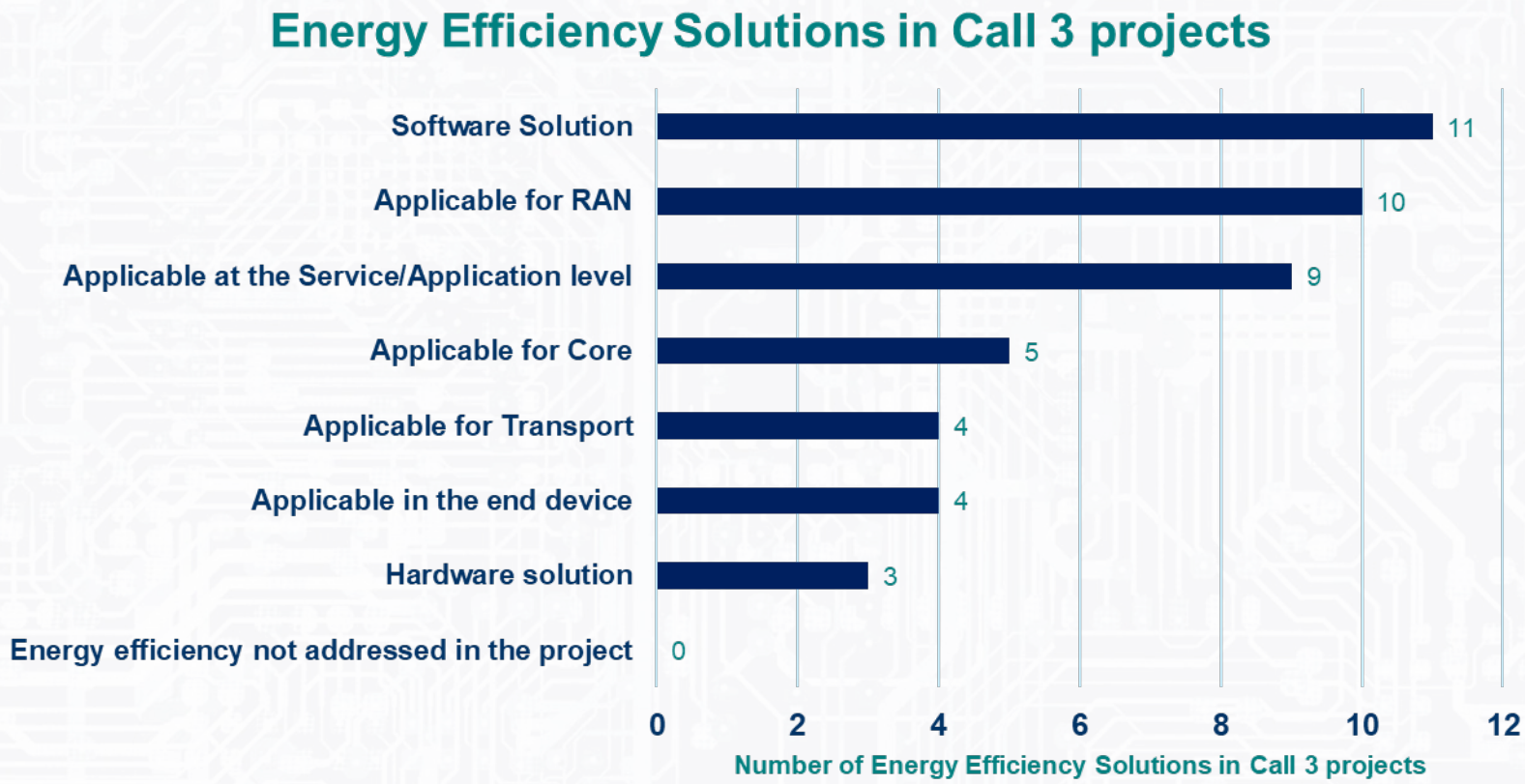
Key Insights

- Requirements provisioning remains the most popular role for vertical stakeholders
  - Trend shift in Call 3
- Vertical stakeholders involved in multiple roles in the SNS JU research
- Most roles require active participation and engagement.

Question

Technical, T10:
Does your project plan to address energy efficiency issues, and if so, how?

Call 3 (2025) – EE Issues



Key Insights

- All call 3 projects are investigating EE solutions
- SW-based solutions are the most popular, but a few HW-based solutions are investigated as well
- RAN & application-level solutions are the most popular, but several other options are explored as well

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THANK YOU FOR YOUR ATTENTION

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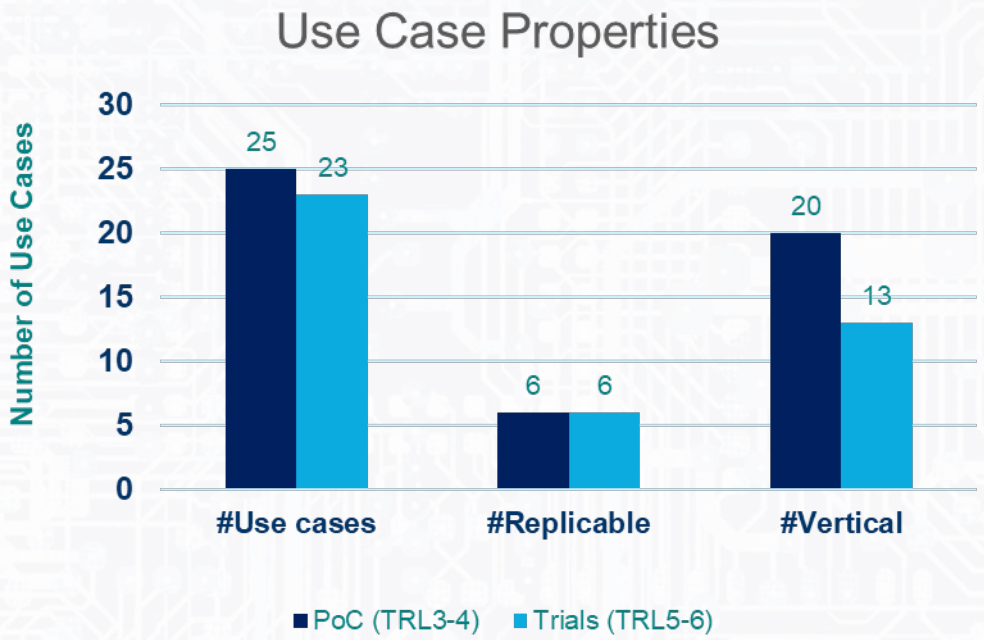
Question

Technical, T8: Which methods will your project use to validate the technologies developed?

Call 3 (15 projects)



Key Insights

- Significant number of UCs to be experimented by Call 3 projects at both lower TRL and higher TRLs
- Only 6 of each are currently envisioned to be replicable
- Most of the UCs experimented are vertical-oriented.