

CONNECT Overview - Ireland's 6G Centre

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HOST INSTITUTION



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

PARTNER INSTITUTIONS



University College Dublin
An Coláiste Ollscoile, Baile Átha Cliath



Waterford Institute of Technology

FUNDED BY:



CONNECT

One of Europe's most prestigious research centres in
Future Networks and Communications



- Members in 6G-IA
- More will join when needed



Max Ammann TU Dublin

Siobhan Clarke TCD

Dan Kilper TCD

Ronan Farrell Maynooth

Brendan Jennings TU Dublin

Peter Kennedy UCD

Cian O'Mathuna Tyndall

Dirk Pesch UCC

Marco Ruffini TCD

Cormac Sreenan UCC

Anding Zhu UCD

Bogdan Stawzewski UCD

PRINCIPAL INVESTIGATORS



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Utz Roedig UCC

Liam Barry DCU

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Mélanie Bourouche TCD

Ken Brown UCC

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Barry Cliffe UCD

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Bernard Butler SETU

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Donna O'Shea MTU

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+250



Saibal Roy Tyndall

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Mark Halton UL

Tommy Hartney TCD

Andrew Hill UCD

David Lavin Tyndall

Georgios Iosifidis TCD

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David Maloney Maynooth

Michael Marletta TCD

Brendan Mullane UL

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Aisling O'Driscoll UCC

Researchers



Alan O'Riordan Tyndall

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Jeff Punch UL

Aidan Quinn Tyndall

James Rohan Tyndall

Kafil Razeeb Tyndall

Susan Rea MTU

Tony Robinson TCD

Tony Scanlon UL

Ivana Savic Tyndall

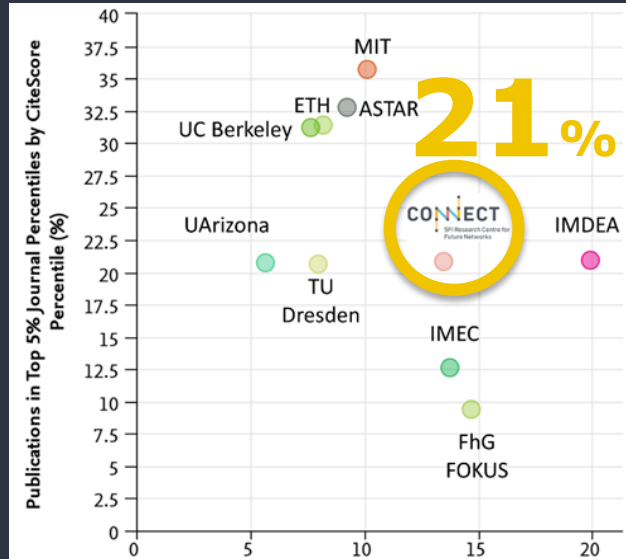
FUNDED INVESTIGATORS

CONNECT is a world leading research centre

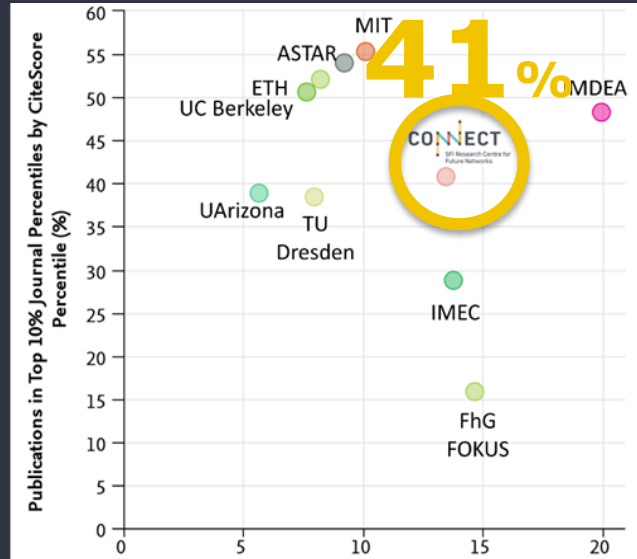


Strong in *scholarly output* and *industry collaboration*

Publications in Top 5% Journals
by CiteScore Percentiles



Publications in Top 10%
Journals by CiteScore Percentiles



Academic-Corporate Collaboration(%)

- Massachusetts Institute of Technology
- Agency for Science, Technology and Research, Singapore
- Swiss Federal Institute of Technology Zurich
- University of California at Berkeley
- Instituto IMDEA Networks
- CONNECT Centre 2015-2022
- University of Arizona
- Technische Universität Dresden
- Interuniversitair Micro-Elektronica Centrum
- Fraunhofer Institute for Open Communication Systems

13%

1.7 FWCI

CONNECT SFI Research Centre for Future Networks & Communications



- Optical, Wireless, and Data Communications for 6G, IoT, Cloud
- Transformative, Full-Stack Research on:
 - Security
 - Dependability
 - Sustainability
 - AI/Data Driven Intelligence
 - Customizability
 - Scalability
- Smart City Applications over Open and Shared, Multi-Tenant Networks and Spectrum
- Energy management in IoT devices



CONNECT Research Themes



Dependable Networks

- Provisioning
- Distribution
- Analytics



Sustainable IoT

- Energy
- Platforms
- Security



Link Performance

- Multi Gbps
- Photonics
- Signal Processing



AI-Driven Network Customisation

- Proactive
- Resilient
- Distributed
- Trust



Network Ecologies

- Regulation
- Financial Model
- Human Centric



Smart Cities



Cybersecurity



Autonomous Vehicles

Ireland's 6G Centre

Sustainable Development

Massive Twinning

Telepresence

Robots to Cobots

Local Trust Zones

Challenges

Connecting Intelligence

AI-Driven Network Customisation

Network of Networks

Network Ecologies

Quantum & Satellite Communications

Global Coverage

Link Performance

Extreme Experience

Smart Cities

Autonomous Vehicles

Sustainable IoT

Sustainability

Trustworthiness

Cybersecurity

Dependable Networks

M. A. Uusitalo et al., "6G Vision, Value, Use Cases and Technologies From European 6G Flagship Project Hexa-X," in IEEE Access, vol. 9, pp. 160004-160020, 2021, doi: 10.1109/ACCESS.2021.3130030."

OpenIreland – Our 6G Testbed



Building a full end-to-end testbed on *open systems and open source*
Show how it can all be integrated

Infrastructure sharing

- Many Services ✓
- Many operators ✓
- Smart contracts ✓

Network Orchestration

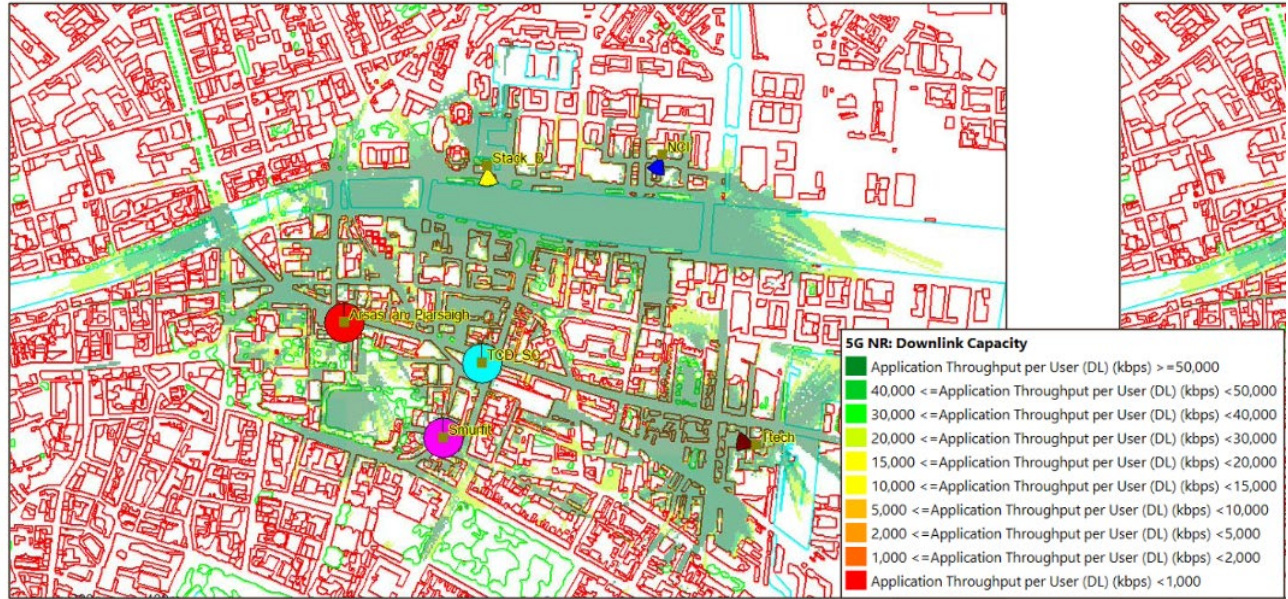
- AI-driven automation ✓
- Customisation ✓
- Wireless/optical/cloud Convergence ✓
- Open source/interface ✓

Support for new services

- Extended Reality ✓
- Connected vehicles ✓
- Cloud Robotics ✓
- eHealth ✓

New Technology

- OpenRAN and radio frequency ✓
- Disaggregated Optical networking, ✓
- Edge cloud ✓



License to 100 MHz Spectrum, 3.85 – 3.95 GHz



Multinationals



SMEs



Local Government



Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath



Cork City Council
Comhairle Cathrach Chorcaí



Cork County Council
Comhairle Contae Chorcaí



Comhairle Contae County Council

Comhairle Contae
Fine Gall
Fingal County
Council



CONNECT European Footprint



10



EU Project Coordinations

54



EU Project Participations



Attracted €~22.5M in funding

CONNECT institutions are part of four SNS JU Projects:

- Confidential 6G (UCD)
- Robust-6G (UCD)
- Eco-Enet (TCD)
- 6G-XCEL (TCD, also coordinator)

→ CONNECT Ops Team offer central support to applicants





Thank you!



connectcentre.ie



[@connect_ie](https://twitter.com/connect_ie)



[connect-centre](https://www.linkedin.com/company/connect-centre)



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