



The ICT **\Sureka** cluster

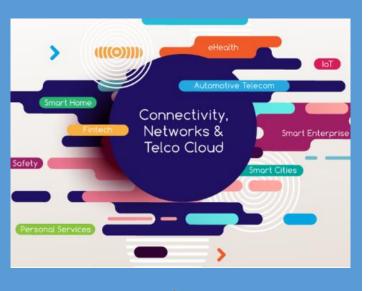
for next-generation communications

with over 22 years of successful innovative projects!





Who is CELTIC-NEXT?



CELTIC-NEXT

Seureka Cluster

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

^{**} Information & Communications Technologies 2



National

in the European Funding

Landscape

European Community Programmes



EUREKA Cluster Programme

Programmes following National Priorities



Trans-National Develop & Maintain

Develop & Maintair
Critical Mass &
Differentiation

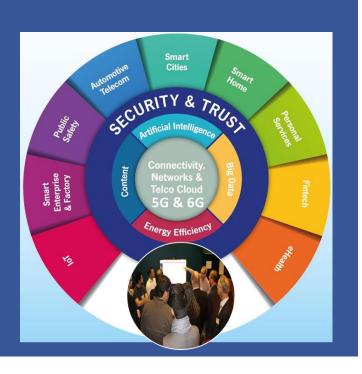








Overview, mission & vision



About CELTIC-NEXT since 2003:

- <u>The ICT Cluster under ΣUREKA (since 2003 and member of ECP since 2021), focused on Next-Generation Communications for the Digital Society</u>
- Community of 1150+ private/public entities, including industry leaders, SMEs, and research institutions
- Organizes biannual project calls (Spring/Autumn) and larger Flagship Calls
- Supported by public and private funding for transnational RD&I cooperation
- Open to any organization contributing to European/global ICT research initiatives.

The mission & vision of CELTIC-NEXT is to:

- Foster ∑UREKA 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 ΣUREKA countries

www.celticnext.eu 4



Key Numbers (2024):

CELTIC-NEXT IN FEW FIGURES

	€	M	<u>ku</u>				*	4		m
194	1358	14142	1250	43	750	55	1600	1500	1800	5800
PERFORMED PROJECTS	INVESTED BUDGET (M€)	EXPECTED EFFORT (PY)	COMPANIES & INSTITUTIONS	COUNTRIES	PATENTS DIRECTLY GENERATED	% OF SME	PRODUCTS & SERVICES ON THE MARKET	PROTOTYPES TRIALS	PHDs & MScs	SCIENTIFIC PUBLICATIONS

Achievements since 2003

Key last events:

Berlin, 2/07/2024: CELTIC-NEXT Awards Ceremony fat the 6G Berlin Conference





Berlin, 2/07/2024: CELTIC-NEXT 21st Anniversary Celebration the 6G Berlin Conference 2024



Porto, 22/11/2021.: Eureka, CELTIC-NEXT & ESA signed a Memorandum of Intent for Connecting Terrestrial ICT with Space ICT



Paris, 17/03/2023: CELTIC-NEXT Proposers' Brokerage Day at BPIFrance Le Hub



London, 18/09/2024: CELTIC-NEXT Proposers' Brokerage Day at Digital Catapult



What CELTIC-NEXT does ...

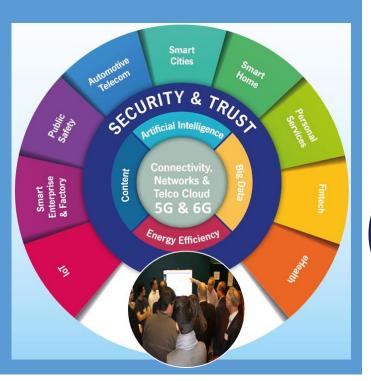
CELTIC-NEXT manages an international Quality Label that enables international consortia to apply more successfully to National Funding schemes and assemble them to fund international cooperative innovation.

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





CELTIC's Community





with over 1250 community members across 43 countries (Europe & beyond)

CELTIC's Community builds its Mission, Vision & Roadmap







Innovation Collaboration Impact





Memorandum of Understanding with 6G-IA signed

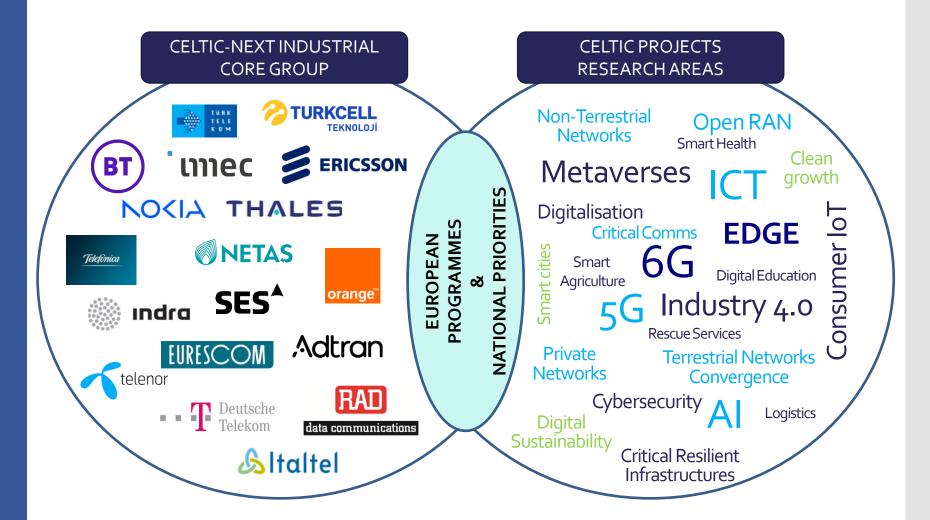




Knowledge exchange & SRIAs cross-contributions Leveraging funding schemes across TRLs & topics Calls timing alignment Easier pipelining of proposals From Research to Market (TRL **७**, early adopters, testbeds...) Offering innovative entities the full panel between top-down programs and bottomup spaces for their collaborative projects



Strategic Roadmap & Key research Areas



CELTIC-NEXT offers...



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?"



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 (C.)



∑eureka Cluster

By participating, you will get

Expectable benefits for you

Your opportunities are

CELTIC-NEXT

- The award of a 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





- 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



- 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-led 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

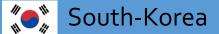


















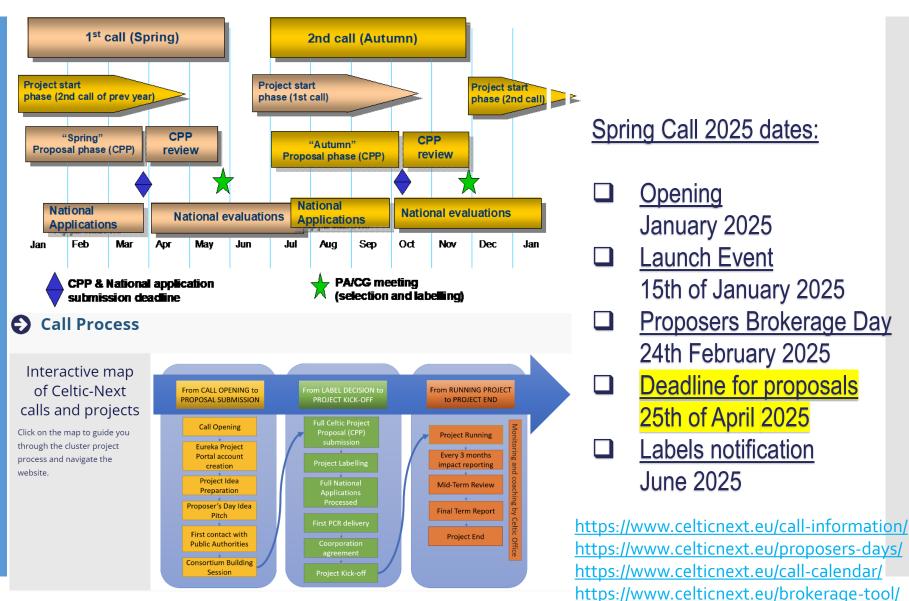
and potentially more countries in the future...





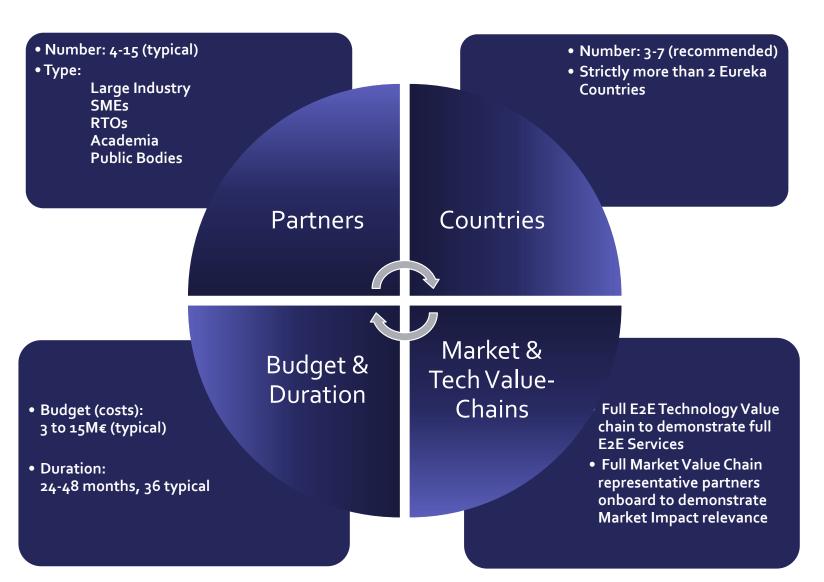
Call process and timelines

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





CELTIC-NEXT's typical BOTTOM-UP call projects







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 Al 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

Dynamic capacity following Ubiquity / Pervasiveness •Urban, sub-urban down to •In "normality"

- rural
- •Into the home for education and remote working
- One Identity for seamless experience
- Smart Regions/Cities/Buildings/Ho mes

people seamless mobility

- •In "crisis" (pandemics, major climate events)
- Highly Precise Positioning
- Edge Computing
- Open-RAN / vRAN
- Slicing

Automation, Reliability, Transparency: Cognitive operations

- 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

Protection and Trust

- Cyber-security
- Identity management

Holographic "transportation" & Real-time Synchronous Digital Twin

- 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 Positionina
- 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

 Deeper "edge-ification" for Distributed, collaborative and hierarchical AI/ML

Networks

- 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 .



2025 additional topics:



In addition to the SRIA large coverage, following topics are welcomed by PAs:

Digitalization of the Economy thanks to Information & Communications Technologies

Clean Growth & Sustainability

Remote Health & Care

ICT for Industry 4.0 and Logistics

Consumer IoT, Industry IOT

ICT Technologies for METAVERSES

Private Networks (including Industrial & leisure)

Critical Coms for Emergency & Rescue Services

Non-Terrestrial-Networks and Terrestrial Networks convergence

Critical Resilient Infrastructures & Cybersecurity

Al support to ICT & Networks, and, ICT & Networks support to Al applications,

Open RAN, AI-RAN, EDGE Computing,

and 5G Advanced and all 6G topics (sensing, location, ...)





What shall a successful proposal target?

The "Basics":

- Targeting the Scope of the CELTIC-NEXT Strategic Roadmap 2021-2025
 https://www.celticnext.eu/research-areas/
- 2. Technological Innovation
 It has to be new, innovative, forward bringing project for the community!
- 3. Market relevance and exploitation potential

 It must return value for money to the Consortium and to the Funding Countries!
- 4. Follow the rules with right mix and balance of participating countries and partners
 - Create a good consortium (balanced, different countries and company profiles)!

It is not a National Project with "some" links abroad, but a true international balanced cooperation, ideally with no more than 60% and never over 75% of effort and/or budget in one country only. $_{20}$





Targeting the Scope of



CELTIC-NEXT Strategic Roadmap 2021-2025

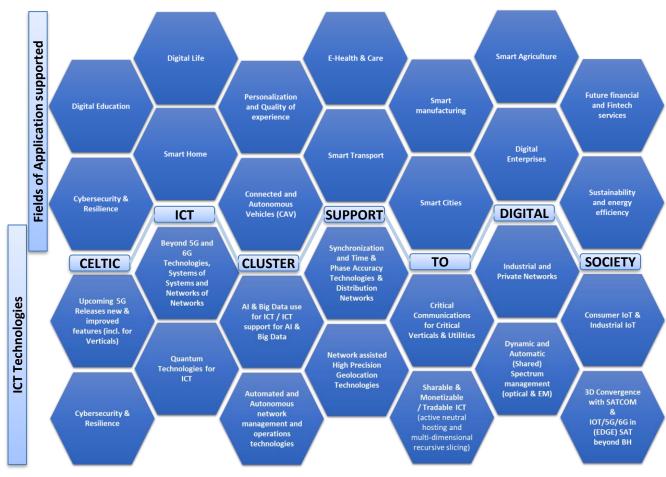
CELTIC-NEXT puts emphasis on Core technologies, Applications and E2E Services

- **NETWORKING**
- SERVICES AND APPLICATIONS
 - **FUTURE SERVICE ENABLERS**
 - **FUTURE INTERNET / CLOUDS**
 - **FUTURE USAGE AREAS AND MULTI-**
 - DISCIPLINARY APPROACH

Α	NETWORKING
A1	Networks Elements and Infrastructures
A2	Mobile / Wireless
A3	Broadband, fixed networks
A4	Optics
A5	Satellite
A6	Broadcast
A7	Energy efficiency (of networks)
A8	Network architectures and connectivity
A9	Network infrastructure and platforms
A10	Network Management and operation
A11	. Autonomic / Open Networks / Ad-hoc Networks
A12	Network evolution
A13	Network Security / Privacy
A14	Network Safety / Robustness
A15	Other network infrastructure aspects



https://www.celticnext.eu/research-areas/







Technological Innovation

Innovation above the State of the Art (SoA) is a Key Criterion

- Rationale for the project: Why is the subject of the proposed project important; which problems will be solved and which results will be generated that are currently not available?
- State-of-the-art situation: Describe the current technological situation, the current problems and gaps and indicate the technological improvements that you want to achieve.
- Technological innovation and strategic relevance: Strategic relevance and expected impact of your proposal on a per-country perspective. What new businesses will be generated.
- ➤ 50 % of criticism of the Cluster experts during proposal evaluation are related to insufficient description of the SoA





Market relevance and exploitation potential

Market analysis: Technological value chain and added value of the collaboration

- Value chain: Right mix of partners in the Consortium
- Added value of the cooperation at technology level
- Added value of the cooperation at business level
- Consortium/partner access to the market

> These are Key aspects to motivate Public Authorities to fund your project





Key points

- "Your CELTIC-NEXT project should be successful and beneficial, and it must be managed and controlled properly in order to achieve this"
 - > Give confidence to the Experts and the Public Funders that you will be in control!
- "It should be used as a tool to develop your business, if the project scope is aligned with your strategies and future plans. However, it may take some time to reach commercial success."
 - ➢ Provide a clear outlook on your commercialisation plan, per product/partner and as a whole!





Key points 2

- "The best practices that help to carry out the project activities properly are based on the commitment of the consortium from the beginning to the end of the project"
 - ➤ Build a strong and committed consortium and show clearly its commitment in the proposal!
- "The success of the project relies on three actions: deliverables, dissemination and exploitation of project activities"
 - ➤ Write a good proposal (not only research but also business impact, exploitation plan and dissemination; coordination and WP structure)!
- "Be aware that there may be changes in the project (consortium, activities, funding, etc.) that might affect the initial plans (Project Description)"
 - > Provide a well described risk analysis section!





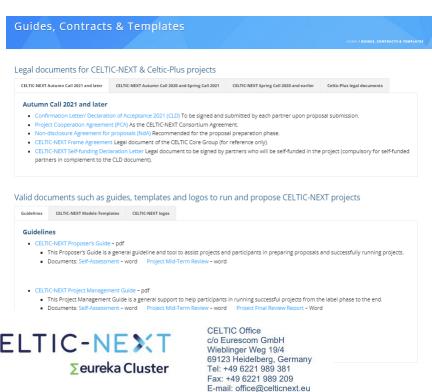
Templates

The "Guides", "Contracts" and "Forms" to support the writing of your application:

https://www.celticnext.eu/guides-contracts-templates/

As Proposer you can get a good guidance by reading the Proposal Guidelines document via:

https://bscw.celticnext.eu/pub/bscw.cgi/d112123/CPP-Proposal-Guidelines%20-%20%202022.pdf



Web: www.celticnext.eu

PROPOSAL GUIDELINES CELTIC PROJECT PROPOSAL (CPP)

The aim of these guidelines is to pragmatically help proposers to prepare a <u>Celtic Project Proposal</u> (CPP).

Proposal Hotline:

The following colleagues at the CELTIC Office are happy to help proposers with any questions regarding

preparation of a CELTIC-NEXT Project Proposal:

- Christiane Reinsch: reinsch@celticnext.eu; +49 6221 989 210
- Xavier Priem: <u>priem@celticnext.eu</u>; +49 1515 796 2180

Celtic-Next Calls and Projects Timeline



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









A: Submit your proposal

By 25th April 2025*

- Register on the Cluster Projects Tool
- Fill in the web forms
- Download the proposal templates for proposal
- Upload your proposal to the Cluster Projects
 Tool: https://cluster-projects.eurestools.eu



www.celticnext.eu

Any innovative ICT subject is eligible, including application to vertical sectors

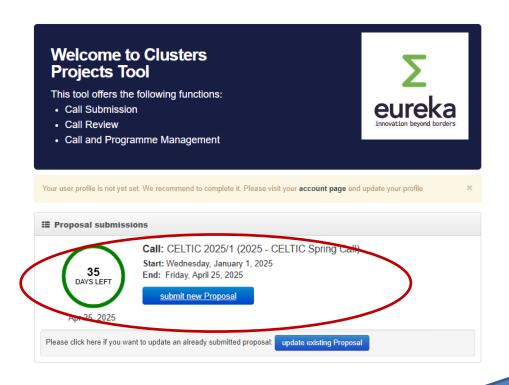




A: The Submission Interface

Register to the Tool:

https://cluster-projects.eurestools.eu/



Project identification Please enter a short acronym and the full project title Open Call CELTIC 2025/1 Acronym Project Title **Key information** Proposed start date October **∨** 2023 Planned completion date **∨** 2026 October Update duration Uploads Please upload your CPP file (PDF or DOC) and any a Upload proposal files File Upload Submit Reset

CPP (Cluster Project Proposal) template available on CELTIC Web





B: Proposal Evaluation

Evaluation by the CELTIC Experts *)

List of Evaluation Criteria:

- 1. Excellence and technological innovation
- 2. Strategic relevance and impact
- 3. Potentials for exploitation of the results and for future business
- 4. Quality and efficiency of the implementation of the project proposal
- 5. Quality of the proposed consortium

S = Suitable for Labelling

M = Modifications required

N = Not suitable for Labelling

*) Most Experts are from Industry
They provide their Industry Knowhow to the proposals

Example of a typical outcome of the evaluations of the 3 reviewers

Group of	Experts	eval	uatio	n	
Acronym	Rating	Rec	omm	enda	tion
		R1	R2	R3	S
Proposal 1	2.00	N	М	N	Ν
Proposal 2	3.00	М	М	М	Μ
Proposal 3	4.00	S	М	S	S
Proposal 4	4.50	S	S	S	S





CELTIC Label decision

- A. Proposal Submission by proposers (one stage process)
- B. Evaluation by: Industry Experts and Public Authorities
- C. Label Decision: Public Authorities and CELTIC Core Group



Time line: 6-8 weeks in total





C: Label Decision

Important criteria for labelling decision:

- ✓ Technical quality
- ✓ Business relevance
- ✓ but also national priorities where they exist





Start the Project

Starting and running a Labelled project

- In EUREKA projects the funding is granted by ministries or Funding Agencies of the participating countries.
- Projects can usually start when mandatory partners have green light for funding.
- In the last years a success rate for funded projects of more than 50 % has been achieved.
- When a partner becomes active in a running project he will pay the CELTIC contribution of 1.5% of his budget.







CELTIC Brokerage Tool



Start now and upload your expertise or new project idea

https://www.celticnext.eu/brokerage-tool/



Upload Project Idea



Title of my Project Idea *	Email *	Brief Description of my Organisation
Please enter a short title of your Project Idea. (max 255 characters)	Email	
Short Title		
	Contact Image *	Web URL
Objective of my Project Idea *	Browse No file selected.	Please insert a fully qualified URL containing the http:// or https://
Please enter a description of your Project Idea. (max 2000 characters)		R Web URL
	Telephone	
	Telephone	Presentation *
Proposal key words		Would you like to present your idea in one of the next Proposers Days?
Troposal Rey Horas	Company Name *	○Yes
Select	Company Name	○ No
Types of partners being sought *		Presentation File
Turner of martners being cought	Type of Organisation *	Please Upload your PPT File
Types of partners being sought	Industry	Browse No file selected.
Name *	Country *	Identity Management *
Name	Country *	Do you wish your identity to be public or hidden?
	Canada	bo you wish your identity to be public of filadens

For the Key Words, please re-select from the list as often as is necessary until all your relevant choices have been captured.







Expertise Short Title * Please enter a description of your Expertise Offering. (max 255 characters)	Contact Image *	Brief Description of my Organisation
	Browse No file selected.	
Short Title	Telephone	Web URL
Expertise offered *	Telephone	Please insert a fully qualified URL containing the http:// or https://
Please enter a description of your Expertise offered. (max 2000 characters)		THE Web URL
	Company Name *	
	Company Name	Identity Management *
Expertise key words		☐ I confirm my profile and interests may be published in the Celtic-Next Brokerage service along with
Select	Comapany Logo *	my contact information
	Browse No file selected.	
Name *	Type of Organisation *	Captcha *
Name	Industry	I'm not a robot
Email *	Country *	reCAPTCHA Privacy - Terms
Email	Austria	





CELTIC Brokerage Tool

- The form fields tagged with a * are mandatory.
- The "PROPOSAL KEY WORDS" field is implemented using a taxonomy form field class which allows easy update of the key word list, such as renaming, deletion of addition of key words.
- The "IDENTITY MANAGEMENT" field determines whether Name, Telephone and Company Name are shown in the Project Idea overview list or search results. The Type of Organisation and Country are always shown. The email address is never shown.
- After submission the CELTIC Office will check and publish your Project Idea or your Expertise.





Partner Search

Expertise Offered Overview

H

Search for:			
Search			
Type of Organisation:			
== ANY ==	-		
Country:			
== ANY ==	•		
Expertise key words:			
== ANY ==	•		
SEARCH			





Search Project Ideas

Proposals & Ideas Overview

Search for:	
Search	
Type of Organisation:	
== ANY ==	-
Country:	
== ANY ==	•
Proposal key words:	
ANV	_
== ANY ==	•
SEARCH	



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 limits 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



Thank you for your attention!

Xavier Priem

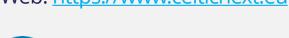
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CELTIC-NEXT Video Channel

