Call: HORIZON-MSCA-2022-DN-01
(MSCA Doctoral Networks 2022)

Topic: HORIZON-MSCA-2022-DN-01-01

Type of Action: HORIZON-TMA-MSCA-DN

Proposal number: 101119959

Proposal acronym: SpecX

Type of Model Grant Agreement: HORIZON Unit Grant

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1 - General information

Fields marked * are mandatory to fill.

Topic	HORIZON-MSCA-2022-DN-01-01	Type of Action	HORIZON-TMA-MSCA-DN
Call	HORIZON-MSCA-2022-DN-01	Type of Model Grant Agreement	HORIZON-AG-UN

Acronym: SpecX

Proposal title: Doctoral Network on Spectrum Analytics as a Service

Note that for technical reasons, the following characters are not accepted in the Proposal Title and will be removed: < > " &

Duration in months: 48

Panel: ENG - Information Science and Engineering (ENG)

Please select up to 5 descriptors (and at least 3) that best characterise the subject of your proposal, in descending order of relevance. Note that descriptors will be used to support REA services in identifying the best qualified evaluators for your proposal.

Descriptor1: Wireless communications, communication, high frequency, mobile t

Descriptor2: Networks (communication networks, sensor networks, networks of r

Descriptor3: Internet of Things

Free keywords: *Spectrum sensing, spectrum data, measurements, analytics, infrastructure, data analysis, SDR prototyping*

Abstract *

SpecX provides the required expertise and effort to train a workforce of 10 Doctoral Candidates (DCs) in spectrum challenges at the frontier of 6G networks, (i) measuring the EM spectrum massively, dynamically and in 3D, (ii) turning the wireless data deluge challenge in new applications and innovative use of spectrum for future networks, and (iii) tackling the talent shortage in the EU's spectrum big data market. The overarching objective of SpecX is to provide high-level training to 10 DCs in large-scale spectrum measurement, analysis, and applications in future telecom infrastructure. The goal is to create a research and innovation workforce with transferable skills in radio hardware, cellular network infrastructure, edge computing, data collection, signal processing, deep learning and Artificial Intelligence, data tools to assess, improve and analyse big spectrum data and provide innovative services. This goal will be achieved by a unique combination of hands-on research training designed to provide to the DCs the needed fundamental elements to conduct the research programme, for collecting real spectrum data, analysing it, and developing innovative methods, and create insights and invent new valuable applications. Hands-on in depth-training will be strengthened with non-academic placements, as well as multidisciplinary, intersectoral, and international cooperation to maximize the employability of DCs and the impact of the project.

Remaining characters 541

Proposal ID **101119959**

Acronym **SpecX**

Has this proposal (or a very similar one) been submitted in the past 2 years in response to a call for proposals under any EU programme, including the current call? ○ Yes ◉ No

Please give the proposal reference or contract number.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Declarations

Field(s) marked * are mandatory to fill.

1) We declare to have the explicit consent of all applicants on their participation and on the content of this proposal. *	☒
2) We confirm that the information contained in this proposal is correct and complete and that none of the project activities have started before the proposal was submitted (unless explicitly authorised in the call conditions).	☒
3) We declare: - to be fully compliant with the eligibility criteria set out in the call - not to be subject to any exclusion grounds under the EU Financial Regulation 2018/1046 - to have the financial and operational capacity to carry out the proposed project.	☒
4) We acknowledge that all communication will be made through the Funding & Tenders Portal electronic exchange system and that access and use of this system is subject to the Funding & Tenders Portal Terms and Conditions.	☒
5) We have read, understood and accepted the Funding & Tenders Portal Terms & Conditions and Privacy Statement that set out the conditions of use of the Portal and the scope, purposes, retention periods, etc. for the processing of personal data of all data subjects whose data we communicate for the purpose of the application, evaluation, award and subsequent management of our grant, prizes and contracts (including financial transactions and audits).	☒
6) We declare that the proposal complies with ethical principles (including the highest standards of research integrity as set out in the ALLEA European Code of Conduct for Research Integrity, as well as applicable international and national law, including the Charter of Fundamental Rights of the European Union and the European Convention on Human Rights and its Supplementary Protocols. Appropriate procedures, policies and structures are in place to foster responsible research practices, to prevent questionable research practices and research misconduct, and to handle allegations of breaches of the principles and standards in the Code of Conduct.	☒
7) We declare that the proposal has an exclusive focus on civil applications (activities intended to be used in military application or aiming to serve military purposes cannot be funded). If the project involves dual-use items in the sense of Regulation 428/2009, or other items for which authorisation is required, we confirm that we will comply with the applicable regulatory framework (e.g. obtain export/import licences before these items are used).	☒
8) We confirm that the activities proposed do not - aim at human cloning for reproductive purposes; - intend to modify the genetic heritage of human beings which could make such changes heritable (with the exception of research relating to cancer treatment of the gonads, which may be financed), or - intend to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer. - lead to the destruction of human embryos (for example, for obtaining stem cells) These activities are excluded from funding.	☒
9) We confirm that for activities carried out outside the Union, the same activities would have been allowed in at least one EU Member State.	☒

The coordinator is only responsible for the information relating to their own organisation. Each applicant remains responsible for the information declared for their organisation. If the proposal is retained for EU funding, they will all be required to sign a declaration of honour.

False statements or incorrect information may lead to administrative sanctions under the EU Financial Regulation.

2 - Participants

List of participating organisations

#	Participating Organisation Legal Name	Country	Role	Action
1	FUNDACION IMDEA NETWORKS	Spain	Coordinator	
2	KATHOLIEKE UNIVERSITEIT LEUVEN	Belgium	Partner	
3	TELEFONICA INVESTIGACION Y DESARROLLO SA	Spain	Partner	
4	RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN	Germany	Partner	
5	CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZIONI	Italy	Partner	
6	TECHNISCHE UNIVERSITEIT DELFT	Netherlands	Partner	
7	NEC LABORATORIES EUROPE GMBH	DE	Associated	
8	Electrosense	CH	Associated	
9	ACCELLERAN	BE	Associated	
10	UNIVERSIDAD CARLOS III DE MADRID	ES	Associated	
11	THE RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK	US	Associated	
12	Saint Louis University	US	Associated	
13	ERICSSON GMBH	DE	Associated	
14	UNIVERSITA DEGLI STUDI DI TRENTO	Italy	Associated	
15	UNIVERSITA DEGLI STUDI DI ROMA TOR VERGATA	Italy	Associated	

Organisation data

PIC	Legal name
999651058	*FUNDACION IMDEA NETWORKS*

Short name: IMDEA NETWORKS

Address

Street	AVENIDA DEL MAR MEDITERRANEO 22
Town	LEGANES (MADRID)
Postcode	28918
Country	Spain
Webpage	www.networks.imdea.org

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	no		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	no		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is unknown (small- and medium-sized enterprise) for the call.

SME self-declared status	unknown
SME self-assessment	unknown
SME validation	unknown

Departments carrying out the proposed work

No department involved

Department name *Name of the department/institute carrying out the work.* ☒ not applicable

☐ Same as proposing organisation's address

Street *Please enter street name and number.*

Town *Please enter the name of the town.*

Postcode *Area code.*

Country *Please select a country*

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **IMDEA NETWORKS**

Main contact person

This will be the person the EU services will contact concerning this proposal (e.g. for additional information, invitation to hearings, sending of evaluation results, convocation to start grant preparation). The data in blue is read-only. Details (name, first name and e-mail) of Main Contact persons should be edited in the step "Participants" of the submission wizard.

Title Dr

Gender ◯ Woman ◉ Man ◯ Non Binary

First name* **Domenico**

Last name* **Giustiniano**

E-Mail* **domenico.giustiniano@imdea.org**

Position in org. Research Associate Professor (tenured)

Department FUNDACION IMDEA NETWORKS

☒ Same as organisation name

☒ Same as proposing organisation's address

Street AVENIDA DEL MAR MEDITERRANEO 22

Town LEGANES (MADRID)

Post code 28918

Country Spain

Website https://domenico.networks.imdea.org/

Phone +34 91 481 6970

Phone 2 *+xxx xxxxxxxxx*

Other contact persons

First Name	Last Name	E-mail	Phone
Javier	Hervas	franciscojavier.hervas@imdea.org	+xxx xxxxxxxxx
Paula	de Dios	paula.dedios@imdea.org	+xxx xxxxxxxxx
Ana	Gonzalez	ana.gonzalez@imdea.org	+xxx xxxxxxxxx

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **IMDEA NETWORKS**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Dr	Domenico	Giustiniano	Man	Italy	domenico.giustiniano@imdea.org	Category B Senior resea	Leading	0000-0003-3136-4176	Orcid ID
Dr	Giuseppe	Santaromita	Man	Italy	giuseppe.santaromita@imdea.org	Category C Recognised	Team member	0000-0002-2285-9903	Orcid ID
Dr	Timothy	Otim	Man	Uganda	timothy.otim@imdea.org	Category C Recognised	Team member	0000-0001-8813-9186	Orcid ID
Dr	Joerg	Widmer	Man	Germany	joerg.widmer@imdea.org	Category A Top grade re	Team member	0000-0001-6667-8779	Orcid ID

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Proposal ID **101119959**

Acronym **SpecX**

Short name **IMDEA NETWORKS**

Role of participating organisation in the project

Project management	☒
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☒
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☒
Testing/validation of approaches and ideas	☒
Prototyping and demonstration	☒
IPR management incl. technology transfer	☒
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*G. Bielsa, J. Palacios, A. Loch, D. Steinmetzer, P. Casari, J. Widmer, Accurate Ubiquitous Localization with Off-the-Shelf IEEE802.11ac Devices, In Proc. ACM Mobisys, 2021.*
Publication	*M. Rea, D. Giustiniano, "Location-aware Wireless Resource Allocation in Industrial-like Environment", IEEE Transaction on Mobile Computing, 2021.*
Publication	*S. Bartoletti, H.Wymeersch, T. Mach, O. Brunnegård, D. Giustiniano, P. Hammarberg, M. Furkan Keskin, J O. Lacruz, S.Modarres Razavi, J. Rönnblom, F. Tufvesson, J. Widmer, N. Blefari Melazzi, "Positioning and Sensing for Vehicular Safety Applications in 5G and Beyond," in IEEE Communications Magazine, vol. 59, no. 11, pp. 15-21, November 2021.*
Publication	*J. Palacios, P. Casari, H. Assasa, J. Widmer, LEAP: Location Estimation and Predictive Handover with Consumer-Grade mmWave Devices, In Proc. IEEE INFOCOM, 2019.*
Publication	*R. Calvo, H. Cordobés, F. Ricciato, D. Giustiniano, V. Lenders, Collaborative Wideband Signal Decoding using Non-coherent Receivers, In Proc. IEEE/ACM IPSN, 2019*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
ENLIGHT'EM *H2020* *GA number: 814215*	*European Training Network in Low-energy Visible Light IoT Systems. Funded by EU H2020-MSCA-ITN-2018 - Total project: 4.147k Euro, Granted for IMDEA: 735.8k Euro. 2019-2023.* *Project purpose: ENLIGHT'EM plans to design advanced lighting solutions that leverage the Internet of Things and the low baseline energy consumption of LEDs. Fifteen early-stage researchers will receive training on how to integrate low-energy VLC with the Internet of Things.* *Role: Coordinator* *Website: https://enlightem.eu/*
Flex5Gware *H2020* *GA number: 671563*	*Flexible and efficient hardware/software platforms for 5G network elements and devices. Funded by the EU under call H2020-ICT-2014-2. Granted: 251k Euro. 2015-2017* *Project purpose: The overall objective of Flex5Gware is to deliver highly reconfigurable hardware (HW) platforms together with HW-agnostic software (SW) platforms to enable a smooth transition from 4G mobile wireless systems to 5G.* *Role: Domenico Giustiniano is PI of IMDEA tasks.* *Website: https://flex5gware.eu/*
LOCUS *H2020* *GA number: 871249*	*LOCalization and analytics on-demand embedded in the 5G ecosystem, for Ubiquitous vertical applicationS. (2019-22). Funded by the EU under call H2020-ICT-2019-2. Granted: 411k Euro. 2019-2022* *Project purpose: LOCUS improves the functionality of 5G infrastructures to provide accurate/ ubiquitous location information, derive more complex features and behavioural patterns out of raw location and physical events.* *Role: Domenico Giustiniano is PI of IMDEA tasks* *Website: https://www.locus-project.e*
SOMIRO *H2020* *GA number: 101016411*	*Soft Milli-robots (2021-2023). Funded under call H2020-ICT-2018-20. Granted: 349k Euro.* *Project purpose: SOMIRO aims to build the world's first energy-autonomous swimming millirobot (less than 1 cm long), expected to have a huge impact in the field of robotics and in precision agriculture.* *Role: Domenico Giustiniano is PI of IMDEA tasks.* *Website: https://www.somiro.eu/*

RISC-6G *National call* *TSI-063000-2021-59*	*Reconfigurable Intelligent Surfaces and Low-power Technologies for Communication and Sensing in 6G Mobile Networks. Funded under a national call of Ministry of Economic Affairs and Digital Transformation, European Union NextGeneration-EU.* *Purpose: To integrate crucial new technologies into 6G to improve wireless communications, provide environmental sensing, and significantly lower the per-device energy footprint.* *Role: Domenico Giustiniano is coordinator*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	**Short description (Max 300 characters)**
MIMO Testbed	*OpenVLC based (openvlc.org) MIMO Testbed for experimentation of Visible Light Communication System*
Spectrum sensing	*IMDEA hosts different testbeds based on a large number of spectrum sensing boards from low-end devices (such as RTL-SDR controlled by raspberry boards) to higher-end systems such as Ettus and WARP.*
5TONIC	*IMDEA forms part of 5TONIC, an open research and innovation laboratory focusing on 5G and beyond technologies founded by Telefonica and IMDEA Networks based in Madrid. The objective of 5TONIC is to create a global open environment where members from industry and academia work together.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? (•) Yes ( ) No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **KU Leuven**

PIC	Legal name
999991334	*KATHOLIEKE UNIVERSITEIT LEUVEN*

Short name: KU Leuven

Address

Street	OUDE MARKT 13
Town	LEUVEN
Postcode	3000
Country	Belgium
Webpage	www.kuleuven.be

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	no		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	yes		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	13/01/2022 - no
SME self-assessment	unknown
SME validation	unknown

Departments carrying out the proposed work

Department 1

Department name: Department of Electrical Engineering ☐ not applicable

☐ Same as proposing organisation's address

Street: Kasteelpark Arenberg 10 - box 2044

Town: Leuven

Postcode: 3001

Country: Belgium

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **KU Leuven**

Main contact person

This will be the person the EU services will contact concerning this proposal (e.g. for additional information, invitation to hearings, sending of evaluation results, convocation to start grant preparation). The data in blue is read-only. Details (name, first name and e-mail) of Main Contact persons should be edited in the step "Participants" of the submission wizard.

Title Prof.

Gender ◉ Woman ○ Man ○ Non Binary

First name* **Sofie**

Last name* **Pollin**

E-Mail* **sofie.pollin@kuleuven.be**

Position in org. Professor

Department Department of Electrical Engineering ☐ Same as organisation name

☐ Same as proposing organisation's address

Street Kasteelpark Arenberg 10 - box 2044

Town Leuven

Post code 3001

Country Belgium

Website https://www.kuleuven.be/wieiswie/nl/person/00041938

Phone +3216321051

Phone 2 *+xxx xxxxxxxxx*

Other contact persons

First Name	Last Name	E-mail	Phone
Davy	Pissoort	davy.pissoort@kuleuven.be	+xxx xxxxxxxxx
Tim	Claeys	tim.claeys@kuleuven.be	+3250664848
Rodney	Martinez Alonso	rodney.martinezalonso@kuleuven.be	+xxx xxxxxxxxx

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **KU Leuven**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Prof	Sofie	Pollin	Woman	Belgium	sofie.pollin@kuleuven.be	Category B Senior resea	Leading	0000-0002-1470-2076	Orcid ID
Prof	Davy	Pissoort	Man	Belgium	davy.pissoort@kuleuven.be	Category A Top grade re	Team member	0000-0002-5077-4237	Orcid ID
Dr	Tim	Claeys	Man	Belgium	tim.claeys@kuleuven.be	Category C Recognised	Team member	0000-0002-7782-3553	Orcid ID
Dr	Hazem	Sallouha	Man	Belgium	hazem.sallouha@kuleuven.be	Category C Recognised	Team member	0000-0002-1288-1023	Orcid ID
Dr	Rodney	Martinez Alonso	Man	Cuba	rodney.martinezalonso@kuleuven.be	Category C Recognised	Team member	0000-0003-2529-5944	Orcid ID

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Proposal ID **101119959**

Acronym **SpecX**

Short name **KU Leuven**

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☒
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☒
Testing/validation of approaches and ideas	☒
Prototyping and demonstration	☒
IPR management incl. technology transfer	☒
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*Claeys T., Tirmizi H., Habib H.,Vanoost D., Vandenbosch G., Pissoort D. A system's Perspective on the Use of EMI Detection and Correction Methods in Safety Critical Systems. in Proceedings of the Joint IEEE Symposium on EMC+SIPI and EMC Europe (2021)*
Publication	*Pang B., T'Jonck K., Claeys T., Pissoort D., Hallez H., Boydens J. Bluetooth Low Energy Interference Awareness Schema and Improved Channel Selectrion Algorithm for Connection Robustness . In MDPI Sensors (2021)*
Publication	*H. Sallouha, A. Chiumento and S. Pollin, "Aerial Vehicles Tracking Using Noncoherent Crowdsourced Wireless Networks," IEEE Transactions on Vehicular Technology, 2021.*
Publication	*S. Rajendran, V. Lenders, W. Meert and S. Pollin. Crowdsourced wireless spectrum anomaly detection, in IEEE Transactions on Cognitive Communications and Networking, 2019.*
Publication	*S. Rajendran, R. Calvo-Palomino, M. Fuchs, B. Bergh, H. Cordobes, D. Giustiniano, S. Pollin, V. Lenders. Electrosense: Open and Big Spectrum Data. IEEE Communications Magazine, 2018.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
EEWISE	*VLAIO Technology Transfer EMC for Emergent Wireless Systems*
H2020 MSCA-ITN Greenedge	*Design and implement machine learning based computing systems for the mobile edge that are highly energy efficient.*
H2020-ICT13 ORCA	*Experimentation facilities to promote wireless innovation in several market segments, including manufacturing, automotive industry, healthcare, ambient assistant living, public events, home automation, and utilities.*
H2020 R&I MARSAL	*Focuses on network design, virtual elastic infrastructure and network security for 5G and beyond networks.*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
massive MIMO SDR	*massive MIMO SDR testbed consisting of 45 NI USRP-RIOs and has ample expertise in datadriven and deep learning.*
GPU Server facility	*GPU server facility (NVIDIA RTX 2080Ti cores)*
IoT Testbeds	*70 node BLE mesh testbed and a 36-node dense VLC testbed.*
Faraday cages	*(Semi-)Anechoic and double reverberation EMC test chambers*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? (•) Yes ( ) No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

PIC	Legal name
999910824	*TELEFONICA INVESTIGACION Y DESARROLLO SA*

Short name: TID

Address

Street	RONDA DE LA COMUNICACION S/N DISTRITO C E
Town	MADRID
Postcode	28050
Country	Spain
Webpage	http://www.tid.es

Specific Legal Statuses

Legal person	yes	Academic Sector	no
Public body	no		
Non-profit	no		
International organisation	no		
Secondary or Higher education establishment	no		
Research organisation	no		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	31/12/2015	- no
SME self-assessment	31/12/2015	- no
SME validation	unknown	

Departments carrying out the proposed work

Department 1

Department name: Scientific Research ☐ not applicable

☐ Same as proposing organisation's address

Street: Plaza Ernest Lluch i Martin, Nº 5

Town: Barcelona

Postcode: 08019

Country: Spain

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **TID**

Main contact person

This will be the person the EU services will contact concerning this proposal (e.g. for additional information, invitation to hearings, sending of evaluation results, convocation to start grant preparation). The data in blue is read-only. Details (name, first name and e-mail) of Main Contact persons should be edited in the step "Participants" of the submission wizard.

Title Dr

Gender ◉ Woman ○ Man ○ Non Binary

First name* **Andra**

Last name* **Lutu**

E-Mail* **andra.lutu@telefonica.com**

Position in org. Senior Researcher

Department TELEFONICA INVESTIGACION Y DESARROLLO SA

☒ Same as organisation name

☒ Same as proposing organisation's address

Street RONDA DE LA COMUNICACION S/N DISTRITO C EDIFICIO OESTE I

Town MADRID

Post code 28050

Country Spain

Website https://andralutu.com/

Phone +34664605872

Phone 2 *+xxx xxxxxxxxx*

Other contact persons

First Name	Last Name	E-mail	Phone
Javier	Garcia Rodrigo	javier.garciarodrigo@telefonica.com	+xxx xxxxxxxxx

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **TID**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier	
Dr	Andra	Lutu	Woman	Romania	andra.lutu@telefonica.com	Category B Senior resea	Leading	0000-0001-7361-1257	Orcid ID	
Dr	Jose	Suarez-Varela	Man	Spain	jose.suarez-varela@telefonica.com	Category C Recognised	Team member	https://scholar.google.co.jp/citations?hl=en&user=vUByXE0AAAAJ	Other ID	Google Scholar

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☐
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☒
Testing/validation of approaches and ideas	☒
Prototyping and demonstration	☒
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*A. Lutu, D. Perino, M. Bagnulo, F. Bustamante (2021). Insights from Operating an IP eXchange Provider. In Proceedings of the 2021 ACM SIGCOMM 2021 Conference (SIGCOMM '21). Association for Computing Machinery, New York, NY, USA*
Publication	*D. Perino, X. Yang, J. Serra, A. Lutu, and I. Leontiadis (2020). Experience: advanced network operations in (Un)-connected remote communities. In Proceedings of the 26th Annual International Conference on Mobile Computing and Networking (MobiCom '20).*
Publication	*A. Lutu, D. Perino, M. Bagnulo, E. Frias-Martinez, and J. Khangosstar (2020). A Characterization of the COVID-19 Pandemic Impact on a Mobile Network Operator Traffic. In Proceedings of the ACM Internet Measurement Conference (IMC '20). Association for Computing Machinery, New York, NY, USA, 19–33. DOI:https://doi.org/10.1145/3419394.3423655*
Publication	*M. Fida, A. Lutu, M.K. Marina, and Ö. Alay (2017, May). ZipWeave: Towards Efficient and Reliable Measurement based Mobile Coverage Maps. In IEEE INFOCOM 2017 – IEEE Conference on Computer Communications, Atlanta, GA, 2017, pp. 1-9.*
Publication	*S. Alcalá-Marín, A. Raman, W. Wu, A. Lutu, M. Bagnulo, O. Alay, and F. Bustamante (2022). Global mobile network aggregators: taxonomy, roaming performance and optimization. In Proceedings of the 20th Annual International Conference on Mobile Systems, Applications and Services (MobiSys '22). Association for Computing Machinery, New York, NY, USA, 183–195. https://doi.org/10.1145/3498361.3538942*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
METAWIRELESS (H2020-MSCA-ITN-2020)	*Future Wireless Communication Empowered by Reconfigurable Intelligent Meta-Surfaces. The goal of this ITN is to train a new generation of researchers in the field of reconfigurable intelligent surfaces to manipulate wireless environment, and in a multidisciplinary effort involving wireless communications, physics, electromagnetic theory, and computational learning. Website: https://h2020-msca-itn-metawireless.cnit.it/*
APROPOS (H2020-MSCA-ITN-2020)	*Approximate computing for Power ad Energy Optimisation. The goal of this ITN is to tackle the challenges of future embedded and high-performance computing energy efficiency by using disruptive methodologies training a new generation of researchers on researching markets.*
DAEMON (H2020-ICT- 2018-20)	*Network intelligence for aDAptive and sElf-Learning MObile Networks. DAEMON focuses on the design of an end-to-end Network Intelligence-native architecture for beyond 5G networks that fully coordinates Network Intelligent-assisted functionalities.*
ACCORDION (H2020-ICT-2018-2020)	*Adaptive edge/cloud compute and network continuum over a heterogeneous sparse edge infrastructure to support nextgen applications – ACCORDION establishes an opportunistic approach in bringing together edge resource/infrastructures (public clouds, on-premise infrastructures, telco resources, end-devices) in pools defined in terms of latency, that can support next-generation application requirements.*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
Multi-site cellular testbed	*Multi-site cellular testbed equipped with both 4G and 5G capabilities and connected to commercial edge datacenter, offers a novel and unique framework for testing diverse MEC applications as well as radio core/RAN technologies and algorithms.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? (•) Yes ( ) No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

PIC	Legal name
999983962	*RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN*

Short name: RWTH AACHEN

Address

Street	TEMPLERGRABEN 55
Town	AACHEN
Postcode	52062
Country	Germany
Webpage	www.rwth-aachen.de

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	yes		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	yes		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	17/01/2022	- no
SME self-assessment	17/01/2022	- no
SME validation	01/01/1900	- no

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **RWTH AACHEN**

Departments carrying out the proposed work

Department 1

Department name: Mobile Communications and Computing ☐ not applicable

☐ Same as proposing organisation's address

Street: Kackertstr. 9

Town: Aachen

Postcode: 52072

Country: Germany

Links with other participants

Type of link	Participant

Proposal ID **101119959**

Acronym **SpecX**

Short name **RWTH AACHEN**

Main contact person

This will be the person the EU services will contact concerning this proposal (e.g. for additional information, invitation to hearings, sending of evaluation results, convocation to start grant preparation). The data in blue is read-only. Details (name, first name and e-mail) of Main Contact persons should be edited in the step "Participants" of the submission wizard.

Title Prof.

Gender (•) Woman ( ) Man ( ) Non Binary

First name* **Marina**

Last name* **Petrova**

E-Mail* **petrova@mcc.rwth-aachen.de**

Position in org. Professor

Department Mobile Communications and Computing

☐ Same as organisation name

☐ Same as proposing organisation's address

Street Kackertstr. 9

Town Aachen

Post code 52072

Country Germany

Website *Please enter website*

Phone +492418020900

Phone 2 *+xxx xxxxxxxxx*

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **RWTH AACHEN**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier	
Prof	Marina	Petrova	Woman		petrova@mcc.rwth-aachen.de	Category A Top grade re	Leading	0000-0003-3876-2214	Orcid ID	
Dr	Pradyumna	Kumar Bishoy	Man		pradyumna.bishoyi@mcc.rwth-aachen.de	Category C Recognised	Team member	https://scholar.google.co.in/citations?user=NKEjCocAAAAJ&hl=en	Other ID	Google Scholar

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **RWTH AACHEN**

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☒
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☒
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☒
IPR management incl. technology transfer	☒
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*A. M. Voicu, L. Simić and M. Petrova, "Modelling Broadband Wireless Technology Coexistence in the Unlicensed Bands," 2021 IEEE 22nd International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), 2021, pp. 129-138, doi: 10.1109/WoWMoM51794.2021.00026.*
Publication	*S. Khosravi, H. Shokri-Ghadikolaei and M. Petrova, "Learning-Based Handover in Mobile Millimeter-Wave Networks," in IEEE Transactions on Cognitive Communications and Networking, vol. 7, no. 2, pp. 663-674, June 2021, doi: 10.1109/TCCN.2020.3030964.*
Publication	*P. Ren, A. Munari, M. Petrova "Performance Tradeoffs of Joint Radar-Communication Networks," IEEE Wireless Communication Letters, vol.8, no.1, February 2019, doi: 10.1109/LWC.2018.2865360.*
Publication	*B. Bojovic, E. Meshkova, N. Baldo, J. Riihijärvi, M. Petrova, "Machine Learning based Dynamic Frequency and Bandwidth Allocation in Self-Organized LTE Dense Small Cell Deployments," EURASIP Journal on Wireless Communications and Networking, 2016:183, December 2016.*
Publication	*A. M. Voicu, L. Simić, M. Petrova, "Inter-Technology Coexistence in a Spectrum Commons: A Case Study of Wi-Fi and LTE in the 5 GHz Unlicensed Band," IEEE Journal of Selected Areas in Communication, Vol. 34, No. 11, pp. 3062-3077, November 2016.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
FP7 ARAGORN	*Adaptive Reconfigurable Access and Generic interfaces for Optimisation in Radio Networks*
FP7 FARAMIR	*Flexible and spectrum-Aware Radio Access through Measurements and modelling In cognitive Radio systems*
FP7 QUASAR	*Quantitative Assessment of Secondary Spectrum Access*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
lab facility	*lab facility comprising, SDR platforms, Raspberry Pi nodes and also standard measurement equipment. MCC has extensive expertise in wireless technologies, software-defined radios and communication networks, and has rich connections and active collaborations with industry.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? (•) Yes ( ) No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

PIC	Legal name
999649603	*CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZIONI*

Short name: CNIT

Address

Street	VIALE G. P. USBERTI 181A
Town	PARMA
Postcode	43124
Country	Italy
Webpage	https://www.cnit.it/

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	no		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	yes		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	10/01/1995 - no
SME self-assessment	unknown
SME validation	unknown

Departments carrying out the proposed work

Department 1

Department name: Research Unit at the University of Rome Tor Vergata ☐ not applicable

☐ Same as proposing organisation's address

Street: via del Politecnico 1

Town: Roma

Postcode: 00133

Country: Italy

Department 2

Department name: Research Unit at the University of Trento ☐ not applicable

☐ Same as proposing organisation's address

Street: via Sommarive 9

Town: Trento

Postcode: 38123

Country: Italy

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **CNIT**

Main contact person

This will be the person the EU services will contact concerning this proposal (e.g. for additional information, invitation to hearings, sending of evaluation results, convocation to start grant preparation). The data in blue is read-only. Details (name, first name and e-mail) of Main Contact persons should be edited in the step "Participants" of the submission wizard.

Title Dr

Gender ◉ Woman ○ Man ○ Non Binary

First name* **Stefania**

Last name* **Bartoletti**

E-Mail* **stefania.bartoletti@uniroma2.it**

Position in org. Assistant professor

Department Research Unit at the University of Rome Tor Vergata

☐ Same as organisation name

☐ Same as proposing organisation's address

Street via del Politecnico 1

Town Rome

Post code 00133

Country Italy

Website http://netgroup.uniroma2.it/people/faculties/

Phone +39 3483407016

Phone 2 *+xxx xxxxxxxxx*

Other contact persons

First Name	Last Name	E-mail	Phone
Paolo	Casari	paolo.casari@unitn.it	+xxx xxxxxxxxx

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **CNIT**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Prof	Paolo	Casari	Man	Italy	paolo.casari@unitn.it	Category B Senior resea	Leading	0000-0002-6401-1660	Orcid ID
Prof	Stefania	Bartoletti	Woman	Italy	stefania.bartolettii@uniroma2.it	Category B Senior resea	Team member	0000-0003-1428-9776	Orcid ID

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☒
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☐
Testing/validation of approaches and ideas	☒
Prototyping and demonstration	☒
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*S. Bartoletti, A. Conti and M. Z. Win, "Device-Free Counting via Wideband Signals," in IEEE Journal on Selected Areas in Communications, May 2017.*
Publication	*A. Conti, S. Mazuelas, S. Bartoletti, W. C. Lindsey and M. Z. Win, "Soft Information for Localization-of-Things," in Proceedings of the IEEE, 2019.*
Publication	*A. Shastri, N. Valecha, E. Bashirov, H. Tataria, M. Lentmeier, F. Tufvesson, M. Rossi, P. Casari, "A Review of Millimeter Wave Device-based Localization and Device-free Sensing Technologies and Applications," in IEEE Communications Surveys and Tutorials, 2022.*
Publication	*C. Fiandrino, H. Assasa, P. Casari, J. Widmer, "Scaling Millimeter-Wave Networks to Dense Deployments and Dynamic Environments," in Proceedings of the IEEE, 2019.*
Publication	*F. Granelli, R. Capraro, M. Lorandi, P. Casari, "Evaluating a Digital Twin of an IoT Resource Slice: an Emulation Study using the ELIoT Platform," in IEEE Networking Letters, 2021.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
INTEGRATE *HORIZON-MSCA-2021-DN-01* *GA: 101072924*	*JoInt wireless commuNicaTion and sEnsinG by hologRaphic surfAce TranscEivers* *The INTEGRATE project focuses on the theoretical, algorithmic, and architectural foundations of integrated communication and sensing networks, developing the first open access network-level simulator for joint communication and sensing.* *CNIT Role in the project: Coordinator*
META WIRELESS *H2020-MSCA-ITN-2020* *GA: 956256*	*Future Wireless Communications Empowered by Reconfigurable Intelligent Meta-Materials* *META WIRELESS pursues the disruptive idea of designing wireless networks by treating the environment itself as a quantity to be controlled and optimized. Precisely, the manipulation of the wireless environment can be made possible by incorporating reconfigurable intelligent surfaces.* *CNIT Role in the project: Coordinator* *Website: https://h2020-msca-itn-metawireless.eu/*
LOCUS *H2020-ICT-2018-20* *GA: 871249*	*LOCUS aims to improve the functionality of 5G infrastructures to provide accurate and ubiquitous location information, and derive more complex features and behavioural patterns out of raw location and physical events. The project will help to increase the overall value of the 5G ecosystem by making new applications possible, boosting vertical industries, and creating new business opportunities for telecommunications companies.*
B5G-OPEN *H2020-ICT-2020-2* *GA: 101016663*	*B5G-OPEN targets the design and demonstration of a novel end-to-end integrated packet-optical transport architecture based on MultiBand (MB) optical transmission and switching networks. MB expands the available capacity of optical fibres, by enabling transmission within S, E, and O bands, in addition to commercial C and/or C+L bands, which translates into a potential 10x capacity increase and low-latency for services beyond 5G.* *CNIT Role in the project: Partner* *Website: www.b5g-open.eu/*
iNGENIOUS *H2020-ICT-2020-1* *GA: 957216*	*INGENIOUS aims to design and evaluate the Next-Generation IoT (NG-IoT) solution, with emphasis on 5G and the development of Edge and Cloud computing extensions for IoT, as well as smart networking and data management solutions with AI/ML. The project embraces the 5G Infrastructure Association and Alliance for Internet of Things Innovation vision for smart manufacturing and smart mobility verticals.* *CNIT Role in the project: Partner* *Website: https://ingenious-iot.eu/*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
IoT and mmWave Testbed	*A department-scale testbed including low-power IoT radios, ultrawideband radios, and mmWave equipment for communications and sensing.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? (•) Yes ( ) No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **TU Delft**

PIC	Legal name
999977366	*TECHNISCHE UNIVERSITEIT DELFT*

Short name: TU Delft

Address

Street	STEVINWEG 1
Town	DELFT
Postcode	2628 CN
Country	Netherlands
Webpage	www.tudelft.nl

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	yes		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	yes		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	12/01/2022	- no
SME self-assessment	12/01/2022	- no
SME validation	unknown	

Departments carrying out the proposed work

Department 1

Department name: Department of Software Technology ☐ not applicable

☐ Same as proposing organisation's address

Street: Van Mourik Broekmanweg 6

Town: Delft

Postcode: 2628

Country: Netherlands

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **TU Delft**

Main contact person

This will be the person the EU services will contact concerning this proposal (e.g. for additional information, invitation to hearings, sending of evaluation results, convocation to start grant preparation). The data in blue is read-only. Details (name, first name and e-mail) of Main Contact persons should be edited in the step "Participants" of the submission wizard.

Title Prof.

Gender ○ Woman ◉ Man ○ Non Binary

First name* **Qing**

Last name* **Wang**

E-Mail* **qing.wang@tudelft.nl**

Position in org. Assistant Professor

Department Department of Software Technology

☐ Same as organisation name

☐ Same as proposing organisation's address

Street Van Mourik Broekmanweg 6

Town Delft

Post code 2628 XE

Country Netherlands

Website *Please enter website*

Phone *+xxx xxxxxxxxx*

Phone 2 *+xxx xxxxxxxxx*

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **TU Delft**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Prof	Qing	Wang	Man	China (People's	qing.wang@tudelft.nl	Category C Recognised	Leading	0000-0003-0950-1111	Orcid ID
Prof	Koen	Langendoen	Man	Netherlands	k.g.langendoen@tudelft.nl	Category A Top grade re	Team member	0000-0003-4996-3695	Orcid ID
Prof	Fernando	Kuipers	Man	Netherlands	f.a.kuipers@tudelft.nl	Category A Top grade re	Team member	0000-0002-6686-8350	Orcid ID
Prof	Guchao	Lan	Man	China (People's	g.lan@tudelft.nl	Category C Recognised	Team member	0000-0003-2190-9937	Orcid ID

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☒
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☒
Testing/validation of approaches and ideas	☒
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*H. Ye and Q. Wang, "SpiderWeb: Enabling Through-Screen Visible Light Communication," ACM SenSys, 2021.*
Publication	*M. Cui, Q. Wang and J. Xiong, RadioInLight, "Doubling the Data Rate of VLC Systems," ACM MobiCom, 2021.*
Publication	*S. Ghiasi, M. Zuniga and K. Langendoen, "A Principled Design for Passive Light Communication," ACM MobiCom, 2021.*
Publication	*T. Ni, G. Lan, J. Wang, Q. Zhao, and W. Xu. "Eavesdropping Mobile App Activity via Radio-frequency Energy Harvesting," USENIX Security Symposium, 2023.*
Publication	*J. Oostenbrink , F. Kuipers, "Going the Extra Mile with Disaster-Aware Network Augmentation, IEEE INFOCOM, 2021.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
H2020 MSCA-ITN ENLIGHT'EM	*Leverage the low baseline energy consumption of LEDs to deliver networked communication and demonstrate sustainable networking solutions for beyond 5G networks.*
D2S2	*Develop and use advanced miniaturized radar sensors that can operate under a wide range of difficult environmental conditions (smoke, fog, etc.) that cannot be handled by typical localization systems in operation.*
4TU.NIRICT.HaLow	*Combine the unique expertise of Dutch 4TU to enable new system-level research, ranging from the physical layer to applications, for the emerging long-range WiFi networks.*
RELYonIT	*Provide a systematic framework and toolchain to enable dependable IoT applications by taking into account all relevant environmental properties and their impact on IoT platforms and protocols.*
ERDF Do IoT Fieldlab	*Accelerate IoT innovations by facilitating groundbreaking research, by bringing the right parties together for innovation questions, and by supporting companies in the realisation of new and better products and services.*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
SpiderWeb	*Testbed for through-screen visible light communication.*
LightDigit	*System for embedded AI research and sensing with visible light.*
SocialGlass	*For integration, enrichment, and sense-making of urban data.*
FedNaWi	*For robust federated learning in the Internet of Things applications.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? ○ Yes ◉ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

PIC	Legal name
910561893	*NEC LABORATORIES EUROPE GMBH*

Short name: NEC LABORATORIES EUROPE GMBH

Address

Street	KURFURSTEN-ANLAGE 36
Town	HEIDELBERG
Postcode	69115
Country	Germany
Webpage	

Specific Legal Statuses

Legal person	yes	Academic Sector	no
Public body	no		
Non-profit	no		
International organisation	no		
Secondary or Higher education establishment	no		
Research organisation	no		

SME Data

Based on the below details from the Participant Registry the organisation is unknown (small- and medium-sized enterprise) for the call.

SME self-declared status	unknown
SME self-assessment	unknown
SME validation	unknown

Proposal ID **101119959**

Acronym **SpecX**

Short name **NEC LABORATORIES EUROPE GMBH**

Departments carrying out the proposed work

Department 1

Department name: 6G Networks ☐ not applicable

☒ Same as proposing organisation's address

Street: KURFURSTEN-ANLAGE 36

Town: HEIDELBERG

Postcode: 69115

Country: Germany

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **NEC LABORATORIES EUROPE GMBH**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Dr	Andrés	Garcia Saavedra	Man	Spain	andres.garcia.saavedra@neclab.eu	Category B Senior resea	Leading	0000-0003-2005-2222	Orcid ID

Proposal ID **101119959**

Acronym **SpecX**

Short name **NEC LABORATORIES EUROPE GMBH**

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☐
Provision of research and technology infrastructure	☐
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☐
Technology developer	☐
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*G. Garcia-Aviles, A. Garcia-Saavedra, M. Gramaglia, X. Costa-Perez, P. Serrano, A. Banchs. Nuberu: Reliable RAN Virtualization in Shared Platforms. In ACM MobiCom 2021.*
Publication	*EdgeBOL: Automating Energy-savings for Mobile Edge AI, J. A. Ayala-Romero, A. Garcia-Saavedra, X. Costa-Perez, G. Iosifidis. In ACM CoNEXT 2021*
Publication	*J. A. Ayala-Romero, A. Garcia-Saavedra, X. Costa-Perez, G. Iosifidis. Bayesian Online Learning for Energy-Aware Resource Orchestration in Virtualized RAN. In IEEE INFOCOM 2021.*
Publication	*J. A. Ayala-Romero, A. Garcia-Saavedra, M. Gramaglia, X. Costa-Perez, A. Banchs, J. J. Alcaraz. vrAIn: Deep Learning based Orchestration for Computing and Radio Resources in vRAN. In IEEE Transactions on Mobile Computing, 2021.*
Publication	*F. W. Murti, J. A. Ayala-Romero, A. Garcia-Saavedra, X. Costa-Perez, G. Iosifidis. Optimal Deployment Framework for Multi-Cloud Virtualized Radio Access Networks. In IEEE Transactions on Wireless Communications, 2020.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
ITN MINTS	*The project aims at technology for mmWave networking and sensing beyond 5G. This beyond 5G technology will give us even larger capacity, more diverse applications, such as very precise indoor location and radar, in addition to communication. The beyond 5G networks will however also require more antennas, and work at the so feared high mmWave frequencies (feared already for 5G).*
ITN Spotlight	*To handle the unprecedented demand for mobile data traffic, different vendors, operators and research have aimed to develop radio access technologies (RATs) that boost physical-layer link capacity, utilize millimeter wave radio, or further densify network topology.*
H2020 DAEMON	*While artificial intelligence (AI) models are commonly regarded as the cornerstone of network intelligence (NI) design, AI is not the most suitable tool for every NI task. The EU-funded DAEMON project will create a pragmatic approach to NI design. It will carry out a systematic analysis of which NI tasks are appropriately solved with AI models, providing a solid set of guidelines for the use of machine learning in network functions.*
H2020 5Growth	*We are one of the selected projects running in the framework of the 5G Public Private Partnership (5G-PPP) Phase 3, Part 3: "Advanced 5G validation trials across multiple vertical industries", co-led by the European Commission and industry, and we will explore the concrete applicability of 5G technologies to real-world use-cases across various vertical sectors.*
ITN MetaWireless	*MetaWireless puts forth the disruptive idea to design wireless networks by treating the wireless environment as an optimization variable to be adapted to maximize the network performance.*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
SDR testbed	*10 USRP B210 SDR Boards*
Workstation	*Supermicro server with Intel Xeon Gold 6226R + Intel FPGA PAC N3000 + NVIDIA Tesla V100 GPU*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? ○ Yes ◉ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **Electrosense**

PIC	Legal name
897739657	*Electrosense*

Short name: Electrosense

Address

Street	Eyzälg 23
Town	Burgorf
Postcode	3400
Country	Switzerland
Webpage	https://electrosense.org

Specific Legal Statuses

Legal person	yes	Academic Sector	no
Public body	no		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	no		
Research organisation	no		

SME Data

Based on the below details from the Participant Registry the organisation is an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	11/10/2019 - yes
SME self-assessment	unknown
SME validation	unknown

Departments carrying out the proposed work

No department involved

Department name *Name of the department/institute carrying out the work.* ☒ not applicable

☐ Same as proposing organisation's address

Street *Please enter street name and number.*

Town *Please enter the name of the town.*

Postcode *Area code.*

Country *Please select a country*

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **Electrosense**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Dr	Vincent	Lenders	Man	Switzerland	lenders@electrosense.org	Category A Top grade re	Leading	0000-0002-2289-3722	Orcid ID

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☐
Provision of research and technology infrastructure	☐
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☐
Technology developer	☐
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*V. Lenders, et al., "Electrosense+: Crowdsourcing Radio Spectrum Decoding using IoT Receivers", Elsevier Journal on Computer Networks, May 2020.*
Publication	*B. Reynders, F. Minucci, E. Perenda, H. Sallouha, R. Calvo, Y. Lizarribar, M. Fuchs, M. Schaefer, M. Engel, B. Van den Bergh, S. Pollin, D. Giustiniano, G. Bovet, and V. Lenders, "SkySense: Terrestrial and Aerial Spectrum Use Analysed Using Lightweight Sensing Technology with Weather Balloons", ACM International Conference on Mobile Systems, Applications, and Service (MobiSys), Toronto, Canada, June 2020.*
Publication	*Sreeraj Rajendran, Vincent Lenders, Wannes Meert, and Sofie Pollin, "Crowdsourced Wireless Spectrum Anomaly Detection", IEEE Transactions on Cognitive Communications and Networking (TCCN), 2019.*
Publication	*S. Rajendran, R. Calvo-Palomino, M. Fuchs, B. Van den Bergh, H. Cordobés, D. Giustiniano, S.Pollin, V. Lenders, "Electrosense: Open and Big Spectrum Data", IEEE Communications Magazine, January 2018*
Publication	*R. Calvo, D. Giustiniano, V. Lenders and A. Fakhreddine, "Crowdsourcing Spectrum Data Decoding", IEEE International Conference on Computer Communications (INFOCOM), Atlanta, USA, 2017.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
SOCRATES	*Electrosense was involved in the SOCRATES project funded by NATO Science for Peace and Security Programme the under grant G5461. Furthermore, Electrosense collaborates actively with KU Leuven and IMDEA networks in direct collaboration activities.*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
Several servers	*Electrosense currently owns several servers that runs 2 x 12 Core Intel Xeon Silver 4116 2.1GHz Processor. Several of the spectrum sensors deployed at users' location are also owned by Electrosense, although users have also access to the toolkit to deploy their own sensors.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? ○ Yes ◉ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **ACCELLERAN**

PIC	Legal name
942650075	*ACCELLERAN*

Short name: ACCELLERAN

Address

Street	KIEVITPLEIN 20 BUS 4.2
Town	ANTWERPEN
Postcode	2018
Country	Belgium
Webpage	www.accelleran.com

Specific Legal Statuses

Legal person	yes	Academic Sector	no
Public body	no		
Non-profit	no		
International organisation	no		
Secondary or Higher education establishment	no		
Research organisation	no		

SME Data

Based on the below details from the Participant Registry the organisation is an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	27/01/2022	- yes
SME self-assessment	31/12/2017	- yes
SME validation	unknown	

Departments carrying out the proposed work

Department 1

Department name CTO Office ☐ not applicable

☐ Same as proposing organisation's address

Street QUELLINSTRAAT 49

Town ANTWERP

Postcode 2018

Country Belgium

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **ACCELLERAN**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier	
Dr	Trevor	Moore	Man	Belgium	trevor.moore@accelleran.com	Category A Top grade re	Leading	https://www.linkedin.com/in/holistic/	Other ID	Linkedin

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☐
Provision of research and technology infrastructure	☐
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☐
Technology developer	☐
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Software	*Enabling the full functionality of an e/gNodeB, this software package delivers an integrated software solution, including all the essential components: Layers 1, 2 and 3 of the RAN function and the necessary OAM and security features.*
Software	*The dRAX-RIC's near real-time xApp platform allows the roll-out of smart apps for management and optimization of the RAN. These apps, having access to RAN data as never before, can use this to feed to near-real time control functions, leveraging the benefits of AI and Big Data. This open platform allows third-party apps to complement the Accelleran portfolio.*
Software	*dRAX delivers on the promises of manageability and orchestration of open and disaggregated RAN.* *On top of open APIs, dRAX also provides an intuitive graphical user interface that supports the monitoring and configuration of the Open RAN elements as well as xApps onboarding.*
Software	*Accelleran's dRAX™-CU provides a fully standards-compliant, Cloud-Native implementation of the Central Unit – User Plane (CU-UP) and Central Unit – Control Plane (CU-CP) as defined by 3GPP.*
Other achievement	*Accelleran dRAX™-RIC delivers a truly Cloud-Native near real-time RAN Intelligent Controller as per O-RAN, that enables near real-time control and optimization of Open RAN 4G & 5G elements and resources under its control.* *At the basis of the dRAX™-RIC lies a framework that provides all the necessary functions for onboarding and life cycle management of xApps. It supports the deployment of containerized xApps and provides them with a number of services.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
H.2020 *Affordable5G*	*H.2020* *Affordable5G Affordable5G aims at creating a 5G network that will deliver a complete, disaggregated and affordable solution covering the needs of private and enterprise networks through technical innovation that span across all parts of the 5G network including Radio Access, Edge, 5G Core and Orchestration.*
H.2020 *5G-CLARITY 5G-CLARITY will develop and de*	*5G-CLARITY will develop and demonstrate a beyond 5G system for private networks integrating 5G, Wi-Fi, and LiFi technologies, and managed through AI based autonomic networking.* *5G-CLARITY aims to be instrumental in order to secure the leadership of Europe in the growing markets of private 5G networks, and 5G for factory automation.* *5G-CLARITY brings forward the design of a system for beyond 5G private networks that addresses the challenges in spectrum flexibility, delivery of critical serv*
H.2020 *5G-RECORDS*	*The key challenge of 5G-RECORDS is to explore the possibilities that new hardware devices and technologies may bring to the 5G ecosystem.*
H.2020 *5G-COMPLETE*	*5G-COMPLETE aims to revolutionize the 5G architecture, by efficiently combining compute and storage resource functionality over a unified ultra-high capacity converged digital/analog Fiber-Wireless (FiWi) Radio Access Network (RAN).*

H.2020 *5GCity*	*H.2020* *5GCity The ultimate goal of 5GCity was to maximize the return on investment for the whole digital market chain (users, application, cloud providers, i.e., the municipalities themselves, telecom providers, and infrastructure providers). To do so, 5GCity's main aim was to build and deploy a common, multi-tenant, open platform that extends the (centralized) cloud model to the extreme edge of the network, with a demonstration in three different cities.*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	**Short description (Max 300 characters)**
dlab	*While open standards are prerequisite to delivering truly interoperable products, integrating the individual components into a working solution remains a task cut out for our experts. Providing test environments and services necessary to integrate a multi-sourced Radio Access Networs.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? ○ Yes ◉ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **UC3M**

PIC	Legal name
999899572	*UNIVERSIDAD CARLOS III DE MADRID*

Short name: UC3M

Address

Street	CALLE MADRID 126
Town	GETAFE (MADRID)
Postcode	28903
Country	Spain
Webpage	http://www.uc3m.es

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	yes		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	yes		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	17/01/2022	- no
SME self-assessment	unknown	
SME validation	30/10/2008	- no

Departments carrying out the proposed work

Department 1

Department name	Departamento de Ingeniería Telemática	☐ not applicable
	☐ Same as proposing organisation's address	
Street	Avda. Universidad, 30	
Town	Leganés	
Postcode	28911	
Country	Spain	

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **UC3M**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Dr	Pablo	Serrano	Man	Spain	pablo@it.uc3m.es	Category B Senior resea	Leading	0000-0002-5176-0013	Orcid ID

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☐
Provision of research and technology infrastructure	☐
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☐
Technology developer	☐
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*G. Garcia-Aviles, A. Garcia-Saavedra, M. Gramaglia, X. Costa-Perez, P. Serrano, A. Banchs, Nuberu: Reliable RAN Virtualization in Shared Platforms, ACM Mobicom 2022 (accepted)*
Publication	*Francesco Gringoli, Paul Patras, Carlos Donato, Pablo Serrano, Yan Grunenberger, Performance Assessment of Open Software Platforms for 5G Prototyping, IEEE Wireless Communications Magazine, Special Issue on 5G Testing and Field Trials, Vol. 25, Issue 5, October 2018*
Publication	*Ismael Gomez-Miguelez, Andrés Garcia-Saavedra, Paul D. Sutton, Pablo Serrano, Cristina Cano, Doug J. Leith, srsLTE: An Open-Source Platform for LTE Evolution and Experimentation (Best paper award), ACM WiNTECH 2016, New York, USA, October 2016*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
METRICS	*METRICS provided the right instruments for continuous large-scale measurements, developed data analysis and privacy protection mechanisms, and designed sample applications that make effective use of the measurement infrastructure. https://cordis.europa.eu/project/rcn/109503/factsheet/en*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
5TONIC	*UC3M forms part of 5TONIC an open research and innovation laboratory focusing on 5G technologies based in Madrid. The objective of 5TONIC is to create a global open environment where members from industry and academia work together in specific research*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? (•) Yes ( ) No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **SUNY**

PIC	Legal name
985856494	*THE RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK*

Short name: SUNY

Address

Street	STATE STREET 35
Town	ALBANY NY
Postcode	12201
Country	United States
Webpage	http://www.rfsuny.org

Specific Legal Statuses

Legal person	yes	Academic Sector	no
Public body	no		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	no		
Research organisation	no		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	16/02/1951 - no
SME self-assessment	unknown
SME validation	unknown

Departments carrying out the proposed work

Department 1

Department name: Department of Computer Science ☐ not applicable

☐ Same as proposing organisation's address

Street: 1215 Western Ave, Room 400

Town: Albany, NY

Postcode: 12222

Country: United States

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **SUNY**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier	
Dr	Mariya	Zheleva	Woman	Bulgaria	mzheleva@albany.edu	Category B Senior resea	Leading	https://www.linkedin.com/in/mariyazheleva/	Other ID	Linkedin

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☐
Provision of research and technology infrastructure	☐
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☐
Technology developer	☐
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*MODELESS: MODulation rEcognition with LimitEd SuperviSion. Wei Xiong, Petko Bogdanov, and Mariya Zheleva. IEEE International Conference on Sensing, Communication and Networking (IEEE SECON 2021).*
Publication	*SYMMeTRy: Exploiting Self-Similarity for Under-Determined MIMO Modulation Recognition. Wei Xiong, Lin Zhang, Maxwel McNeil, Petko Bogdanov, and Mariya Zheleva. IEEE Transactions on Mobile Computing (IEEE TMC 2021).*
Publication	*Learning the unknown: Improving modulation classification performance in unseen scenarios. Erma Perenda, Sreeraj Rajendran, Gerome Bovet, Sofie Pollin, and Mariya Zheleva. IEEE International Conference on Computer Communications (IEEE INFOCOM 2021).*
Publication	*Robust and Efficient Modulation Recognition Based on Local Sequential IQ Features. Wei Xiong, Petko Bogdanov, and Mariya Zheleva. IEEE International Conference on Computer Communications (IEEE INFOCOM 2019).*
Publication	*Enabling a Nationwide Radio Frequency Inventory Using the Spectrum Observatory. Mariya Zheleva, Ranveer Chandra, Aakanksha Chowdhery, Paul Garnett, Anoop Gupta, Ashish Kapoor, and Matt Valerio. IEEE Transactions on Mobile Computing (IEEE TMC).*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
SpectrumX	*An NSF Spectrum Innovation Center (https://www.spectrumx.org/).*
CAREER	*Automating the measurement and management of the radio spectrum for future spectrumsharing applications*
SCC	*Integrating Heterogeneous Wide-Area Networks and Advanced Data Science to Bridge the Digital Divide in Rural Emergency Preparedness and Response*
CRII: NeTS	*Next Generation Spectrum Measurement Algorithms and Infrastructures*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
Software defined radios	*(2x USRP N210, 3x USRP B210, 2x RTL-SDR), two Lenovo x210 laptops, one GPSDO Kit for USRP N200/N210, multiple antennas, multiple Android-based phones, multiple embedded platforms (i.e. Raspberry Pi and Banana Pi), and one power meter from Monsoon Electronics.*
Workstation	*In addition, the lab has a 36-core Dell server with 256GB of RAM, which is currently used in research prototyping and scan analysis and is housed at the University's datacenter*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? ○ Yes ◉ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **Saint Louis University**

PIC	Legal name
996981618	*Saint Louis University*

Short name: Saint Louis University

Address

Street	Grand Blvd 221
Town	Saint Louis
Postcode	63103
Country	United States
Webpage	www.slu.edu

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	no		
Non-profit	yes		
International organisation	unknown		
Secondary or Higher education establishment	unknown		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is unknown (small- and medium-sized enterprise) for the call.

SME self-declared status	unknown
SME self-assessment	unknown
SME validation	unknown

Proposal ID **101119959**

Acronym **SpecX**

Short name **Saint Louis University**

Departments carrying out the proposed work

Department 1

Department name: Computer Science Department, College of Arts and Sciences, Saint ☐ not applicable

☐ Same as proposing organisation's address

Street: 3450, Lindell Blvd

Town: ST. Louis

Postcode: 63103

Country: United States

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **Saint Louis University**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Prof	Flavio	Esposito	Man	Italy	flavio.esposito@slu.edu	Category B Senior resea	Leading	0000-0002-7798-4584	Orcid ID

Proposal ID **101119959**

Acronym **SpecX**

Short name **Saint Louis University**

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☐
Provision of research and technology infrastructure	☐
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☐
Technology developer	☐
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*N. Akhtar, I. Matta, A. Raza, L. Goratti, B. Torsten, F. Esposito, "Managing Chains of Application Functions Over Multi-Technology Edge Networks", IEEE Transactions on Network and Service Management, 2021.*
Publication	*A. Sacco, F. Esposito, G. Marchetto, "An Architecture for Adaptive Data-Driven Routing Prediction at the Edge," IEEE Transactions on Network and Service Management. 2020.*
Publication	*A. Sacco, F. Esposito, G. Marchetto, "Owl: Congestion Control with Partially Invisible Networks via Reinforcement Learning", Proc. IEEE INFOCOM, 2019.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
1. US-NSF project US Ignite	*Resilient Virtual Path Management for Scalable Data-intensive Computing at Network-Edges.*
2. US-NSF project ICE-T RI	*A Knowledge-Defined Platform for Real-Time Management of Transmissions and Computations at Network Edge*
3. US-NSF project (Core: Small: Collaborative Res	*A Hybrid Elastic Edge-Cloud Application Management Architecture*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
Key infrastructure	*infrastructure include a computing cluster, numerous software-defined radios of different types, and an edge cloud testbed serving 20 5G antennas that are available for multiple experiments on software-defined networking, virtualization, radio sensing and signal detection.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? ○ Yes ◉ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **ERICSSON**

PIC	Legal name
999944386	*ERICSSON GMBH*

Short name: ERICSSON

Address

Street	PRINZENALLEE 21
Town	DUSSELDORF
Postcode	40549
Country	Germany
Webpage	

Specific Legal Statuses

Legal person	yes	Academic Sector	no
Public body	no		
Non-profit	no		
International organisation	no		
Secondary or Higher education establishment	no		
Research organisation	no		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	14/09/2009 - no
SME self-assessment	unknown
SME validation	unknown

Departments carrying out the proposed work

Department 1

Department name: Ericsson Research ☐ not applicable

☐ Same as proposing organisation's address

Street: Ericsson-Allee 1

Town: Herzogenrath

Postcode: D-52134

Country: Germany

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **ERICSSON**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Dr	Andra	Voicu	Woman	Romania	andra.mihaela.voicu@ericsson.com	Category C Recognised	Leading	0000-0001-9723-3094	Orcid ID
Dr	Michael	Meyer	Man	Germany	michael.meyer@ericsson.com	Category A Top grade re	Team member		

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☐
Provision of research and technology infrastructure	☒
Co-definition of research and market needs	☒
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☒
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☒
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*A. Palaios, P. Geuer et al., "Network under control: Multi-vehicle E2E measurements for AI-based QoS prediction," IEEE PIMRC, Sep. 2021.*
Publication	*R. Zhohov, A. Palaios, and P. Geuer, "Learning from large-scale commercial networks: challenges and knowledge extraction towards machine learning use cases", in Proc. 5G-MeMU, Aug. 2021.*
Publication	*J. Biosca Caro, J. Ansari, J. Sachs, P. de Bruin, S. Sivri, L. Grosjean, N. König, R. H. Schmitt, "Empirical study on 5G NR cochannel coexistence", MDPI Electronics, May 2022.*
Publication	*J. Ansari, C. Andersson, P. de Bruin, J. Farkas, L. Grosjean, J. Sachs, J. Torsner, B. Varga, D. Harutyunyan, N. König, and R. H. Schmitt, "Performance of 5G trials for industrial automation", MDPI Electronics, Jan.2022.*
Other achievement	*G. Wikström et al., "6G – Connecting a cyber-physical world", white paper, Feb. 2022, online available: https://www.ericsson.com/en/reports-and-papers/white-papers/a-research-outlook-towards-6g*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
5G-SMART *H2020* *GA number: 857008*	*5G for Smart Manufacturing;* *5G-SMART identified novel use cases, developed new 5G technology features, and identified viable operator business models to drive future 5G standards and technology adaption in the manufacturing ecosystem.* *In this project, EDD demonstrated, evaluated, and validated 5G systems for new manufacturing applications in 5G-enabled industry field trials.* *https://5gsmart.eu/*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
Various equipment and infrastructure	*EDD has extensive experience with and access to various relevant cutting-edge equipment and infrastructure. Specifically, EDD has been using 5G private networks, URLLC testbeds based on Rel-16, state of the art SDR boards, GPU-based computation platforms, and commercial 5G equipment.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? ○ Yes ◉ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **UNITN**

PIC	Legal name
999841954	*UNIVERSITA DEGLI STUDI DI TRENTO*

Short name: UNITN

Address

Street	VIA CALEPINA 14
Town	TRENTO
Postcode	38122
Country	Italy
Webpage	www.unitn.it

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	yes		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	yes		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	17/02/2022	- no
SME self-assessment	17/02/2022	- no
SME validation	unknown	

Departments carrying out the proposed work

Department 1

Department name	Department of Information Engineering and Computer Science	☐ not applicable
	☐ Same as proposing organisation's address	
Street	Via Sommarive, 9	
Town	Povo	
Postcode	38123	
Country	Italy	

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **UNITN**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier
Dr	Paolo	Casari	Man	Italy	paolo.casari@unitn.it	Category B Senior resea	Leading	0000-0002-6401-1660	Orcid ID
Prof	Fabrizio	Granelli	Man	Italy	fabrizio.granelli@unitn.it	Category B Senior resea	Team member	0000-0002-2439-277X	Orcid ID

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☒
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☒
Testing/validation of approaches and ideas	☒
Prototyping and demonstration	☐
IPR management incl. technology transfer	☒
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*J. Palacios, P. Casari, H. Assasa, J. Widmer, "LEAP: Location Estimation and Predictive Handover with Consumer-Grade mmWave Devices," Proc. IEEE INFOCOM, Paris, France, Apr. 2019*
Publication	*F. Granelli, R. Capraro, M. Lorandi, P. Casari, "Evaluating a Digital Twin of an IoT Resource Slice: an Emulation Study using the ELIoT Platform," IEEE Networking Letters, Sep. 2021*
Publication	*C. Ayimba, P. Casari, V. Mancuso, "SQLR: Short-Term Memory Q-Learning for Elastic Provisioning," IEEE Transactions on Network and Service Management, June 2021.*
Publication	*G. Bielsa, J. Palacios, A. Loch, D. Steinmetzer, P. Casari, J. Widmer, "Indoor Localization Using Commercial Off-The-Shelf 60 GHz Access Points," Proc. IEEE INFOCOM, 2018*
Publication	*T. Arzo, R. Bassoli, F. Granelli, F. H. P. Fitzek, "Multi-Agent Based Autonomic Network Management Architecture," IEEE Transactions on Network and Service Management, 2021*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
EU H2020 RECAP	*RECAP aims at making autoscaling in an edge-to-fog continuum seamless and scalable for different target applications, using a methodology that includes separation of concern, multitier optimization and machine learning to enable the fast convergence of deployment solutions*
EU H2020 MSCA-ETN MINTS	*MINTS trains future professionals and academics in all required enabling technologies, algorithms and methods to enable beyond-5G mmWave networks and applications supported by mmWave infrastructure.*
NATO SPS project DAVOSS	*This project implements a multi-layer virtualised system in which senros networks and multiple UAVs can operate together to guarantee efficient and effective borders and ports surveillance, or environmental security.*
FP7 ITN GREENET	*This ITN aimed at training ESRs in relevant issues of 4G networks, especially those emerging from a large number of foreseen devices coupled with the surge in power requirements for future emerging handsets. E.g., this includes i) reducing the energy consumption; and ii) reducing the amount of electromagnetic radiation.*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
Amarisoft callbox Classic	*A software-defined Release 15-compliant 5G base station and core network for testing purposes*
Software-defined radios	*Multiple software-defined radios of different brands and capabilities, to generate and receive signals of different type.*
Servers and high-end workstations	*Several servers for simulation and processing, including virtualization capabilities and clustered computing*
Drones	*Several aerial drones, including one model for the hauling of significant cargo (e.g., software.defined radios).*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? (•) Yes ( ) No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **UNITOV**

PIC	Legal name
999844864	*UNIVERSITA DEGLI STUDI DI ROMA TOR VERGATA*

Short name: UNITOV

Address

Street	VIA CRACOVIA 50
Town	ROMA
Postcode	00133
Country	Italy
Webpage	www.web.uniroma2.it

Specific Legal Statuses

Legal person	yes	Academic Sector	yes
Public body	yes		
Non-profit	yes		
International organisation	no		
Secondary or Higher education establishment	yes		
Research organisation	yes		

SME Data

Based on the below details from the Participant Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

SME self-declared status	14/12/2021	- no
SME self-assessment	unknown	
SME validation	31/12/2012	- no

Departments carrying out the proposed work

Department 1

Department name: Department of Electronic Engineering ☐ not applicable

☐ Same as proposing organisation's address

Street: via del Politecnico 1

Town: Rome

Postcode: 00133

Country: Italy

Links with other participants

Type of link	Participant

Application forms

Proposal ID **101119959**

Acronym **SpecX**

Short name **UNITOV**

Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier	
Prof	Stefania	Bartoletti	Woman	Italy	stefania.bartolettii@uniroma2.it	Category B Senior resea	Leading	0000-0003-1428-9776	Orcid ID	
Prof	Giuseppe	Bianchi	Man	Italy	giuseppe.bianchi@uniroma2.it	Category A Top grade re	Team member	https://scholar.google.ch/citations?hl=en&user=JQsX7rAAAAAJ	Other ID	Google Scholar

Role of participating organisation in the project

Project management	☐
Communication, dissemination and engagement	☒
Provision of research and technology infrastructure	☒
Co-definition of research and market needs	☐
Civil society representative	☐
Policy maker or regulator, incl. standardisation body	☐
Research performer	☒
Technology developer	☐
Testing/validation of approaches and ideas	☐
Prototyping and demonstration	☐
IPR management incl. technology transfer	☐
Public procurer of results	☐
Private buyer of results	☐
Finance provider (public or private)	☐
Education and training	☒
Contributions from the social sciences or/and the humanities	☐
Other If yes, please specify: (Maximum number of characters allowed: 50)	☐

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)
Publication	*S. Bartoletti, A. Conti and M. Z. Win, "Device-Free Counting via Wideband Signals," in IEEE Journal on Selected Areas in Communications, May 2017.*
Publication	*A. Conti, S. Mazuelas, S. Bartoletti, W. C. Lindsey and M. Z. Win, "Soft Information for Localizationof-Things," in Proceedings of the IEEE, 2019.*

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)
"LOCUS H2020-ICT-2018-20 GA: 871249"	*LOCUS aims to improve the functionality of 5G infrastructures to provide accurate and ubiquitous location information, and derive more complex features and behavioural patterns out of raw location and physical events. The project will help to increase the overall value of the 5G ecosystem by making new applications possible, boosting vertical industries, and creating new business opportunities for telecommunications companies.*

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)
Lab	*UNITV own completely independent and large lab facilities. The Electronic Department includes laboratories dedicated to Telecommunications Network, Sensors and Microsystems, Satellite Telecommunications and a Radar Laboratory.*

Gender Equality Plan

Does the organization have a Gender Equality Plan (GEP) covering the elements listed below? ○ Yes ◉ No

Minimum process-related requirements (building blocks) for a GEP

- **Publication:** formal document published on the institution's website and signed by the top management
- **Dedicated resources:** commitment of human resources and gender expertise to implement it.
- **Data collection and monitoring:** sex/gender disaggregated data on personnel (and students for establishments concerned) and annual reporting based on indicators.
- **Training:** Awareness raising/trainings on gender equality and unconscious gender biases for staff and decision-makers.
- **Content-wise, recommended areas** to be **covered** and addressed via concrete measures and targets are:
    - work-life balance and organisational culture;
    - gender balance in leadership and decision-making;
    - gender equality in recruitment and career progression;
    - integration of the gender dimension into research and teaching content;
    - measures against gender-based violence including sexual harassment.

3 - Budget

Participant number	Organisation short name	Role	Country	Country correction coefficient	Academic sector	IO	No of recruited researchers	Number of person months	Contributions for recruited researchers			Institutional contributions		Total
									Living allowance	Mobility allowance	Family allowance	Research, training and networking costs	Management and indirect costs	
1	IMDEA NETWORKS	Coordinator	ES	0.913	Yes	No	2	72	223502.40	43200	35640	115200	86400	503942.40
2	KU Leuven	Partner	BE	1	Yes	No	2	72	244800.00	43200	35640	115200	86400	525240.00
3	TID	Partner	ES	0.913	No	No	1	36	111751.20	21600	17820	57600	43200	251971.20
4	RWTH AACHEN	Partner	DE	0.983	Yes	No	1	36	120319.20	21600	17820	57600	43200	260539.20
5	CNIT	Partner	IT	0.974	Yes	No	2	72	238435.20	43200	35640	115200	86400	518875.20
6	TU Delft	Partner	NL	1.096	Yes	No	2	72	268300.80	43200	35640	115200	86400	548740.80
7	NEC LABORATORIES EUROPE GMBH	Associated	DE	0.983	No	No	0	0	0.00	0	0	0	0	0.00
8	Electrosense	Associated	CH	1.286	No	No	0	0	0.00	0	0	0	0	0.00
9	ACCELLERAN	Associated	BE	1	No	No	0	0	0.00	0	0	0	0	0.00
10	UC3M	Associated	ES	0.913	Yes	No	0	0	0.00	0	0	0	0	0.00
11	SUNY	Associated	US	1.023	No	No	0	0	0.00	0	0	0	0	0.00
12	Saint Louis University	Associated	US	1.023	Yes	No	0	0	0.00	0	0	0	0	0.00
13	ERICSSON	Associated	DE	0.983	No	No	0	0	0.00	0	0	0	0	0.00
14	UNITN	Associated	IT	0.974	Yes	No	0	0	0.00	0	0	0	0	0.00
15	UNITOV	Associated	IT	0.974	Yes	No	0	0	0.00	0	0	0	0	0.00
Total							10	360	1207108.80	216000	178200	576000	432000	2609308.80

4 - Ethics & security

Ethics Issues Table

1. Human Embryonic Stem Cells and Human Embryos			Page
Does this activity involve Human Embryonic Stem Cells (hESCs)?	○ Yes	◉ No	
Does this activity involve the use of human embryos?	○ Yes	◉ No	
2. Humans			**Page**
Does this activity involve human participants?	○ Yes	◉ No	
Does this activity involve interventions (physical also including imaging technology, behavioural treatments, etc.) on the study participants?	○ Yes	◉ No	
Does this activity involve conducting a clinical study as defined by the Clinical Trial Regulation (EU 536/2014)? (using pharmaceuticals, biologicals, radiopharmaceuticals, or advanced therapy medicinal products)	○ Yes	◉ No	
3. Human Cells / Tissues (not covered by section 1)			**Page**
Does this activity involve the use of human cells or tissues?	○ Yes	◉ No	
4. Personal Data			**Page**
Does this activity involve processing of personal data?	○ Yes	◉ No	
Does this activity involve further processing of previously collected personal data (including use of preexisting data sets or sources, merging existing data sets)?	○ Yes	◉ No	
Is it planned to export personal data from the EU to non-EU countries? Specify the type of personal data and countries involved	○ Yes	◉ No	
Is it planned to import personal data from non-EU countries into the EU or from a non-EU country to another non-EU country? Specify the type of personal data and countries involved	○ Yes	◉ No	
Does this activity involve the processing of personal data related to criminal convictions or offences?	○ Yes	◉ No	
5. Animals			**Page**
Does this activity involve animals?	○ Yes	◉ No	
6. Non-EU Countries			**Page**
Will some of the activities be carried out in non-EU countries?	○ Yes	◉ No	
In case non-UE countries are involved, do the activities undertaken in these countries raise potential ethics issues?	○ Yes	◉ No	
It is planned to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?	○ Yes	◉ No	
Is it planned to import any material (other than data) from non-EU countries into the EU or from a non-EU country to another non-EU country? For data imports, see section 4.	○ Yes	◉ No	
Is it planned to export any material (other than data) from the EU to non-EU countries? For data exports, see section 4.	○ Yes	◉ No	
Does this activity involve low and/or lower middle income countries, (if yes, detail the benefit-sharing actions planned in the self-assessment)	○ Yes	◉ No	
Could the situation in the country put the individuals taking part in the activity at risk?	○ Yes	◉ No	
7. Environment, Health and Safety			**Page**

Does this activity involve the use of substances or processes that may cause harm to the environment, to animals or plants.(during the implementation of the activity or further to the use of the results, as a possible impact) ?	○ Yes	◉ No	
Does this activity deal with endangered fauna and/or flora / protected areas?	○ Yes	◉ No	
Does this activity involve the use of substances or processes that may cause harm to humans, including those performing the activity.(during the implementation of the activity or further to the use of the results, as a possible impact) ?	○ Yes	◉ No	

8. Artificial Intelligence			Page
Does this activity involve the development, deployment and/or use of Artificial Intelligence? (if yes, detail in the self-assessment whether that could raise ethical concerns related to human rights and values and detail how this will be addressed).	○ Yes	◉ No	

9. Other Ethics Issues			Page
Are there any other ethics issues that should be taken into consideration?	○ Yes	◉ No	

I confirm that I have taken into account all ethics issues above and that, if any ethics issues apply, I will complete the ethics self-assessment as described in the guidelines How to Complete your Ethics Self-Assessment ☒

Ethics Self-Assessment

Ethical dimension of the objectives, methodology and likely impact

Explain in detail the identified issues in relation to:
- objectives of the activities (e.g. study of vulnerable populations, etc.)
- methodology (e.g. clinical trials, involvement of children, protection of personal data, etc.)
- the potential impact of the activities (e.g. environmental damage, stigmatisation of particular social groups, political or financial adverse consequences, misuse, etc.)

Remaining characters 5000

Compliance with ethical principles and relevant legislations

Describe how the issue(s) identified in the ethics issues table above will be addressed in order to adhere to the ethical principles and what will be done to ensure that the activities are compliant with the EU/national legal and ethical requirements of the country or countries where the tasks are to be carried out. It is reminded that for activities performed in a non-EU countries, they should also be allowed in at least one EU Member State.

Remaining characters 5000

Security issues table

1. EU Classified Information (EUCI)[2]			Page
Does this activity involve information and/or materials requiring protection against unauthorised disclosure (EUCI)?	○ Yes	◉ No	
Does this activity involve non-EU countries?	○ Yes	◉ No	
2. Misuse			**Page**
Does this activity have the potential for misuse of results?	○ Yes	◉ No	
3. Other Security Issues			**Page**
Does this activity involve information and/or materials subject to national security restrictions? If yes, please specify: (Maximum number of characters allowed: 1000)	○ Yes	◉ No	
Are there any other security issues that should be taken into consideration? If yes, please specify: (Maximum number of characters allowed: 1000)	○ Yes	◉ No	

[2]According to the Commission Decision (EU, Euratom) 2015/444 of 13 March 2015 on the security rules for protecting EU classified information, "European Union classified information (EUCI) means any information or material designated by an EU security classification, the unauthorised disclosure of which could cause varying degrees of prejudice to the interests of the European Union or of one or more of the Member States".

[3]Classified background information is information that is already classified by a country and/or international organisation and/or the EU and is going to be used by the project. In this case, the project must have in advance the authorisation from the originator of the classified information, which is the entity (EU institution, EU Member State, third state or international organisation) under whose authority the classified information has been generated.

[4]EU classified foreground information is information (documents/deliverables/materials) planned to be generated by the project and that needs to be protected from unauthorised disclosure. The originator of the EUCI generated by the project is the European Commission.