CHIST-ERA selects 10 new research projects

In August 2019, CHIST-ERA has invited 10 new research projects for grant preparation for a total budget of 9 M€. Five projects fall in the analog computing for AI domain and five others in the computing in dynamic networks one.

The success rate of the call reaches 16.1%.

The projects selection follows the Call 2018 competition launched end of 2018 by CHIST-ERA, a European network of research funders. The researchers were invited to propose projects in two topics of emergent scientific importance for potentially high impact new information and communication technologies:

- **Analog Computing for Artificial Intelligence (ACAI)**
  With the end of Moore's law, there is room again for more varied computer architectures including analog ones. These can enable fast, energy-efficient computing for specific applications and thus become attractive again. Furthermore, the field of AI addresses signals, which are intrinsically analog (image, sound, speech, proprioception, etc…) and increasingly relies on neural networks, which naturally lend themselves to analog computing. In this context, analog computing becomes appealing for running AI applications locally on personal devices, and more generally in an energy-efficient way.

- **Smart Distribution of Computing in Dynamic Networks (SDCDN)**
  The proliferation of IoT solutions is driving new computing paradigms that support diverse applications' needs including cloud, fog and edge computing. Increasingly hybrid approaches are being adopted to provide performance trade-offs between these distribution models. This trend is foreseen to continue to grow especially in smart environments powered by post-5G networks. Processing will have to be delegated via novel intelligent coordination strategies over dynamic networks. There is a need for ubiquitous, context-aware, robust solutions that dynamically orchestrate computing tasks among these models.

18 countries members of CHIST-ERA joined the call, 17 in Europe plus Québec in Canada. Building on this collaboration, the selected projects are all transnational with at least three research groups from three different countries. The transnational networking will be further supported through a yearly seminar bringing together the funded projects.

The selected projects are listed below with an overview of the call statistics in annex. Detailed summary of the projects as well as comprehensive statistics on the Call 2018 can be seen at www.chistera.eu/projects-call-2018.

Projects in ACAI topic

Acronym	Title	Countries (coord. in bold)
AIR	Analogue Intelligent chip for short and middle range Radar signal processing	**FI**, FR, PL
APROVIS3D	Analog PRocessing of bionspired Vision Sensor for 3D reconstruction	CH, ES, **FR**, GR
JEDAI	Event Driven Artificial Intelligence Hardware for Biomedical Sensors	EE, **FR**, IE
SMALL	Spiking Memristive Architectures for Learning to Learn	**AT**, CH, ES, UK
UNICO	Unsupervised spiking neural networks with analog memristive devices for edge computing	**CA**, CH, FR, PL

Projects in SDCDN topic

Acronym	Title	Countries (coord. in bold)
CONNECT	COmmunicatioN-aware dyNamic Edge CompuTing	FI, **TR**, UK
DIPET	Distributed Stream Processing on Fog and Edge Systems via Transprecise Computing	ES, FR, GR, RO, **UK**
DRUID-NET	Edge Computing Resource Allocation for Dynamic Networks	BE, CA, FR, **GR**, UK
LeadingEdge	Holistic and foundational resource allocation framework for optimized and impactful edge computing services	ES, FI, FR, **GR**
SCORING	Smart Collaborative cOmputing, caching and netwoRking paradIgm for Next Generation communication infrastructures	CA, **FR**, TR

CHIST-ERA is a consortium of research funding organisations in Europe and beyond supporting use-inspired basic research in Information and Communication Technologies (ICT) or at the interface between ICT and other domains. The CHIST-ERA consortium is itself supported by the European Union's Future & Emerging Technologies (FET) programme.

CHIST-ERA promotes novel and multidisciplinary research with the potential to lead to significant technology breakthroughs in the long term. The funding organisations jointly support high risk and high impact research projects selected in the framework of CHIST-ERA, in order to reinforce European capabilities in promising emerging topics.
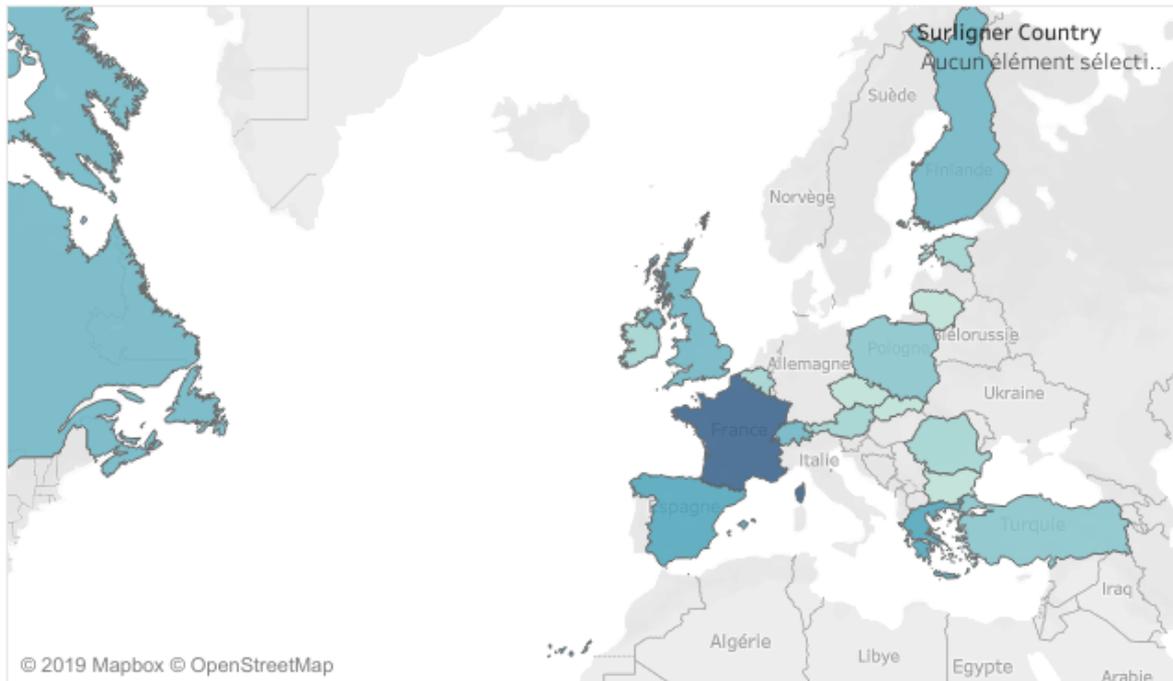
Website: www.chistera.eu

Twitter: @chistera_net

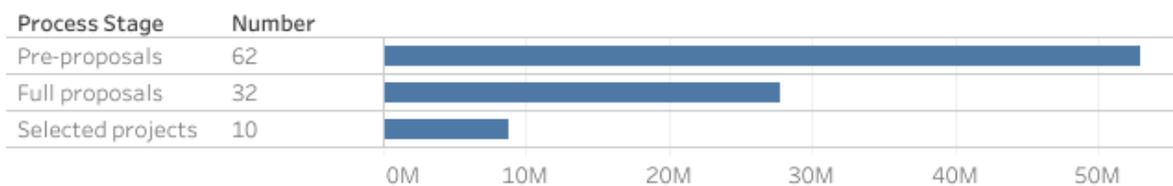Contact: chistera@anr.fr

Co-funded by
the European Union
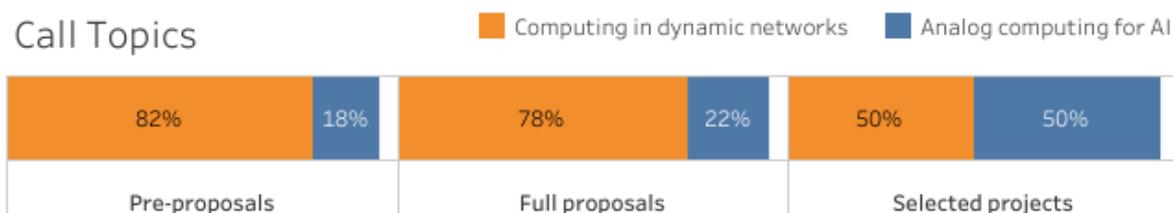
Annex: Overview of call statistics

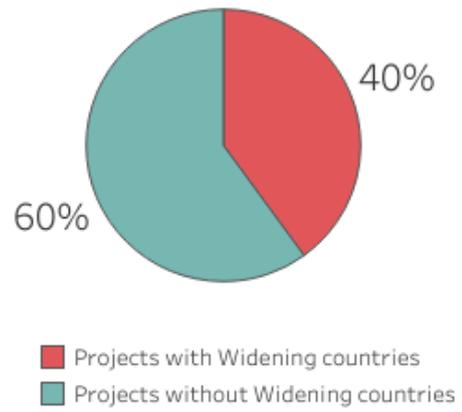## Map of Selected Projects

Requested Funding (in EUR)

Process Stage	Number	
Pre-proposals	62	
Full proposals	32	
Selected projects	10	

Call Topics

Legend: Computing in dynamic networks (orange) — Analog computing for AI (blue)

	Pre-proposals	Full proposals	Selected projects
Computing in dynamic networks	82%	78%	50%
Analog computing for AI	18%	22%	50%

Transnational Collaborations from Project Consortia

Widening Countries in Projects

40%

60%

- Projects with Widening countries
- Projects without Widening countries

Size of Project Consortia

6 partners

3 partners

4 partners

5 partners
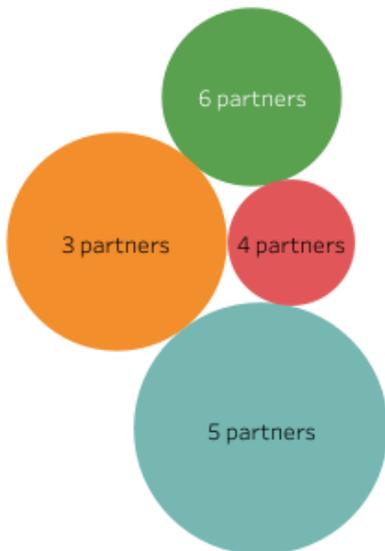
Gender in Project Consortia

Coordinators

Principal Investigators

Female   Male   Female   Male