

CELTIC-NEXT, a Eureka ECP Cluster



www.celticnext.eu



23rd of Sepember 2021 **CELTIC-NEXT Online Proposers Day Registration is open** #CelticPropDay

Xavier PRIEM Director CELTIC-NEXT Cluster priem@celticnext.eu





is the EUREKA ECP* Cluster for next-generation communications for a secured, trusted, and sustainable digital society.

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

CELTIC-NEXT Σeureka Cluster





CELTIC-NEXT is...

- A Public Private Partnership with Eureka Countries and some regions Open to any organization willing to contribute to industry-driven ICT research and innovation collaborative projects
- Over 1000 private and public organisations:
 - large industry players
 - small & medium-sized enterprises (50% of programme participation)
 - academic/research institutions
- Several Calls per year: Spring, Autumn, Flagships, and EUREKA ECP Joint **Thematic Calls**

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CELTIC-NEXT high level targets are... **Technical Excellence**

processes

U Accelerate the deployment and take up of new advanced end-toend ICT services, employing the new network concepts of 5G and leading to the implementation of 6G for & in Eureka countries,

■ Actively facilitate the adoption of those ICT technologies by all targeted Verticals into their communities, business models and



CELTIC-NEXT high level targets are... Economical Excellence

U Consolidate the position of Eurekan ICT Manufacturers and Service Providers, within Eureka Countries and on the Global Market

way considering the "end-to-end" perspective of the new communications

U Bring all Eureka Communities to consider the issues in a holistic



CELTIC-NEXT high level targets are... **Societal & Environmental Excellence**

Investigate where advanced communications can reduce carbon footprints for many vertical sectors.

U Assist Eureka Nations and Industry to access the societal benefits & returns of being at the forefront of the new digital society.

like the Energy Grid...

- **U** Consolidate the Eureka Nations Sovereignty in ICT technologies and services, thus, other critical infrastructures relying on ICT infrastructures,



Benefits of CELTIC are ...

• 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. A A CONC

Average success rate 60 %.

• Flexibility

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

www.celticnext.eu

a proven receipt!





CELTIC-NEXT is the best support for you if...

- ✓ You want to perform collaborative R&D projects within Europe and worldwide associated countries
- \checkmark You want to get public funding support
- You want to have a high chance to get your project approved and funded
- \checkmark You want low administrative overhead
- \checkmark You want a flexible framework
- \checkmark You want high exploitation potential and business impact

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Opportunities to collaborate globally...

- Europe
- Canada
- South Korea
- South Africa
- Singapore



And potentially more countries in the future

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Looking back at CELTIC-NEXT in 2021



Next CELTIC Calls & AI-NET Flagship

- CELTIC Spring Call (closed)
- CELTIC Autumn Call (deadline 22nd of November)
- Eureka Clusters Joint AI Call 2021 (closed)
- AI-NET Flagship on automation of telecom networks has started

CELTIC Proposers Days and Events

- CELTIC Online Proposers Day, 23rd of February & 23rd September
- 2nd AI call Brokerage event (April)
- Global Innovation Summit (GIS) in May
- Potentially an event in November (in consideration)

2nd Thematic Call on Al

- Active lead role in the Eureka Clusters 2nd AI Call
- Preparing AI Call Portal and Call Submission Tool





CELTIC-NEXT end to end perspective including verticals

The evolution of ICT services will be achieved via a partnership model where the vertical sectors collaborate in determining their ICT solutions.

Thus CELTIC-NEXT puts emphasis on Core technologies, Applications and Services serving Vertical sectors :

> content (video, gaming), e-health, smart industry/ manufacturing smart agriculture, smart energy smart mobility (including connected cars) smart cities e-commerce, fintech,....





https://www.celticnext.eu/celtic-next-scope-and-research



CELTIC-NEXT Mission, Vision and Roadmap

The mission of CELTIC-NEXT for the next 4 years is to foster our Eureka collaborative RD&I program for the ICT community, and to accelerate the deployment and take up of advanced ICT services, employing the new network concepts of 5G and leading to the ownership and implementation of 6G in Eureka countries. It is crucial to consolidate the position of Eurekan manufacturers and service providers, with a high degree of Eurekan sovereignty, as globally leading suppliers of the advanced ICT equipment and services needed for the digital revolution.

It is a strong ambition of CELTIC-NEXT to assist Eurekan National Authorities, Eurekan Industry, and Eurekan Societies to access the societal benefits, competitive advantages, and commercial returns of being at the forefront of the new digital society.





CELTIC-NEXT Strategic Roadmap is...



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Community



CELTIC-NEXT Seureka Cluster 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)

- 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

Full industrial digitization and support of vertical industries

Futuristic use cases

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

C CELTIC-NE Future needs of the end users: Main technical areas of research



CELTIC-NEXT Seureka Cluster Enabling technologies that have to be enabled for verticals

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)

- 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

- recovery
- Trust enablers
 - Security
- Auditability

ICT Critical Infrastructure as a Utility, The Critical Connectivity Grid

- Quantum QKD
- AI/ML & Big Data Real Time Analytics based Security
- Reinforcement of Sovereignty
- Cyber-attack based Disaster
- 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









Organisation



CELTIC Office Structure



Xavier Priem



Assistant -----

Web Projects Administration



Ellen Tallas



Luitgard Hauer

- Accounting
- Administration support
- Proposal registration
- Website management
- Public Relations (Milon Gupta)
- IT-Support Klaas-Pieter Vlieg

Director

- Overall responsibility for Cluster & Office
- Interface toward Core Group
- Support for PAs



- Monitoring of project progress
- Support for projects
- Coordination with all PAs

- Xavier Priem (acting)
- Christiane Reinsch (full)





CELTIC Project Timeline

Check funding with **Public Authorities**

Project Preparation

Project Idea	Project Proposal	ubmission to Celtic-Plus	Celtic-Plus Label	et funding in part. countries	Cooperation Agreement	Project Kick-Off
		Su		Ge		W



Exploitation of results





CELTIC Label decision

- Full Proposal Submission by proposers (one stage process)
- Evaluation by: Industry Experts and Public Authorities
- Label Decision: **Public Authorities** and CELTIC Core Group





Full Project Submission **CELTIC Label** Decision

Evaluation by:

1. Industry Experts

2. Public Authorities



Time line: 6 weeks in total



Available Tools



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- Workspace based on Only-Office document management server with individual user accounts
- Audio/Web Conferencing based on Cisco Webex
- More information available on www.eurescom.eu/eurestools.html





Types of Dissemination Activities

- CELTIC website: www.celticnext.eu
- Project website is required
- Project Twitter account should follow @CelticNext Twitter account and vice versa
- CELTIC-NEXT LinkedIn: tiny.cc/celtic-group
- Interviews
- CELTIC Brochure
- CELTIC Project Leaflets
- CELTIC News
- Technical newspapers
- Conference papers
- Standardisation activities



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HFCC/G.fas

Hybrid Fibre-Copper connectivity using G.fast

The project HFCC/G fast will advance the emerging digital subscriber line (DSL) echnology "G fast" by innovations ranging rom channel measurements and tran siver design to novel system archite ures and use cases. This will push the andardization process as well as the dband deployment in Europe.

Main focus

The project is a follow-up of the awarder Celtic project "4GBB" (2009-2012) and has a budget of 3978 kEUR. The conortium consists of 14 partners from a European countries, including major actors from the whole telecom value

ion (ITU) is currently standardizing a ovel digital subscriber line technolog average). G fast provides a cos ards the long-term target Ftt

echnologies (e.g. copper-fibre couplin

G.fast)

ments and models of cables and the -magnetic noise environment, and novel transmission models.

ess of G.fast, maintain a Europea loov lead, and support the trans by supporting the Commission













Dissemination and Publication

Project Web:

-Exceptionally Word Press based Website hosted by CELTIC

CELTIC Leaflet:

Each project shall produce a two-page leaflet.

be visible.

Project Twitter accounts: Please follow @CelticNext Twitter account and vice-versa.



CELTIC Eurogia Online Porposers Day

- Keynote on Cybersecurity Challenges
- ect and SME session of CELTIC and Eurogia projects
- 10 countries participate to explain funding in their countries
- New project ideas

www. celticnect.eu/latest-event

15th & 16th of September 2020 **CELTIC Eurogia Online Proposers Day Registration is open**



#CelticPropDay



- -It is expected that Project set-up their own Website.

 - The leaflet informs about the project at events where the project should

 - **CELTIC Event:**
 - -The CELTIC Event takes place each year. It gives projects the possibility to present their work to Managers, Public Authorities and Engineers.
 - -The last CELTIC Event took place from 19-20 June and was co-located with EuCNC 2019 in Valencia. The Project Exhibition took place from 17-21 June.











Website: www.celticnext.eu

- For each Project:
- Public part, general project
- Confidential part (extended Project Website)
- Project management (implemented after Kick-Off)

C > CELTIC-NEXT

ABOUT CELTIC-NEXT HOW TO PARTICIPATE PROJECT CALLS PROJECTS EVENTS CELTIC-NEXT Next Generation Communications for a Secured, Trusted and Sustainable Digital Society Connectivity Autumn Coll Networks 8 Telco Cloud Open until 22/11/2021 5G & 6G SUBMIT YOUR PROPOSAL Digital Smart Critical Security Transport & eCare & Trust Communications Educatio www.celticnext.eu



6 new projects received CELTIC-NEXT label

In the CELTIC-NEXT Spring Call 2021, 10 validated proposals submitted by 12th April 2021 got selected in the evaluation ...



eureka

Read more...



ligh number of proposals in Eureka Clusters AI Call 2021

The second Eureka Clusters AI Call, which was launched on 1st March, has attracted a high number of project ...



NEWS AND MEDIA

UPCOMING EVENTS

CELTIC Online Proposers Day – 23rd of September 2021

September 23, 2021@9:00 am - 5:00 pm

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CELTIC News 2/2020



AI-NET Kick-Off Event - CELTIC Flagship Project for Intelligent etwork Automation

AI-NET Kick-Off Event – CELTIC Flagship Project for Intelligent Network Automation Heidelberg, 1st June 2021 – Today, CELTIC flagship...



The Eureka network will celebrate its foundation in 1985 under the motto "35 years of innovation beyond borders" with...

Read more...





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n this edition ELTIC Chair's Corner reka Interview

24







Innovation Awards





CELTIC Flagship projects impacts the Business 80 Partners 70ME



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



Partners

30M€

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

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



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





90

Partners

Just started: CELTIC AI-NET Flagship Automation of Telekom Networks



Accellerating digital transformation in Europe by Intelligent NETwork automation Adaptive Networks for new services Automated secure networks AI/ML algorithms and efficient hardware implementations for optical data transmissions Industry 4.0 Securing critical data Scalable and resilient networks.







CELTIC-NEXT Newsletter

Please have a look at our Newsletter

https://www.celticnext.eu/newsletter/

and register for free subscription

https://www.celticnext.eu/news-subscription/

www.celticnext.eu









Let's invent a smarter, safer and more sustainable world together !





Contact details

Xavier PRIEM CELTIC-NEXT - Director

c/o Eurescom GmbH Wieblinger Weg 19/4 69123 Heidelberg, Germany

Mobile: +49 1515 796 2180 Fax: +49 6221 989 209

Email: <u>mailto:priem@celticnext.eu</u> Web: <u>https://www.celticnext.eu/</u>

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Upcoming Celtic calls and Thematic calls

- **22nd of November**: Submission deadline for CELTIC Autumn Call CELTIC scope : ICT and its applications to verticals
- 1Q2022 : CELTIC Spring Call CELTIC scope : ICT and its applications to verticals
- 1Q2022: ECP Joint Thematic Call on Sustainability
- **1H2022**: CELTIC New Flagship Call (in preparation)