CELTIC-NEXT
Eureka Cluster

CELTIC News 1/2022

The newsletter of EUREKA Cluster CELTIC-NEXT

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CELTIC-NEXT
Eureka Cluster

Join the Industry-Driven Research Programme of next-generation communications for a secured, trusted, and sustainable digital society

CELTIC-NEXT Call for Project Proposals – Deadline: 21st of October 2022

Do not miss the opportunity to participate in CELTIC-NEXT, the industry-driven European ICT and telecommunications research programme under the umbrella of Eureka. Submission deadline for the next call for project proposals is 21st of October 2022.

CELTIC-NEXT projects are collaborative private-public partnership R&D projects. All Eureka member countries and associated countries can financially support them. More information on public funding and national contacts per country can be found on the CELTIC-NEXT Public Authorities Website. Please talk to your national contact early in the process.

Easy proposal process

Preparing and submitting a CELTIC-NEXT project proposal is easy. Just register via the CELTIC-NEXT online proposal tool, fill in the Web forms, and upload your proposal in pdf. Access to the proposal tool and to a proposal template is available via our Call Information page (https://www.celticnext.eu/call-information).

Benefits of participating in CELTIC-NEXT

- You are free to define your project proposal according to your own research interests and priorities.
- Your proposals are not bound by any call texts, as long as it is within the ICT/telecommunications area see: CELTIC-NEXT Scope and Research Areas.
- CELTIC-NEXT projects are close to the market and have a track record of exploiting their results soon after the end of the project.
- High-quality proposals have an excellent chance of receiving funding, with an average success rate higher than 50 %.
- The results of the evaluation will already be known in December 2022.

If you have any questions or need help, do not hesitate to contact us; we would be pleased to support you.

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The new improved Eureka Clusters Programme

David Kennedy
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The Eureka Clusters Programme (ECP) is coming out of a restructuring phase where there was a lot of pressure on the Clusters themselves to become more flexible and responsive, against a promise of more investment and more support for the industry and community research and collaboration needs. At this point it is useful to see how we are progressing and if we are achieving our goals.

From the Clusters side we have shown great flexibility and adaptability by running joint thematic calls for topics that were identified as common interest. However, despite this the major expectations the Clusters had from the renewal have not emerged yet. We expected that the joint calls would be new topics that would generate new budgets and increase the investment overall in the Cluster activities, but to date, we have not seen this in reality. In fact, many Eureka member public authorities admit they are funding the new joint calls from the existing Cluster budgets with no additional funding being generated.

The problem here is that we are then, in effect, just increasing the number of calls to be managed and therefore the number of reviews, assessments, funding decisions, etc., for what is effectively the same size programme. Clearly it is not a long-term strategy to keep increasing the costs of operation without seeing any increase in the volume and value of the programme. So, we do need to do a progress assessment on the New ECP model and work out which parts are working and which parts need more attention.

From the Clusters perspective, one part that has not taken off is the expected high-level meetings between industry representatives and national authorities. It was foreseen that we could have strategic discussions that would lead to common ideas on the priorities and therefore a mutual commitment of both public authorities and industry to invest in the identified priorities of the moment. We are just not there yet. We need to get this dialogue going to stimulate the anticipated increases in investments.

Bigger is better

The other point of concern is that we have an increasing trend for smaller project proposals coming from the community. We need to see why this is happening and how can we motivate more substantial actions. One possible cause is that proposers are being conditioned by warnings of limited funding opportunities – so they ask for less, so the project ambition is reduced, so the public authorities are not impressed by the limited proposals, and we are in a downward cycle. Another suggestion is that proposals are shrinking, because resources are limited. However, this is only true if the proposals are moving away from the core needs of the industry. Industry players are simple in this regard in that they decide what they need to do for their future business and, if the project proposal is in line with their business goals, then they commit the necessary resources. But maybe we are coming back to the missing strategic discussion where the business needs and the national interests need to be aligned.

The Cluster commitment to flexibility has been proven by the joint calls, but this has introduced two concerns: the first is that the public authorities seem to have difficulties being equally flexible – it was really unfortunate that one public authority refused to support a project in a joint call, as it was proposed through a Cluster they did not support – this challenges the very basis of joint calls; the second concern is that the level of budget commitment to joint calls is such that the issues may be better addressed as recommended themes within the normal bottom-up calls of the Clusters.

The way forward

Whatever way we look at it, there is a clear need to strategically invest from both the national and the industry sides – but it must be done in a coherent way. There are several challenges in the new model that we must progress on, to get the additional value from the programme. It is now emerging that it will be necessary to have multiple national level meetings with the Cluster interests rather than the one common high-level meeting – or maybe both approaches need to run in parallel.

In any case, we must preserve and promote the essence of the extremely efficient and useful Eureka Clusters instrument. This, in essence, is the structure in which the proactive Cluster core groups, as the key industry players of their respective sectors, work in partnership with the Eureka public authorities to stimulate a set of bottom-up project proposals that capture the needs of industry, aligns them with the national interests and develops products and services for the benefit of both society and industry as a whole. The EUREKA Clusters Programme matters.

Accelerating the digital transformation in Europe

Public event of CELTIC flagship project AI-NET

The public event of AI-NET in Berlin on 28 April 2022 presented the first-year results of the CELTIC flagship project. In addition, the half-day event hosted by Fraunhofer HHI provided the opportunity to discuss topics of strategic relevance related to the work of AI-NET.

The event, moderated by CELTIC-NEXT Chairman David Kennedy from Eurescom, started with high-level presentations by representatives of the four public authorities funding the project.

The attentive audience on site – A larger number of participants attended remotely

Public authorities stress digital sovereignty

Prof. Dr.-Ing. Ina Schieferdecker, Director-General for Research for Digitalization and Innovation at the German Federal Ministry of Education and Research, set the tone, when she explained the relevance of AI-NET: "AI-NET is an important step for Germany and Europe towards resilient and secure network infrastructures for technological sovereignty." She highlighted that a peaceful Europe needs to be in the driving seat of the digital transformation as progressed by AI-NET. She put this in the context of the Russian invasion of Ukraine and the COVID-19 pandemic and their impact on the economic and technological sovereignty of Europe.

Andreas Aurelius, Head of ICT department at Swedish innovation agency Vinnova, stressed the importance of resilient societies enabled by resilient digital infrastructures in Europe. He particularly highlighted AI-NET's contribution to enabling resilient networks infrastructures across Europe by making them more secure and autonomous – characteristics he considers critical for our future society and economy.

In the same vein, Heikki Uusi-Honko, Head of International Networks at Business Finland, underlined the high relevance of AI-NET, as industrial sovereignty is more topical now than ever. He added that in order to get innovations fast to the market, it requires a native digital mindset, which AI-NET has demonstrated. He highlighted the expected impact for Europe and its fast step change in the digital transformation.

Christian Dubarry, Head of European Affairs at Bpifrance, explained how France considers cloud computing as a future champion of sovereignty, and expects a doubling of the number of companies for trusted cloud computing already by 2025. He said that AI-NET ANTILLAS could contribute to these goals with its concept of edge and fog infrastructure.

All four public authority representatives acknowledged the intermediate results of the three AI-NET sub-projects.

Presentation of project results

After a demonstration tour of selected results achieved by AI-NET, the event continued with presentations of AI-NET and its sub-projects. Coordinator Achim Autenrieth, Director Advanced Technology at ADVA, started by providing an overview on AI-NET as a whole before handing over to the leaders of the three sub-projects. Azimeh Sefidcon, Research Area director for Cloud at Ericsson, presented AI-NET-ANIARA and its achievements to date. AI-NET-PROTECT was presented by Jörg-Peter Elbers, Senior VP Advanced Technology at ADVA. And finally Olivier Audouin, Director of external affairs at Nokia, gave an overview on AI-NET-ANTILLAS and its results.

Panel discussion on digital sovereignty

The final highlight of the event was a panel discussion on the geopolitical, economic and technological challenges Europe is facing on its way digital sovereignty. The six panel participants provided a diversity of industry views on the subject. Panel participants included Johan Sandell, CTO of Waystream,

Prof. Dr.-Ing. Ina Schieferdecker from the German Federal Ministry of Education and Research

Christoph Glingener, CTO of ADVA, Timo Lehnigk-Emden, CTO of Creonic, Olivier Winzenried, CEO of WIBU systems, Jim Dowling, CEO of Logical Clocks, and Jonathan Rivalan, R&D Director of SMILE.

The lively discussion, moderated by CELTIC-NEXT Chairman David Kennedy, identified numerous challenges that need to be addressed, from supply-chain risks to critical dependencies in the areas of key technologies and raw materials required for Europe's

Huge interest in the AI-NET results at the demo tour

Lively panel discussion on digital sovereignty (sitting, from left): Timo Lehnigk-Emden, CTO of Creonic, Jim Dowling, CEO of Logical Clocks, Olivier Winzenried, CEO of WIBU systems, Jonathan Rivalan, R&D Director of SMILE, Johan Sandell, CTO of Waystream, Christoph Glingener, CTO of ADVA, and moderator David Kennedy (standing)

digital infrastructure. The panel participants and the audience joining the discussion could not converge on the best path to achieving digital sovereignty, but achieved a higher level of insight on the challenges to be tackled.

About AI-NET

CELTIC flagship project AI-NET was officially launched on 1st June 2021. AI-NET aims at 'Accelerating Digital Transformation in Europe with Intelligent Network Automation'. The project is addressing the challenge that the current centralised cloud infrastructure is not adequate for serving the requirements of the digital transformation in Europe. AI-NET is built on the premise that three technologies need to be combined to shape a new secure service and application platform: 5G/6G, edge-centric computing, and artificial intelligence.

The main goal of the AI-NET project is to provide enablers and solutions for high-performance services deployed and operated at the network edge. AI-NET is using artificial intelligence for complementing traditional optimisation algorithms, in order to manage vastly increased network complexity.

› Further information

AI-NET project website – *https://ai-net.tech*

The Eureka CELTIC – ESA Space-ICT Programme

Enabling the faster convergence and development of terrestrial and non-terrestrial networks & services

On 22 November 2021, Eureka Cluster CELTIC-NEXT and the European Space Agency (ESA) signed a Memorandum of Intent (MoI) in Porto, Portugal, which aims to bring their respective communities closer together. The MoI will help to foster economic growth and jobs through coordinated R&D&I activities and the commercial exploitation of integrated space and terrestrial systems enabled by 5G and 6G. The collaboration aims to leverage the complementarity of ESA and CELTIC-NEXT and build on synergies to maximise the return on investment and to support achieving the UN Sustainable Development Goals.

In today's rapidly changing political and economic environment and its regional battlefields, Space ICT has become, more than ever, a pillar for sovereignty and resiliency.
Space ICT is currently at the centre of attention for global industry and governments. On the economic side, new non-European entrants are currently disrupting the sector with Low-Earth-Orbit (LEO) satellites and High-Altitude Pseudo-Satellites (HAPS). On the political side, satellites, with all their potential missions and services, have shown to be essential assets for countries, not only for media broadcasting and observation, but also for connectivity to individuals and objects.
European industry and countries must defend their economic and political shares in Space ICT. European industry must be able to support European countries' ICT & data sovereignty. Sovereignty cannot be achieved by purchasing and deploying equipment and services from foreign vendors that could fall under or are already under control of non-trustable governments.

Recent events in Eastern Europe have shown, how critical it is to count on both terrestrial and non-terrestrial ICT services, as together they constitute one of the critical infrastructures of a country, especially considering the digitalisation of the society and the vertical industries.

Therefore, it is mandatory to increase and leverage to its maximum the European and allied countries' funding to reach the critical mass for R&D&I and a faster time-to-market for the European countries and allies' ICT industry.

Eureka Chairman Miguel Bello Mora, Elodie Viau – Director of Telecommunications and Integrated Applications and Head of ECSAT at the European Space Agency (ESA), and CELTIC Office Director Xavier Priem

The central role of space and satellites

Space, satellites and alike play an extended and increasingly critical role in 5G, 6G and overall ICT services enabling the digital society.

Space and satellites had already an important role in the global ICT world for the economy, industry, and the people. They have already provided media broadcasting (TV), geo-positioning (GPS, GONASS, etc.), data links (backhauling and access), and telephony (satellite phones). For data links and telephony, they were mainly meant to provide those services in areas not well or at all covered by terrestrial networks, and recently also where high-data capacity was not needed. LEO fleets have somehow changed this perception by providing high-peak capacity over the coverage of one LEO satellite, with the foreseeable de-facto limitation of the maximum number of simultaneously attached users, as those share the same total LEO satellite bandwidth.

Since 5G and reinforced with 5G-Advanced, and the planned 6G, more industry verticals are getting digitalised, automated and autonomised, wireless connected instead of wired connected, or simply "connected". People will expect that services delivered by those vertical industry sectors will be ubiquitous, always on and resilient. A good example is Connected and Autonomous Vehicles (CAV), being cars, trucks, terrestrial drones but also flying objects like future flying taxis, delivery drones, and more. 3GPP has now opened wider doors for the inclusion of SatCom besides the traditional backhauling role.

Space ICT remains a complex field with specifics in terms of operational conditions for R&D&I as well as field deployment.

Entry barriers to the Space ICT sector

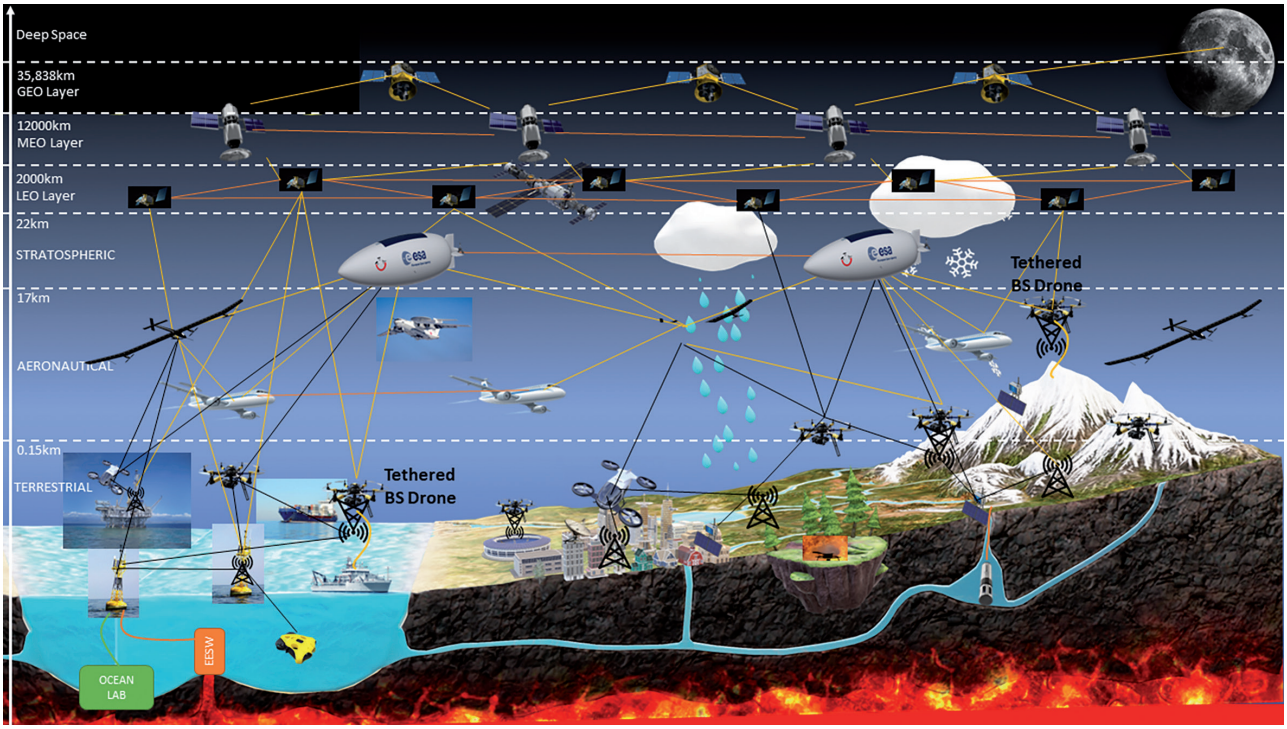
Several factors create an often too high barrier to entry for new or small players originating from the terrestrial ICT sector to move their technologies and products to the space or third dimension:

- The specific space environment for radiations, dimensions and weight, power supply limitations (level and duration) implying very costly special hardware platforms, if they even exist
- The satellites' launch costs
- The inherent inaccessibility after launch in case of outages or upgrades poses challenges not existing for terrestrial network players
- And, moreover, the space and satellite technologies (platform, payload, antennas…) knowledge itself

For the existing actors from the space sector, they seek for more competencies in 3GPP technologies and closer integration with terrestrial actors.

What CELTIC-NEXT and ESA bring to the collaboration

ESA TIA ARTES and CELTIC-NEXT provide various funding instruments: Open Calls, ITT, PPP for ESA, and bottom-up, flagship and joint ECP calls for CELTIC-NEXT. By exposing those instruments to each other's community and together, both organisations will provide a privileged forum for cross-fertilisation and collaboration of both communities, leveraging the different TRLs, funding schemes and public funding agencies across the large sum of their respective geographical coverages: the Eureka countries for CELTIC and the ESA coun-



The new Space-ICT Programme – Targeting the global 3D Internet

tries, some being common and some being different. Some stakeholders are common to ESA and CELTIC-NEXT, but most are new to the other. Both organisations see high complementarity in joining forces to leverage the association of their respective assets, forces, and communities.

As Elodie Viau said at the MoI Signature ceremony in Porto: "ESA`s strategic programme line Space for 5G & 6G demonstrates the essential nature of satellites for 5G and 6G. It sets the standards and frameworks for systems and services interoperability, as well as the base for integrating terrestrial networks with satellites. We draw technology and product roadmaps; we support and foster the development of integrated satellite terrestrial systems and value-added services."

What this collaboration will enable and what it will target

This MoI and the attached collaboration will enable the faster convergence and development of terrestrial and non-terrestrial network and service technologies in the innovative field of Space ICT, i.e., three-dimensional networking.

The MoI will focus on technology pathfinders and solutions to develop and validate research & development projects initiated by ESA and CELTIC-NEXT. In addition, the MoI includes the organisation of joint events as well as the dissemination of relevant information to terrestrial, non-terrestrial, and combined operators and vertical market stakeholders.

More specifically, the MoI will encourage terrestrial ICT and Space ICT industry collaboration with other industry verticals to facilitate the adoption of advanced Space ICT technologies in the business models and processes of all industry sectors. The focus of the cooperation is to consider the issues in a holistic way by considering the end-to-end perspective of new communications services enabled by 5G and 6G technologies, including an understanding of the economic, environmental, and societal benefits.

How it will be implemented

In a first phase, each organization will run its own funding instruments, with its own processes. This cooperation does not replace their respective funding programmes and instruments, but leverages them for identified synergies in terms of topics of interest or strategic goals for their communities.

Coordination on specific themes will be put in place. These themes, include, but are not limited to:

- Multi-layered Space ICT and Flying Objects Convergence
- Design and development of systems, subsystems and technology
- Networks and services conformance and interoperability tests
- Viable business ecosystem models
- Convergence and integration of terrestrial and non-terrestrial networks
- Frequency spectrum sharing between satellite networks and other satellite/ terrestrial networks
- Network timing and synchronisation technologies
- Edge cloud computing
- Data driven (AI enabled) management
- Data curation technologies
- Digital twins

To support the achievement of their common objectives, the two organisations intend to:

- Share knowledge, ideas and lessons learned
- Create awareness and promote opportunities for collaboration
- Utilise and leverage their relevant resources and expertise necessary to ensure the success of the common objectives, in support of the activities initiated in the context of this cooperation
- Plan and manage jointly relevant activities in areas of common interest in line with the signatories' respective legal frameworks
- Collaborate on the organisation and execution of activities with a view to reaching the common objectives identified
- Regularly attend meetings concerning the effectiveness of the collaboration, with reference to the priorities agreed
- Participate in suitable events organized by the other signatory
- Undertake joint communication, as appropriate, addressing the cooperation domains

Joint actions will be developed such as:

- Roadmapping
- Joint cross-community technology and strategy advisory boards

- Exchange on call dates and processes to anticipate best conditions for calls and participants
- Knowledge network creation and animation
- Joint working groups on specific topics across funded projects
- Joint webinars and workshops
- Promotion and provision of testbeds and trials platforms (R&D, integration, launch)
- Mutual advertisement of calls and bringing communities to jointly apply

The strategic technology calls and actions roadmaps are currently under development. CELTIC-NEXT is happy to receive your input and feedback to enrich its contribution to the joint work.

Outlook

This MoI is the first of a series of new collaborations for CELTIC-NEXT. This fulfils the objectives set by CELTIC-NEXT's Core Group to develop CELTIC-NEXT's support to and impact for the ICT community by enriching its DNA with new verticals and communities. The space community is also eager to collaborate more with the terrestrial ICT community. This collaboration offers the perfect playground for both communities to meet and work together on strategic topics and projects. CELTIC-NEXT welcomes greatly the space community's contribution to this strategic programme in terms of inputs to the roadmaps, participation to joint events and meetings, and proposals in the coming Space-ICT and 3D-NET focused calls to be announced soon.

Memorandum of Understanding with 6G-IA signed

Collaboration for faster terrestrial and non-terrestrial convergence

On 4th April 2022, Eureka Cluster CELTIC-NEXT and the 6G Smart Networks and Services Industry Association (6G-IA) signed a Memorandum of Understanding (MoU), which aims at establishing synergies and complementary activities in collaborative ICT research. The MoU will help foster economic growth and jobs through coordinated R&D&I activities and the commercial exploitation of generated results. The collaboration aims to leverage the complementarity of 6G-IA and CELTIC-NEXT and build on synergies to maximise the return on investment and to support achieving the UN Sustainable Development Goals.

ICT has become, more than ever, a pillar of sovereignty and resiliency in the rapidly changing social, political and economic environment of today and its regional battlefields. The Russian war against Ukraine as well as the measures against the COVID-19 pandemic have shown how critical it is to count on both terrestrial and non-terrestrial ICT services, as together they constitute one of the critical infrastructures of a country, especially considering the digitalisation of the society and the vertical industries.

Therefore, it is mandatory to increase and leverage to its maximum the European and allied countries' funding to reach a critical mass of R&D&I and a faster time-to-market for the European countries and their allies' ICT industry.

This Memorandum of Understanding provides the platform for leveraging on each signatory's strengths and cooperation, to support sovereignty and resiliency for Europe and allied countries.

The purpose of this MoU is to set out a simple framework where the signatories can identify the complementary nature of their respective objectives and to identify and implement shared activities that benefit both initiatives and contribute to the achievement of their goals.

The signatories aim to leverage the diversity of 6G-IA and CELTIC-NEXT as well as the fact that their projects are somewhat sequential in terms of their Technology Readiness Levels (TLRs), to maximise the return on the respective investments and increase the impact on the Sustainable Development Goals.

The signatories will focus on encouraging cross-programme discussions and workshops on potential technology pathfinders and solutions, with a view to stimulating a pipeline of new projects for both initiatives and sharing reciprocal contributions to each other's Strategic Research and Innovation Agenda (SRIA) documents.

The focus of the cooperation is to stimulate the respective communities to consider the issues in a holistic way considering the "end-to-end" perspective of the new communications services being enabled by 5G and 6G technologies, as well as developing an understanding of the economic, environmental, and societal benefits.

How the MoU will be implemented

To support the achievement of their common objectives, the signatories intend to:

- Create awareness and promote opportunities for collaboration within and across the respective communities
- Consult mutually on their SRIAs
- Collaborate on the organisation and execution of activities with a view to reaching the common objectives identified
- Participate in and support suitable events organized by the other signatory
- Plan and manage joint activities in areas of common interest in line with the signatories' respective legal frameworks
- Undertake joint communication, as appropriate
- Leverage their relevant resources and expertise necessary to ensure the success of the common objectives
- Regularly review the effectiveness of this collaboration, with reference to the priorities agreed

Conclusion

This MoU is the second of a series of new collaborations for CELTIC-NEXT. This fulfils the objectives set by CELTIC-NEXT's Core Group to develop CELTIC-NEXT's support to and impact for the ICT community by enriching its DNA with new verticals and communities. The 6G-IA community is also eager to collaborate more with the CELTIC ICT community. This MoU offers the perfect playground for both communities to meet and work together on strategic topics and projects.

Health5G

Healthcare Transforming with 5G Wireless Tech

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The advent of advanced mobile sensing and data processing technologies is a major driver in the transformation of many verticals including the healthcare sector. This shift is further accelerated due to societal changes including ageing populations and increasing global healthcare expenditures.

The three-year CELTIC project Health5G ran from 2019 to 2021, and it successfully aimed to discover healthcare scenarios that could bank on technological advancements especially in 5G mobile technologies.

Eureka Clusters like CELTIC-NEXT traditionally support high technology readiness level (TRL) outcomes. Obtaining results with a successful technology-market fit was ensured by the diverse skillsets of the 26 partners from 6 countries.

Approach

There can be a multitude of scenarios in healthcare. The project team started out by splitting all potential scenarios into three groups:

1. **Healthcare at hospital:** Advancements in sensing, connectivity, and AI lead to improvements in existing hospital-based patient treatments, resulting in more accurate, personalised, and trackable treatments for patients. Here, we worked on several interesting hospital use case scenarios.
2. **Healthcare at home:** Technological developments and ageing populations are enabling all patients, especially the elderly and the vulnerable, to be taken care of – not only at hospitals, but also at the comfort of their homes. In Health5G, we addressed this set of scenarios under what we called 'Healthcare at home'.
3. **Emergency healthcare:** Ubiquitous connectivity and improved sensing & AI technologies were used in emergency scenarios to improve impacts of first aid and reduce fatalities. The results were studied in Health5G under emergency scenarios.

Such a discrete and upfront split provided a more systematic way by generating unique focal points to the consortium partners. Consequently, all the undertaken work would fit into one of the three categories of healthcare, whereby the pilots would also be designed accordingly.

These scenarios were considered with three different priorities in mind, the three pillars:

1. **Patient healthcare:** Medical centres and scenarios in which healthcare service is given and/or where healthcare workers are.
2. **5G wireless technology:** The combination of several technological layers that leads to a commercial 5G signal, making the services available anywhere at any time to anyone.
3. **Healthcare technologies:** All the tech companies and researchers that do not necessarily provide healthcare but are the cogs in the healthcare machine, as they provide the underlying applications, data management, and security & privacy technologies.

Achieved results

Typical CELTIC projects deliver results close to market. Hence, creating use cases with a storyline supported by partners in a meaningful value chain was considered key to success. Indeed, Health5G concluded with six country pilots and a seventh demo on the overarching topic of cybersecurity:

- Swedish Country Pilot: Patient Home Care – Integrated Swedish Demonstration
- German Country Pilot: Zero Touch Infrastructure Orchestration for Emergency Services
- Korean Country Pilot: Wireless Patient Monitoring Inside Hospitals
- Turkish Country Pilot: Healthcare at Hospital and at Home
- Spanish Country Pilot: Gait Monitoring System and Automatic Deployer by Experis
- Irish Country Pilot: Wearable Video from Paramedic to Hospital
- Cybersecurity Pilot: Sirena – Security and Cybersecurity Tool

With the addition of smaller scale PoC demonstrations, the project generated 34 public demo videos.

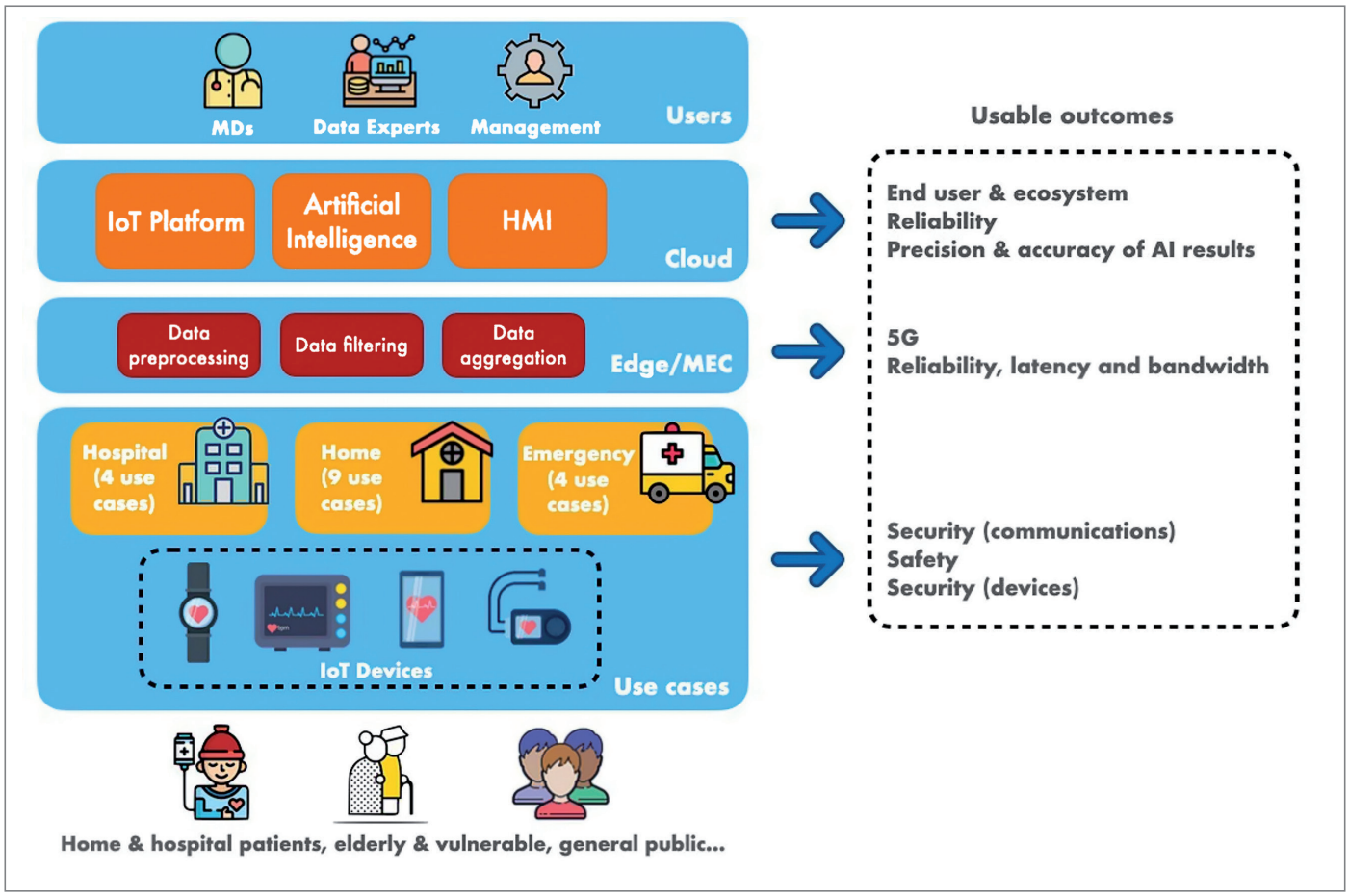

Illustration of the Health5G conceptual architecture

On the exploitation front, Health5G outcomes already started turning into further R&I projects, postgraduate subjects, field trials, or in some cases purchase orders. As for dissemination, the statistics reveal 67 journal and conference papers, 10 conference, session or track organisations, 37 stakeholder value workshops, 2 standardisation contributions, and 5 press releases. So far as standardisation goes, the main emphasis was on compliance. Standards for wireless technologies (5G), security & privacy, and medical devices were carefully studied and understood by the consortium. Of secondary priority, contribution to standards was a topic where preparations were completed for proposing changes to the O-RAN standard.

Conclusion and outlook

During Healht5G, the consortium took valuable steps to reap rewards of 5G wireless technologies and advanced medical applications that rely on ubiquitous sensing and computing. A careful analysis of the needs of patients and healthcare providers will help pave the way for healthcare services of the future.

› Further information

Healht5G project website – *https://health5g.eu*

Implementing the new roadmap

How CELTIC-NEXT is delivering on its new ambitions

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For CELTIC-NEXT, 2021 was a year of renewal and change. 2022 is a year of implementation: translating the new roadmap into partnerships and calls, designing the Space ICT flagship programme, acquiring new Core Group memberships, and implementing the first official inter-cluster joint thematic call of the Eureka Clusters Programme on accelerating industrial sustainability.

Solidarity with Ukrainian colleagues

Before going into the other topics, let me first share on behalf of the CELTIC Office our deepest compassion with our Ukrainian colleagues and their families. We are worried about the destiny of those who were not able to flee or had to stay and fight the invader. Our attempt to contact them was not successful. Our only hope is that this is because our contact attempt was their lowest priority, and they did not find the time and energy to answer.

Translating the new roadmap into partnerships and calls

In the first half of 2022, we have pursued the implementation of CELTIC's new roadmap by running several actions, and we will continue to do so in the second half. We are presenting this roadmap in our Proposers' Days, to allow consortia to propose innovative projects in the large number of fields of technologies, applications, and verticals of the roadmap. This is our traditional bottom-up approach. We will continue to run our Spring and Autumn Calls as per our successful history. This is a unique selling point of CELTIC as a Eureka Cluster compared to other international funding schemes. And it will remain so in the future.

Secondly, we are entering into new partnerships to enhance our funding impact in the global ICT community, as well as in other industries. Those partnerships will nourish further our roadmap and attractivity to Public Authorities to fund impactful innovative projects across and beyond the Eureka and European countries. This is already bearing fruits with the joining of two new CELTIC Core Group members: SES S.A. and CELLNEX Telecom.

MoI signature (from left): Eureka Chairman Miguel Bello Mora, Elodie Viau – Director of Telecommunications and Integrated Applications and Head of ECSAT at the European Space Agency (ESA), and CELTIC Office Director Xavier Priem

One of the new partnerships has already been signed with ESA, the European Space Agency, in the form of a Memorandum of Intent (see the Space ICT article in this issue of CELTIC News). CELTIC and ESA will coordinate efforts and exchange on terrestrial network and non-terrestrial network convergence and cooperation. Some of those new partnerships, as for example the one with ESA, will be translated into flagship programmes and associated calls.

Designing the Space ICT flagship programme

Space ICT has become a subject of high attention for industry and governments, and this has been strongly reinforced by the effects of the COVID-19 pandemic and the war in Ukraine. A clear sign has been also sent by 3GPP, which has now opened wider doors for the inclusion of SatCom besides the traditional backhauling role. The MoI will encourage terrestrial ICT and Space ICT industry collaboration with other industry verticals to facilitate the adoption of advanced Space ICT technologies in the business models and processes of all industry sectors.

CELTIC-NEXT and ESA are working together to define a joint roadmap of technologies, use cases and agenda of calls. ESA is a key actor in the development of all aspects and fields of space activity. Once the first roadmap and an agenda of calls are ready, CELTIC and ESA will advertise them. The joint roadmap and agenda should be defined during the first half of 2022, and the first CELTIC Space ICT flagship call should be announced for the second half of 2022.

New Core Group members

CELTIC has started to approach potential new Core Group members to enrich its DNA. And CELTIC is proud to have added two strong new members with headquarters based in Europe to its Core Group:

SES S.A. is a leading satellite operator. With over 70 satellites in two different orbits, their reach is unlike any other. They combine a vast, intelligent network of satellites and ground infrastructure with industry-leading expertise to manage and deliver high-performance video and data solutions virtually everywhere on the planet. SES S.A. already delivered a keynote in the ECP Joint Sustainability Call 2022 Webinar in Luxembourg.

CELLNEX Telecom is a leading infrastructure operator for wireless telecommunication in Europe. Cellnex has made a firm commitment to developing its network, which currently comprises around 128,000 sites. 71,000 of them are already in the portfolio and the rest in the process of closing or planned roll-outs

up to 2030, which perfectly positions the company to develop new-generation networks. CELLNEX provides services in Spain, Italy, Netherlands, United Kingdom, France, Switzerland, Ireland, Poland, Portugal, Austria, Denmark, and Sweden thanks to the investments undertaken to boost its transformation and internationalisation. CELLNEX already delivered a keynote in CELTIC's Spring Call 2022 Proposers' Day.
Other prospective new Core Group members will be approached this year.

First inter-Cluster joint thematic call on sustainability

After having led the two pilot pre-ECP joint calls on AI, CELTIC-NEXT has contributed to the first ECP Joint Call targeting the acceleration wof industrial sustainability, with the two sub-topics chosen by the 16 participating Public Authorities:

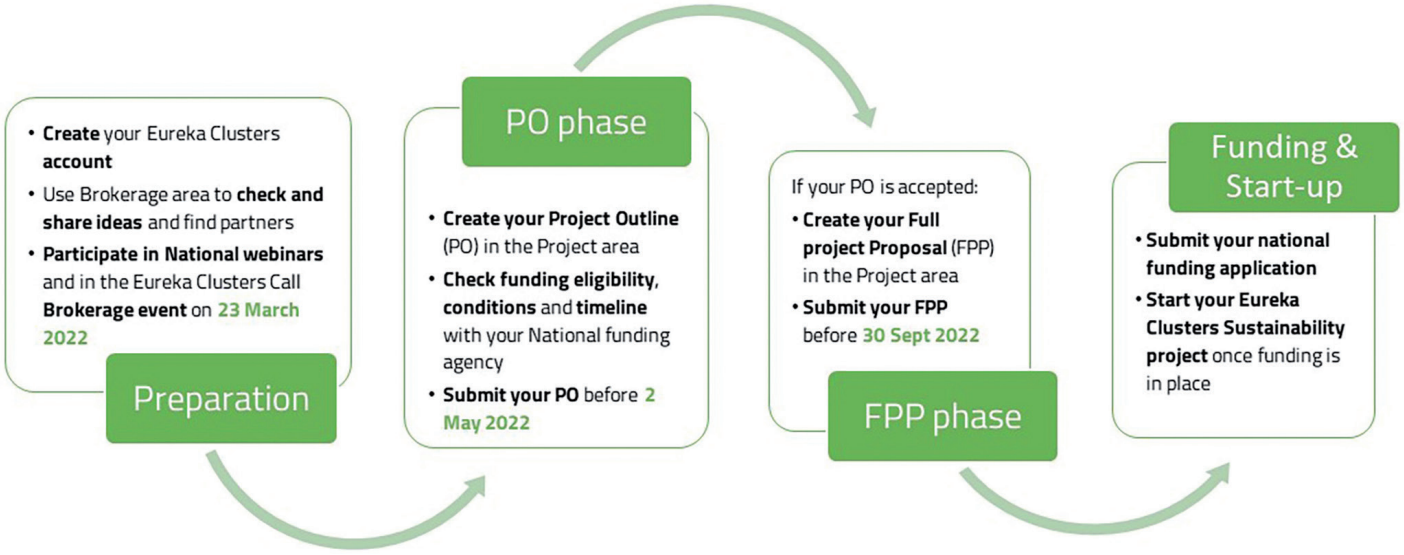
- Green ICT
- Space-Earth-ocean integrated systems for better observation and data exploitation

The timeline of this call is shown in the figure.

Information about the call, which closed on 2nd May 2022, is available on the Sustainability Call Website at https://eureka-clusters.eu/sustainability.html

Outlook

2022 is and will remain a challenging year for many topics. Joint collaborative innovation and knowledge exchange are among the best weapons against pandemics and wars. Our ICT community is one of the best positioned to understand and support this. Cybersecurity, resilience of critical infrastructures (for example with SatCom), and misuse of ICT technologies against people and nations are certainly topics to be ranked now as absolute priorities in the new world that is in front of us. CELTIC has made a collaborative proposal to its fellow Clusters within Eureka and will try to elaborate a strategic programme in that direction towards Eureka funding bodies.



Timeline of the Eureka Clusters Sustainability Call 2022

CELTIC-NEXT
eureka Cluster

About CELTIC-NEXT

CELTIC-NEXT is the Eureka Cluster for next-generation communications enabling the inclusive digital society. CELTIC-NEXT stimulates and orchestrates international collaborative projects in the Information and Communications Technology (ICT) domain. The CELTIC-NEXT programme includes a wide scope of ICT topics based on new high-performance communications networks supporting data-rich applications and advanced services, both in the ICT sector and across all vertical sectors.
CELTIC-NEXT is an industry-driven initiative, involving all the major ICT industry players as well as many SMEs, service providers, and research institutions. The CELTIC-NEXT activities are open to all organisations that share the CELTIC-NEXT vision of an inclusive digital society and are willing to collaborate to their own benefit, aligned with their national priorities, to advance the development and uptake of advanced ICT solutions.

www.celticnext.eu