



CELTIC-NEXT

Σeureka Cluster

Autumn Call 2023, Online Brokerage Event, 5th Oct 2023

Xavier Priem, CELTIC-NEXT Director



Who is CELTIC-NEXT?



www.celticnext.eu



CELTIC-NEXT is the world industry-driven ECP* ICT** not for profit **cluster** involving all the major ICT** industry players, service providers, many SMEs, and research institutions & academia to enable a secured, trusted, and sustainable digital society.

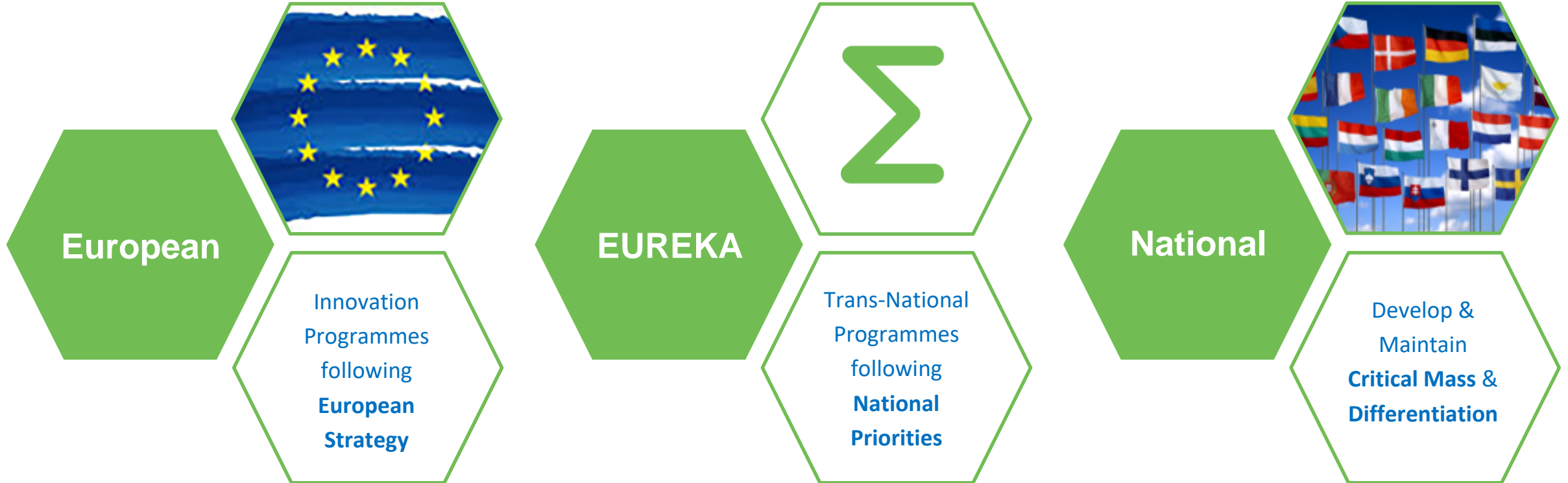
*Eureka Clusters Program, launched on 17/6/2021, CELTIC-NEXT was launched earlier in 2003

*Eureka Clusters Program, launched on 17/6/2021

** Information & Communications Technologies

*** Research, Development & Innovation

European innovation landscape



Eureka Clusters Programme overview

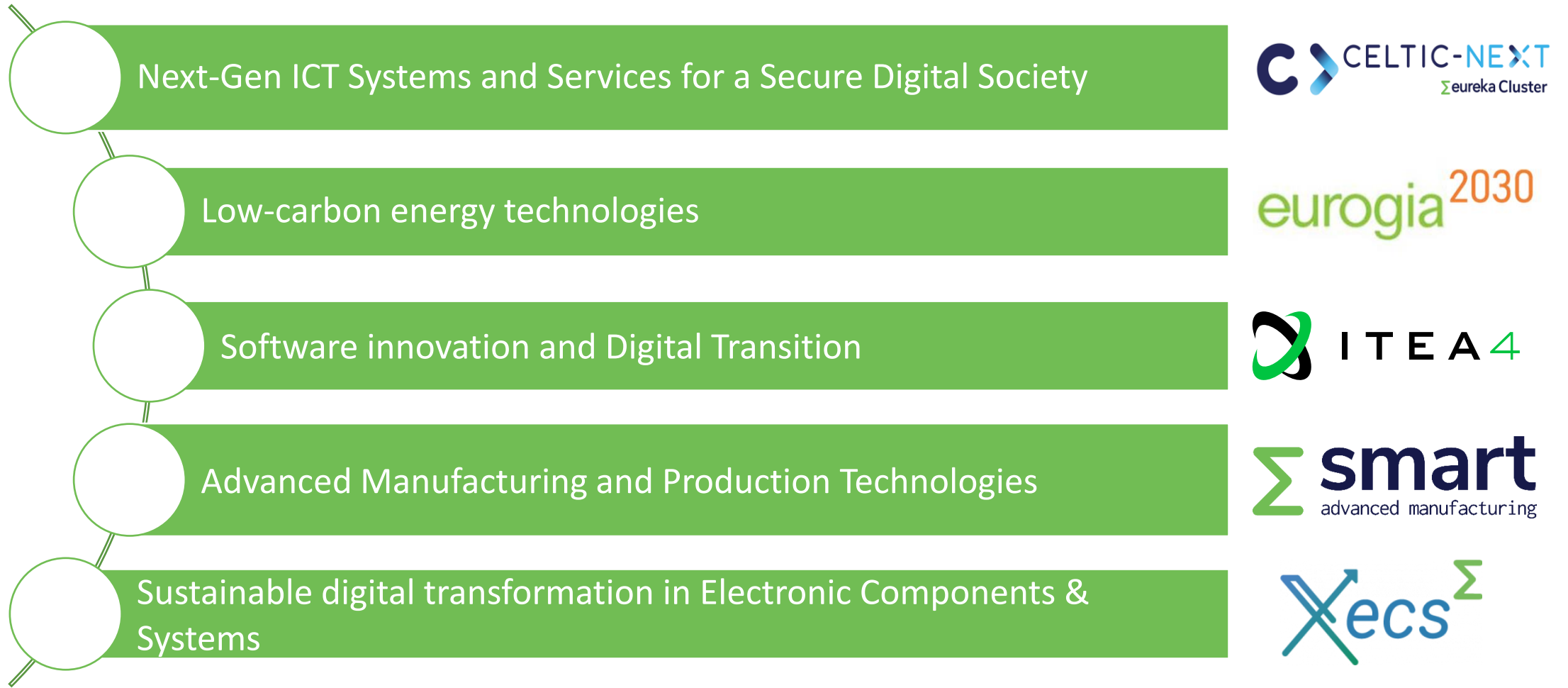
The Eureka Clusters Programme (ECP) is a long-term intergovernmental initiative which supports RD&I communities in strategically important areas

- Programme launched in June 2021 (by the inclusion of pre-existing Clusters)
- Operates in close cooperation with public authorities and main industry players
- Based on longstanding industry-driven ecosystems comprised of large companies, SMEs, RTOs, and academia, which are used to collaborating together through Clusters activities and their trustful/flexible environments



In a nutshell, ECP fosters public-private collaboration to generate highly innovative projects (i.e. extending the state of the art), which create strong impact for all participating stakeholders (e.g., technological advances and competitiveness, business aspects, economic and societal benefits for the countries)

5 Clusters, 5 RD&I areas



Clusters offer...



- Opportunities to fund transnational RD&I consortia



- Access to the best companies and knowledge institutes



- Projects initiated by industry in line with national priorities



- Global and trusted cooperation in the communities



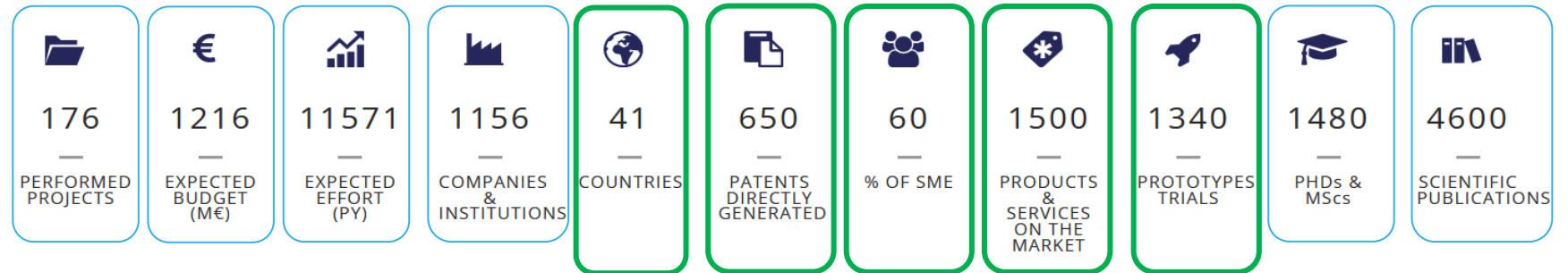
- Support of experts with an industrial viewpoint

“Are you looking to collaborate on an international and industry-driven RD&I project that covers a whole value chain?”



Who is CELTIC-NEXT?

Since its launch in 2003, CELTIC has achieved:



CELTIC-NEXT is open to all entities willing to align their business targets with their national public priorities, by running common RD&I*** projects to advance the development and uptake of advanced ICT solutions, thus accelerating their own Time-To-Market.



- **The ICT Cluster** under the umbrella of EUREKA
- Focused on **Next-Generation Communications for the Digital Society**
- **A flexible and agile community of over 1150 private and public organisations**, among prominent industry players, small & medium-sized enterprises and academic/research institutions
- **The organiser of regular calls for projects, twice a year**, in Spring and Autumn; and larger Flagship Calls
- **Financed through public and private funding** through transnational RD&I cooperation
- **Open to any organisation willing to contribute to the industry-driven European and beyond ICT research programme**



Who is CELTIC-NEXT?

CELTIC-NEXT Mission & Vision

The mission of CELTIC-NEXT is to:

- Foster our Eureka collaborative RD&I program for the ICT community
- Accelerate the deployment and uptake of advanced ICT services
- Employ the new network concepts of 5G and beyond, and lead to the innovation ownership and implementation of 6G in Eureka countries

Because It is crucial to consolidate the position of :

- Eureka manufacturers and service providers
- Eureka countries sovereignty

The strong ambition of CELTIC-NEXT is, therefore, to:

- Assist Eureka National Authorities, Eureka Industry, and Eureka Societies
- Make them access to societal benefits, competitive advantages, commercial returns of being at the forefront of the new digital era for the society

What CELTIC-NEXT does ...

CELTIC-NEXT manages an international Quality Label that enables international consortia to apply more successfully to National Funding schemes and assemble them to fund international cooperative innovation.

- CELTIC Bottom-up calls
- CELTIC Flagship projects & open calls
- EUREKA ECP Joint Calls



CELTIC-NEXT
eureka Cluster

Next-generation Communications for a secured, trusted, and sustainable digital society

Beyond 5G & 6G, Connectivity, Networks & Telco Cloud, AI and more...

Personal services, FinTech, eHealth, Smart Home, Smart Cities, Automotive Telecom, Public Safety, Smart Enterprise & Factory, IoT

SUBMIT YOUR PROPOSAL
www.celticnext.eu



CELTIC-NEXT
eureka Cluster

SPRING CALL 2023
Open for submission

Follow us on Social Media & Subscribe to our Newsletter to not miss out on any updates!

Key dates

- Proposers Brokerage Day: 17 March 2023 in Paris
- Deadline for Proposals: 24 May 2023
- Labels Notification: June 2023



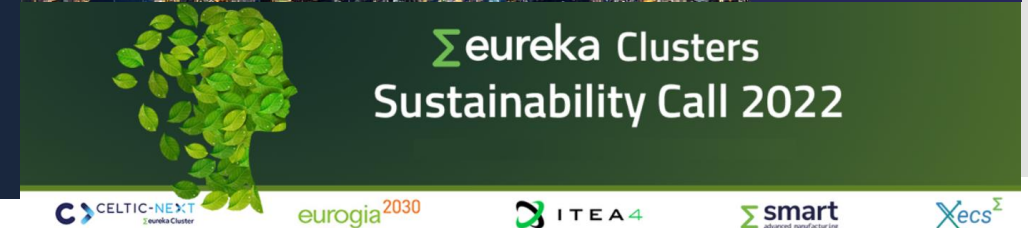
CELTIC-NEXT
eureka Cluster

SPRING CALL 2023 PROPOSERS BROKERAGE DAY

Friday 17th of March 2023
Bpifrance Le Hub, Paris

Key dates

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eureka Clusters
Sustainability Call 2022

europa 2030

ITEA 4

smart advanced manufacturing

Xecs

CELTIC's Community



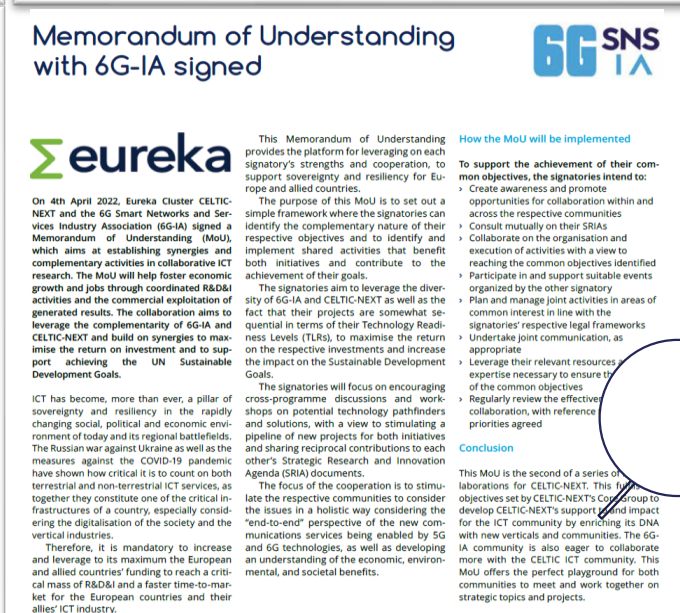
with over 1150 community members across 41 countries (Europe & beyond)

CELTIC's Community builds its Mission, Vision & Roadmap

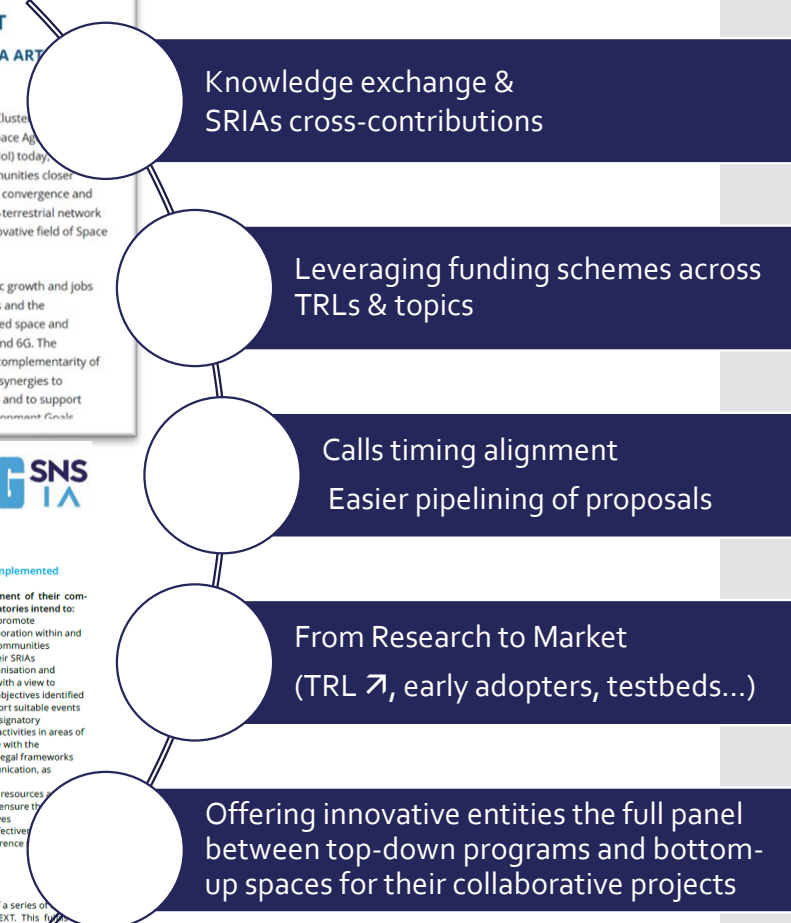


CELTIC-NEXT in the European Funding Landscape

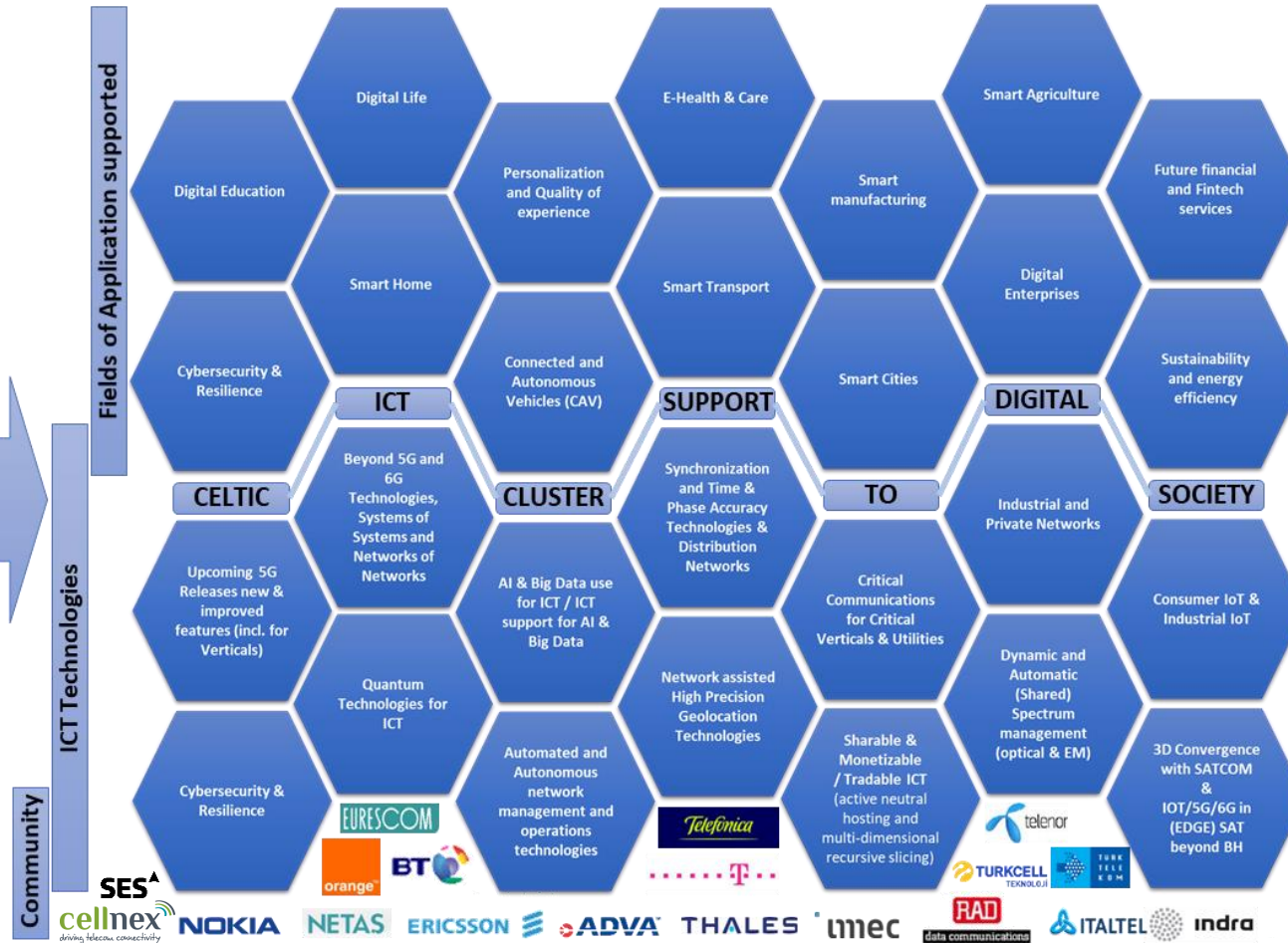
EUREKA-CELTIC & European Space Agency MoI Signed (Nov. 2021)



EUREKA-CELTIC & 6G-IA SNS MoU Signed (Apr. 2022)



As usual, Proposals that address any of the topics of the **CELTIC Strategic Roadmap** in this bottom-up call are welcomed



CELTIC is also looking into:

- Non-Terrestrial-Networks and Terrestrial Networks convergence
- Digitalisation of the Economy thanks to ICT technologies
- Clean Growth
- Remote Health & Care
- ICT for Industry 4.0 and Logistics
- Critical Coms for Emergency & Rescue Services
- Critical Infrastructures & Cybersecurity
- Open RAN
- Private Networks
- AI for ICT & Networks (including Radio Massive MIMO, Open-RAN RICs, ...)
- Consumer IoT, Industry IOT
- ICT Technologies for METAVERSES
- and 5G Advanced and 6G topics

<https://www.celticnext.eu/strategic-roadmap/>

CELTIC-NEXT's DNA

➤ Bottom-up

Proposers are free to define their project proposal according to their own research interests

➤ Close to the market

So far projects have led to more than 1500 new or improved products and services

➤ High Success Rate

High-quality proposals have a good chance of receiving funding.
Average success rate 60 %

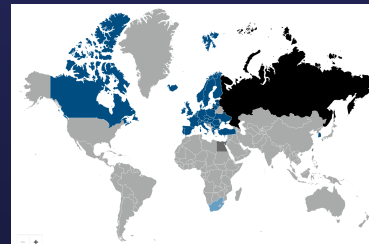
➤ Flexibility

Project focus can be adjusted to new technological developments in the field

FOR YOUR SUCCESS

By participating, you will get

- The award of an Globally Recognised Label
- Professional coaching and mentoring
- Easy access for SMEs
- Access to SMEs for Large industry & vice-versa
- Access to partners from more than 45 countries
- Access to national funding (while having international co-innovation)
- Transnational RD&I cooperation



Expectable benefits for you

- Boosting your competitiveness
- Accelerating your growth
- Shortening time to market
- Accessing new markets
- Increasing your international visibility
- Exposing your know-how to the eco-system
- Receiving guidance, coaching and monitoring of your project by the CELTIC Office,
- flexible project coaching process where you can adapt your project plan, consortium and other aspects, in agile way, using CELTIC's Project Change Requests



Your opportunities are

- Immerge yourself into a rich ecosystem covering the technology and business whole value chains (Large Industry, SMEs, Startups, RTOs, Academia, end-users)
- Build RD&I consortia during brokerage and other events
- Lead or be part of an industry lead project
- Create and foster collaborative innovation
- Stimulate disruptive and/or sustainable ideas
- Run and manage your collaborative project with the Office's support
- Adapt to internal and external circumstances
- Generate high economic impact
- Grow and collaborate beyond borders
- Deliver high social and economic impacts
- Support U.N. SDGs

Opportunities to collaborate globally

 Europe (large)

 UK

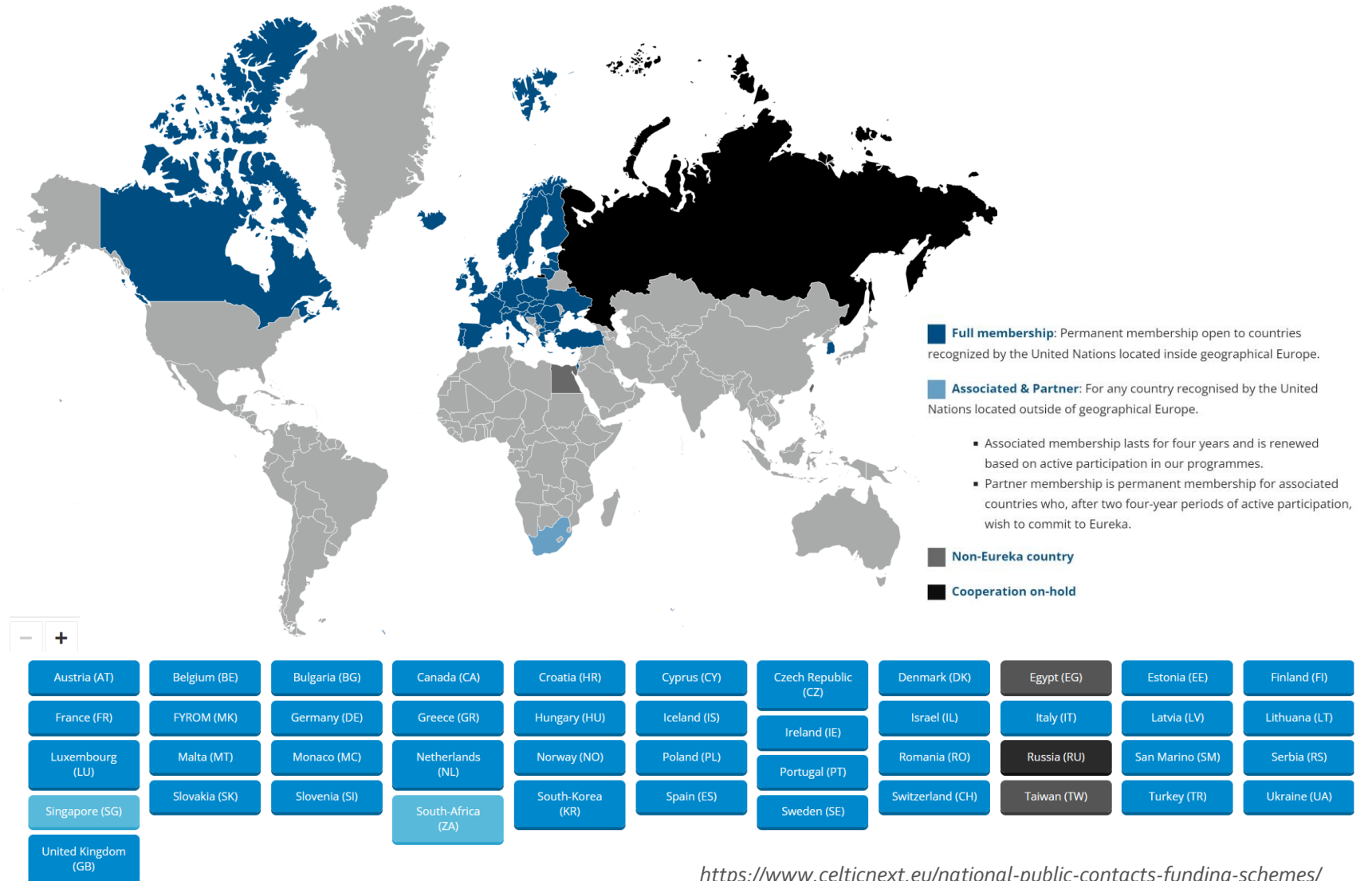
 Canada

 South-Korea

 South-Africa

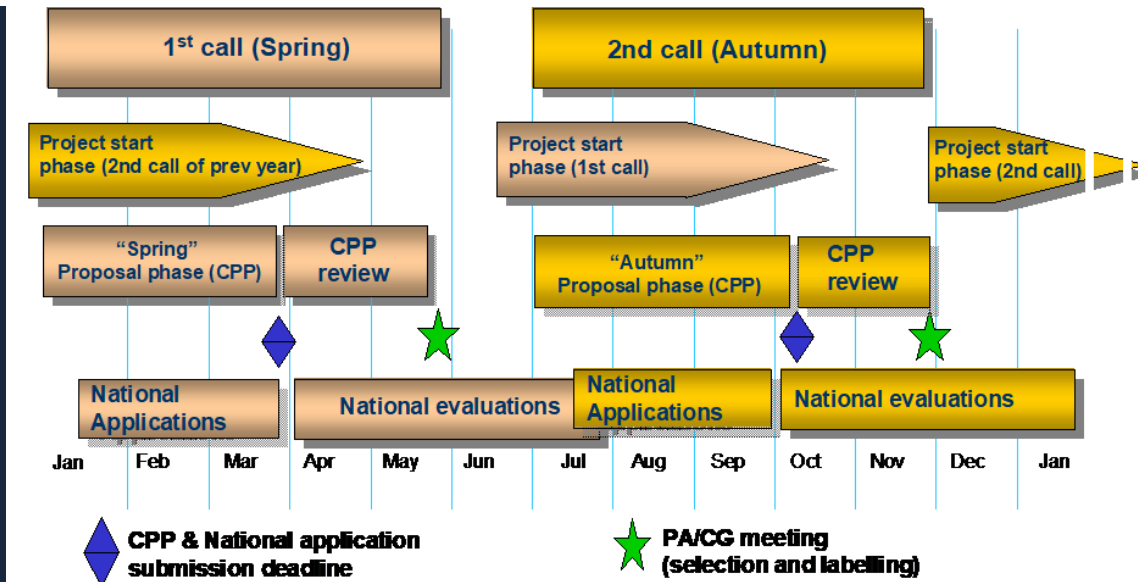
 Singapore

And more countries in the future, like Chile, Taiwan...



Call process and timelines

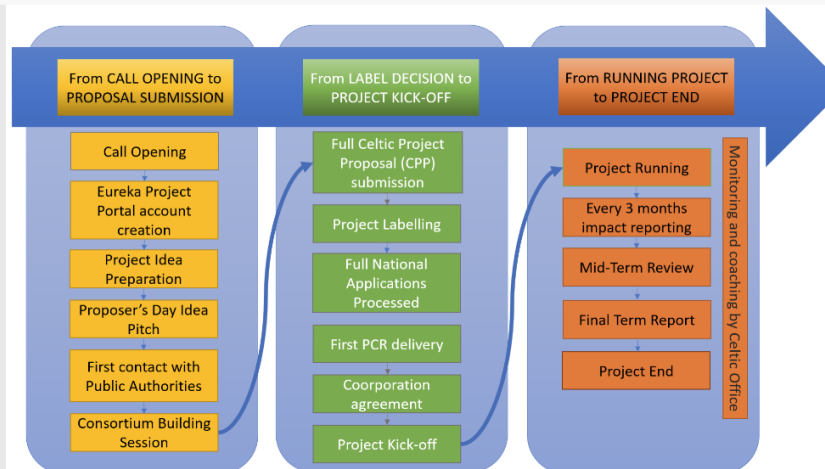
CELTIC offers 2 bottom-up calls per year and additional flagship calls



Call Process

Interactive map of Celtic-Next calls and projects

Click on the map to guide you through the cluster project process and navigate the website.

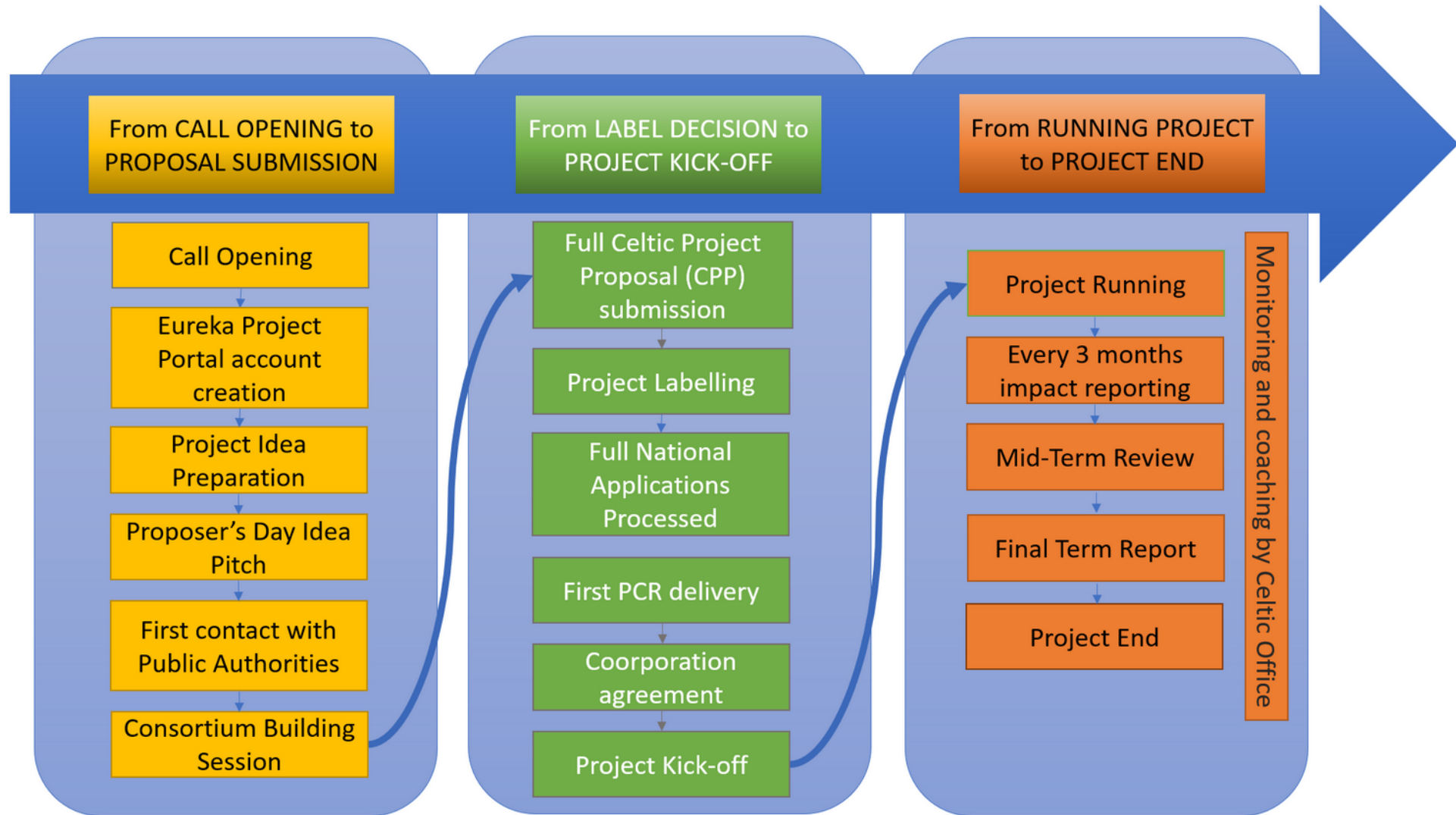


Autumn Call 2023 dates:

- Opening
1st of July 2023
- Launch Event
7th of September 2023
- Proposers Brokerage Day
5th of October 2023
- Deadline for proposals
10th of November 2023
- Labels notification
End December 2023

<https://www.celticnext.eu/call-information/>
<https://www.celticnext.eu/proposers-days/>
<https://www.celticnext.eu/call-calendar/>
<https://www.celticnext.eu/brokerage-tool/>

CELTIC-NEXT Call Process



<https://www.celticnext.eu/call-information/>

CELTIC-NEXT's typical BOTTOM-UP call projects

- Number: 4-15 (typical)
- Type:

Large Industry players
SMEs
RTOs
Academia
Public Bodies

- Number: 3-7 (recommended)
- Strictly more than 2 Eureka Countries

Partners

Countries

Budget &
Duration

Market &
Tech Value-
Chains

- Budget (costs):
3 to 15M€ (typical)
- Duration:
24-48 months, 36 typical

- Full E2E Technology Value chain to demonstrate full E2E Services
- Full Market Value Chain representative partners onboard to demonstrate Market Impact relevance

CELTIC-NEXT's typical FLAGSHIP projects

(hybrid bottom-up &
top-down model)

- Number: 50-90 (typical),
- Common WGs and 3-4 sub--projects
- Type:
 - Large Industry players
 - SMEs
 - RTOs
 - Academia
 - Public Bodies

Partners

Countries

- Number: 5-10 (recommended)
- Strictly more than 2 Eureka Countries per sub-project

Budget &
Duration

Market &
Tech Value-
Chains

- Budget (costs):
50 to 75M€ (typical)
- Duration:
36-48 months (historical)

- Full E2E Technology Value chain to demonstrate full E2E Services
- Full Market Value Chain representative partners onboard to demonstrate Market Impact relevance

Bottom-Up Spring Call 2023

13 valid proposals
51mio€ budget / 1030 FTEs
102 participants in 21 countries
AT, BE, CA, CH, DE, ES, FI, FR, HU, IL, KR, LU, PL,
PT, RO, RS, SE, TR, UK...

Labelling meeting on 30th June 2023

Bottom-Up Autumn Call 2023

Promotion starting 1st of July 2023
Launch Event B09/2023 (20Y of CELTIC)
Brokerage Day B10/2023
FPP deadline 10th of November 2023
Labelling WK51 2023

**Our Community is
active!**

AI-NET Flagship follow-up project

Preparation has started
Interested Countries,
please contact CELTIC's Director
First topics drafting to happen this Summer

3D-NET (NTN, Space) flagship

Core Team of Industrials in recruitment
Interested Countries,
please contact CELTIC's Director
First meetings to happen in October 2023



Important: please contact the Public Authorities before Projects submission:

<https://www.celticnext.eu/national-public-contacts-funding-schemes/>

Receiving their opinion early can avoid mistakes in your proposal, and will improve your chances to get the label by aligning with National Priorities and Schemes

<https://www.celticnext.eu/call-information/>

Events to prepare impactful projects:

CELTIC-NEXT's

- Launch Days
- Proposers Days
- Annual Events
- Brokerage platform



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Start informing yourselves, use the Brokerage Tool

Pitch your original idea, meet potential partners!

Pitch your matured idea, meet additional partners!



- <https://www.celticnext.eu/proposers-days/>
- <https://www.celticnext.eu/call-calendar/>
- <https://www.celticnext.eu/brokerage-tool/>



CELTIC Flagship projects impact the Market & Standards



SASER

Secure Communications for Europe

Spin-off's and Start-ups:

- Cailabs (France)
- aXenic Ltd (UK)

27 new and 28 improved products.

Record Data Transmission: 38.4 Terra bit / sec.

The American Library of Congress (the world biggest) would be transmitted in 3 seconds

60
Partners
80M€

80
Partners
70M€



SENDATE

Secure Networking for a Data Center cloud in Europe

- *The world's first* 100G quantum safe transport over 2,800 km
- *The world's first* 400G link with single-photodiode for DC Interconnect
- Edge Computing shifts high traffic loads away from Core DC
- Secure cloud close to the customer allows low latency applications



Cornelia Rogall-Grothe (State Secretary, BMI – German Ministry of the Interior) and Dr. Georg Schütte, State Secretary of the German Federal Ministry for Education and Research (BMBF) - Copyright: hannibal/BMBF



SENDATE Closing Event in Ericsson's HQ in Kista, March 2019

AI-NET - Accelerating digital transformation in Europe by Intelligent NETWORK automation

CELTIC-NEXT AI-NET umbrella project

ANTILLAS
subproject



Optical networks for latency critical and highly available services

PROTECT
subproject



Secure enterprise connectivity

ANIARA
subproject



5G / 6G Edge and Industry 4.0

Automation of services and applications on the edge (Nokia)

Carrier-grade **AI/ML** for automation (Ericsson)

Edge platform and infrastructure (RISE)

Safety and security solutions (ADVA)

Subprojects

- Coordination and management by Telekom system manufacturer
- Rapid development of prototypes and early market access

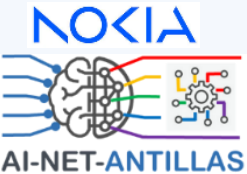
Horizontal working groups

- bi- and multi-lateral cooperation across sub-projects
- Standardization and open platforms
- Joint field tests and demos

Project data and structure

CELTIC-NEXT AI-NET (06/2020 – 12/2024)

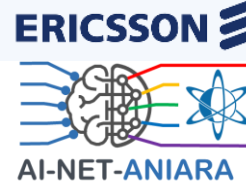
ANTILLAS
subproject



PROTECT
subproject



ANIARA
subproject



Deutschland

X

X

X

France

X

Sweden

X

X

Finland

X

UK

X

Netherlands

X

Poland

X

7

Countries

98

Participants

68.3 M€

Total budget

507 PJ

Total effort

Leverage though
participation of many
European countries

AI-NET impact and current project KPIs ... and still counting!

194

Publications

104

PhD & Master Theses

48

IPR, Open Source &
Standards
Contributions

60

PoCs

46

Keynotes and general
public comms

36

Hirings

High impact with excellent project KPIs

2023 Proposers' Brokerage Days : 3 important moments during those days



CELTIC-NEXT
eureka Cluster

SPRING CALL 2023
PROPOSERS' BROKERAGE DAY

CONFERENCE

The Conference part organised in the morning will be the perfect occasion to learn more about the Public Authorities funding schemes and priorities, as well as the process of CELTIC Calls!

Keynote speakers will also present about innovative and cutting-edge ICT topics.

Hybrid registration both open for FREE! - only 100 places in-person



Bpifrance Le Hub, Paris

Friday 17 March 2023

CELTICNEXT.EU



CELTIC-NEXT
eureka Cluster

SPRING CALL 2023
PROPOSERS' BROKERAGE DAY

PITCHING SESSION

The Pitching Session organised in the afternoon is the perfect opportunity to give your new project idea the best visibility to recruit additional consortium partners and to prepare a full project proposal for the upcoming CELTIC Calls!

Please send your new project idea pitch presentation using the given PPT template by the **6th of March** to event@celticnext.eu.

Presentations can not exceed 6 minutes & have to be in-person.

Hybrid registration both open for FREE! - only 100 places in-person



Bpifrance Le Hub, Paris

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CELTIC-NEXT
eureka Cluster

SPRING CALL 2023
PROPOSERS' BROKERAGE DAY

BROKERAGE & NETWORKING FORUM

The brokerage and networking forum session organised in the afternoon will be the perfect occasion to discuss with public authorities, interested proposers, and to build your consortium and consolidate your preparations for applying to CELTIC Calls!

Proposal writing support will also be offered by the CELTIC Director and the office team.

Hybrid registration both open for FREE! - only 100 places in-person



Bpifrance Le Hub, Paris

Friday 17 March 2023

CELTICNEXT.EU



<https://www.celticnext.eu/celtic-brokerage-event-spring-call-2023/>

Conclusion

Join the CELTIC-NEXT Community and apply to trans-national funding for your next steps of development of your innovations, technologies and products & services, **and:**

- **Get a recognised international label** to your innovations
- **Don't be restraint** to specific limit to your innovation project (**bottom-up** vs top-down)
- **Get a larger visibility** for collaboration
- **Gain commercialisation channels** (mixing Large Industry with SMEs and RTOs) in near-to-market innovation collaborations
- **Accelerate your Time-To-Market by increasing your TRLs** in a near to market funding scheme
- **Collaborate easily outside of Europe** (Eureka Network of Countries) with the proven EUREKA Clusters mechanism, extending again your visibility and commercialisation channels

CELTIC's Community



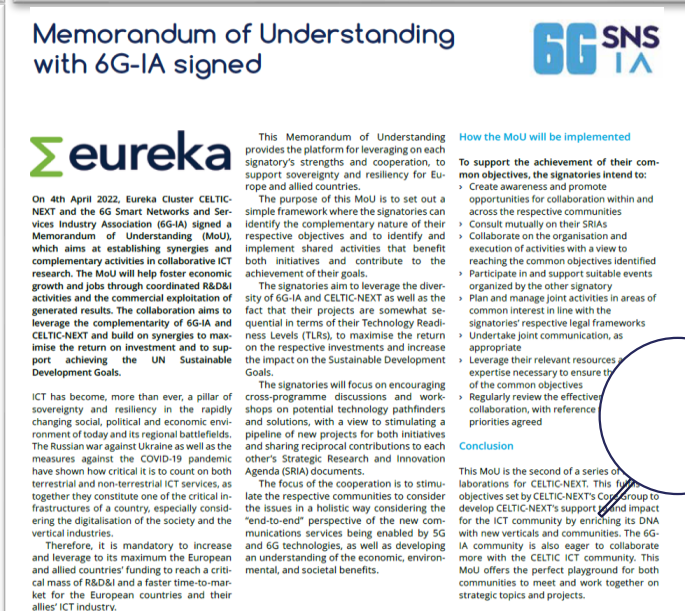
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CELTIC's Community builds its Mission, Vision & Roadmap

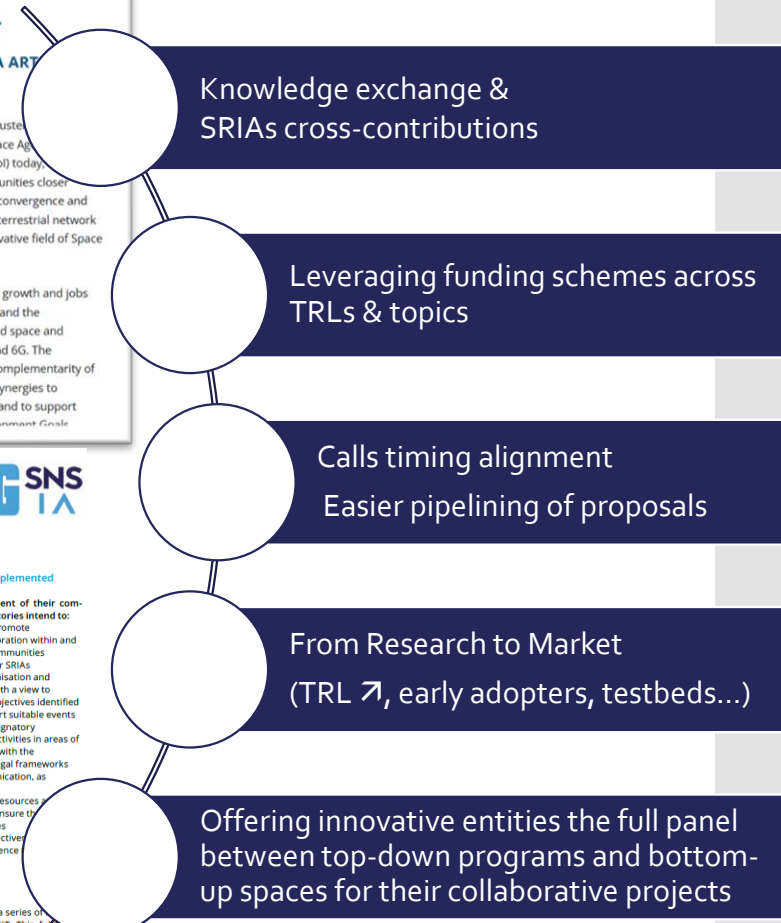


CELTIC-NEXT in the European Funding Landscape

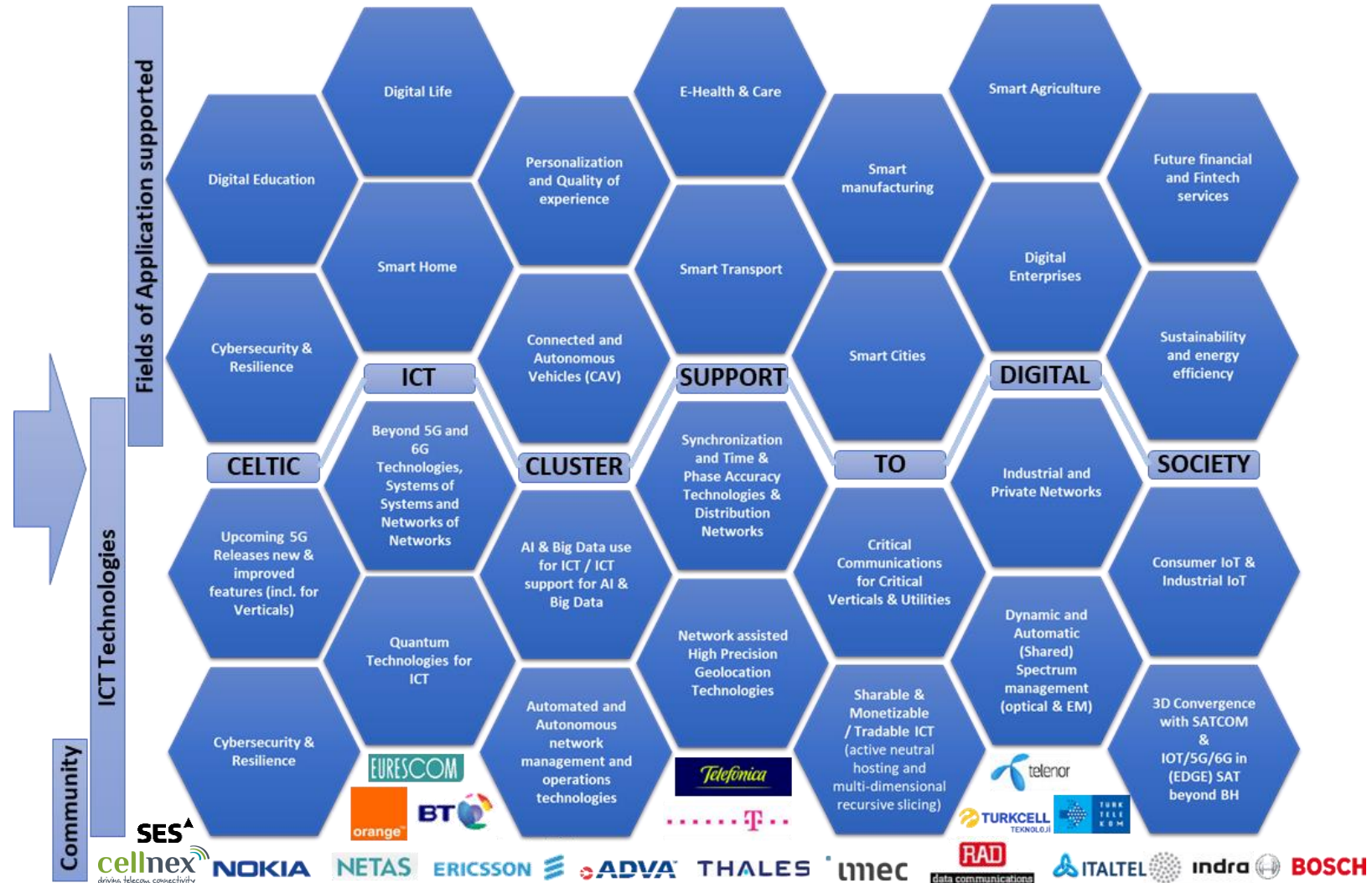
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As usual, Proposals that address any of the topics of the CELTIC Strategic Roadmap in this bottom-up call are welcomed



<https://www.celticnext.eu/strategic-roadmap/>

Future needs of the end users: High level fields of applications

Human Centred Technologies and Services, for an Augmented Life Experience

- Digital divide elimination
- Smart Regions/Cities/Buildings/Homes
- Smart Transportation
- Smart Tourism
- Sustainability & Efficiency of Smart Energy Grids
- Public Safety & Crowd Control
- E-Health & Care
- Users in Control and Trust of offered services
- Digital support for Education and Remote Education
- Digital (Media, Gaming, Sports, Culture and Entertainment)
- Remote working and Nomadic Working (Digital Nomads)

Full industrial digitization and support of vertical industries

- Digital Enterprises
- Private Networks for Smart Manufacturing (Indus. 4.0)
- Smart Logistics (geolocation IOT networks)
- Smart Agriculture
- Future Financial and Fin-Tech
- ICT support to third party AI based applications
- Connectivity Grid / Telecom Infra as 4th Utility, like Energy

Futuristic use cases

- Holographic "Teleportation"
- "World" Real-time Synchronous Digital Twin

Future needs of the end users: Main technical areas of research

Ubiquity / Pervasiveness	Dynamic capacity following people seamless mobility	Automation, Reliability, Transparency: Cognitive operations	Protection and Trust	Holographic "transportation" & Real-time Synchronous Digital Twin
<ul style="list-style-type: none"> •Urban, sub-urban down to rural •Into the home for education and remote working •One Identity for seamless experience •Smart Regions/Cities/Buildings/Homes 	<ul style="list-style-type: none"> •In "normality" •In "crisis" (pandemics, major climate events) •Highly Precise Positioning •Edge Computing •Open-RAN / vRAN •Slicing 	<ul style="list-style-type: none"> •Extensive Monitoring •Big Data Analytics •Artificial Intelligence •ICT supporting large and intense Ai/ML deployment for verticals (connectivity, processing, data storage...) •Transparency or the Imperceptible latency 	<ul style="list-style-type: none"> •Cyber-security •Identity management 	<ul style="list-style-type: none"> •Holographic media teleport •Multi-sense networks •Time engineered applications

Enabling technologies that have to be mastered

Beyond 5G, from 5G to 6G

- Enhanced overall architectures to support needed enablers
- End-to-end Horizontal and Vertical Network Convergence
- AI/ML for Digital Infrastructures
- End-to-end Network Automation
- Autonomous Systems and Networks
- Advanced QKD Networking
- Connectivity as a Shared Critical Utility
- Wireless and Wired Tera-Broadband technology:
 - Wireless (electromagnetic and visual light waves):
 - Larger massive MIMO systems
 - No "Cell" Radio Networks with distributed smart mMIMO systems
 - TeraHertz Communications
 - Wired optical:
 - Photonics
 - Optical smart networks
 - Optical spectrum: Sliceable Optics, shared lambdas
 - Increasing Bandwidth in Optical Network: use of additional bands, Higher modulation schemas
 - Quantum communications
 - QKD
 - Entanglement

Wired and Wireless Industrial ICT

- Industrial features of 5G and beyond
 - Time Sensitive Networks
 - Precision Positioning
 - Private Networks
 - More Indoor techs like Terahertz, Visible Light Coms,
 - Non-3GPP convergence (like Wi-Fi, Industry Net Standards...)
- Tera scale Internet of Things (IoT)

ICT Critical Infrastructure as a Utility, The Critical Connectivity Grid

- Macro/Micro Grids' concepts related technologies adapted to ICT as it exists for Energy
- Full end-to-end Slicing of physical networks and infrastructures (see Smarter Networks)
- Cyber-security
 - Quantum QKD
 - AI/ML & Big Data Real Time Analytics based Security
 - Reinforcement of Sovereignty
 - Cyber-attack based Disaster recovery
- Trust enablers
 - Security
 - Auditability
 - Transparency

Space dimension enabled 5G/B5G/6G

- SAT enabled 5G/B5G/6G
 - Moving ICT to SAT
 - RAN in SAT (Space-RAN?)
 - CORE in SAT (Space-CORE?)
 - MEC in SAT (Space-Edge Dc?)
 - MBH in SAT (Space-Mobile Backhaul?)
 - Value Added Services in SAT
 - Earth Meshed Network (including Oceans)
 - SAT to Ground
 - SAT to Sea
 - SAT to Air Objects & IOTs
 - SAT to SAT
 - => SAT to All
 - Multimodal SATs
 - Combining GPS info with Network info
 - Combining Observation modalities with Network info
 - Avionics communications
 - Air to Ground
 - Air to Air
 - Drones / HAPS
 - Balloons?

Distributed & Smarter Networks

- Deeper "edge-ification" for Distributed, collaborative and hierarchical AI/ML
- More Multi-Purpose Adaptable Networks:
 - Universal adaptive core
 - Programmable network Operating System
- Advanced very large-scale monitoring (for AI, ML, DL...)
- Distributed AI/ML
 - Consuming
 - Producing
 - Supporting
- Intelligent and Automated Dynamic Spectrum Management :
 - Electro-magnetic Spectrum: Horizontal & Vertical Flexible Sharing CBRS, DSS, LSA, LAA, MultiFire, new enablers...
 - Optical spectrum: Sliceable Optics, shared lambdas
- Full Slicing
 - Real End-to-End leading to:
 - Multi-layered multi-tenancy
 - Full neutral hosting
 - Multi-Dimensions sliceable (incl. Spectrum and Time)
- Thanks to: Deeper Network Programmability

2023 additional topics:

CELTIC and Countries are also looking at:

- **Non-Terrestrial-Networks and Terrestrial Networks convergence**
- **Digitalisation of the Economy thanks to ICT technologies**
- **Clean Growth**
- **Remote Health & Care**
- **ICT for Industry 4.0 and Logistics**
- **Critical Coms for Emergency & Rescue Services**
- **Critical Infrastructures & Cybersecurity**
- **Open RAN**
- **Private Networks**
- **AI for ICT & Networks (including Radio Massive MIMO, Open-RAN RICs, ...)**
- **Consumer IoT, Industry IOT**
- **ICT Technologies for METAVERSES**
- **and 5G Advanced and 6G topics (sensing, location, ...)**

As usual, Proposals that address any of the topics of the CELTIC Strategic Roadmap in this bottom-up call are welcomed



MANY THANKS FOR YOUR ATTENTION.

CELTIC-NEXT



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