



**CREATE-NET**

Center for REsearch  
And Telecommunication  
Experimentation for  
NETworked communities

# Philosophy

Research is what drives innovation...  
when it comes to research...  
CREATE-NET is where innovation begins

## Quotes and recognition

“...the historical collaboration with the Italian diamond points of Italy’s research, namely Politecnico di Torino and CREATE-NET Research Center in Trento.”  
- Cisco

“To be glocal is good and it works. International vision and long-term investments. That is how CREATE-NET has become a leading research center in ICT. An example of excellence in the international arena and for the Italian system.”  
- Dossier, supplement to the daily national newspaper Il Giornale

Recognized as the top independent research center in ICT  
by the Italian Ministry of Education, Universities and Research (MIUR) in 2009

# President's greetings

It is my privilege to welcome you to CREATE-NET, the gateway to global research

CREATE-NET is an International Research Consortium that, through joint research and community-building projects, brings together some of the best researchers in key areas of ICT worldwide.

CREATE-NET strives to promote original research ideas, innovative experimentation, and build bridges to industry that serve as vehicles for successful technology transfer.

With applications ranging from ICT technologies to health, well-being, energy, negotiation, agriculture and more, validated through experimentation on real-life test-bed, CREATE-NET brings new technologies and services to industry and society.

As facilitators for innovation growth through community building, CREATE-NET participates in multiple European initiatives including EIT, EAI, ICST that build a platform of:

- enablers for the growth of the Information and Communication society that can benefit from the advances in communication technologies and practices;
- developers of efficient, reliable, secure and trusted technologies for the emerging ubiquitous global innovation network;
- testing ground for new services, applications and operators of an open test-bed for networked communities;
- partners to industries for transforming advanced technologies to new business models and opportunities;

We see our mission as working in the service of the research society and of the citizen of the future society, where new ideas and technologies can be fully utilized to serve the community for building the cornerstone of the Networked Society of the Future.

We invite you to explore the opportunity to participate in our activities.

Prof. Imrich Chlamtac  
CREATE-NET President



# FACTS and FIGURES

## Research Focus Areas

- Advanced broadband networking solutions
- Radio and network resources management
- Ambient sensing and intelligence
- Access control & security mechanisms
- Human-centered design

## Research for Clients

- Fast prototyping
- Future Internet testing facilities
- Consulting activities on innovative ICT-enabled solutions

## Achievements

80+ journal and conference publications in 2009

6 international patents filed

32 funded research projects (18 EU projects)

4 mobility programs funded by the Italian Ministry of Foreign Affairs

3 research spin-offs (Extrade, Intelinks, U-Hopper)

Associate Partner of the EIT ICT Labs KIC

## CREATE-NET

Start of activity: 2004

Employees: 90+

Nationalities: 20+

## 5 Organizational Divisions

- eNTIRE
- iNSPIRE
- UBINT
- ENGINE
- INNOVATION

# OVERVIEW

## Center for REsearch And Telecommunication Experimentation for NETworked communities

**CREATE-NET**, headquartered in Trento, Italy, is an international research center recognized as one of Europe's leading institutions in ICT and telecommunications technologies.

Operating as a non-profit association, the Center is led by Prof. Imrich Chlamtac.

**CREATE-NET's mission** is built around four key points that determine the direction of its Research, Engineering and Innovation activities:

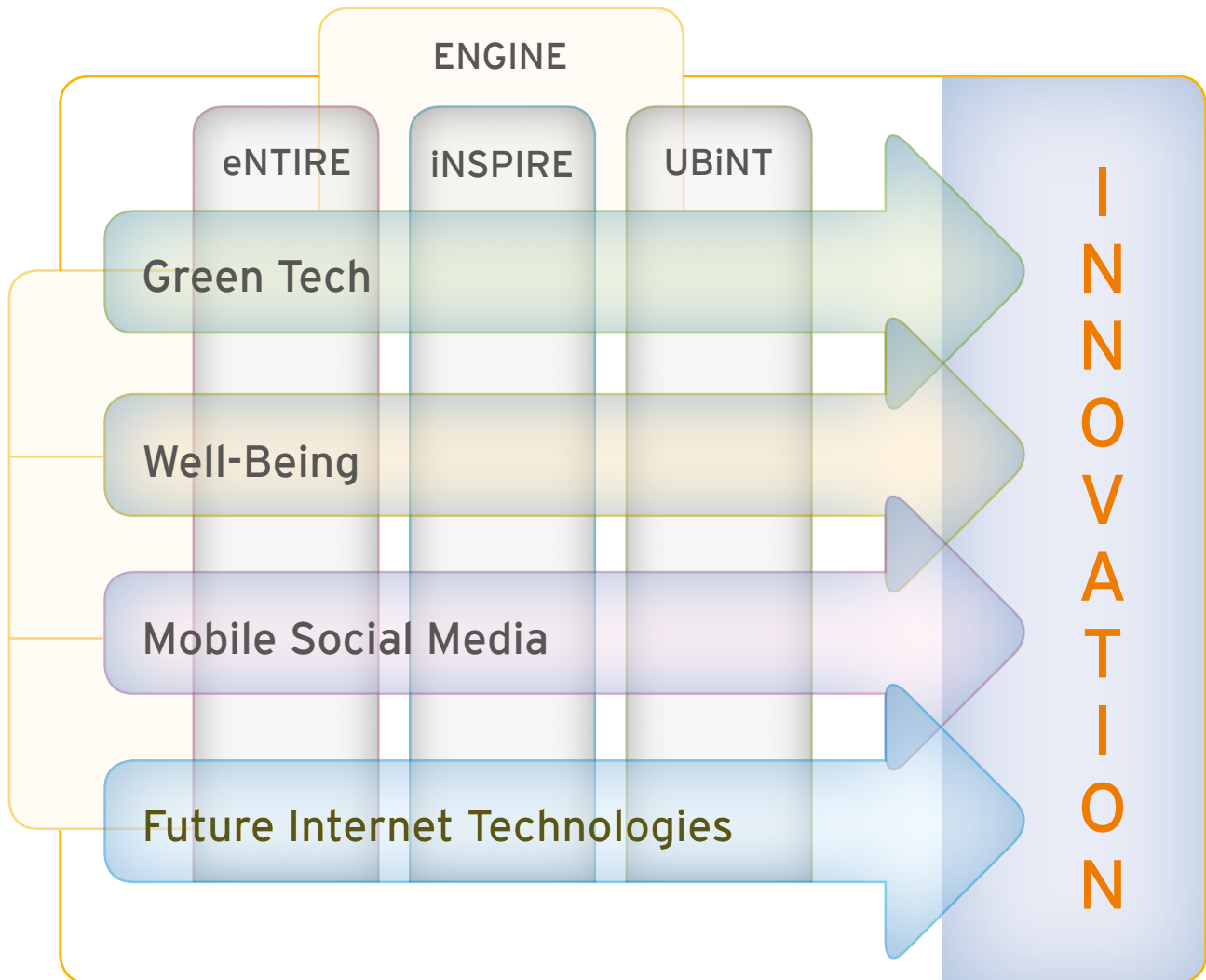
- Achieve **Research** excellence in ICT, with focus on telecommunications
- Promote technology transfer towards the industry through **Engineering of technologies & solutions**
- Promote **Innovation** to improve European high-tech competitiveness
- Focus on key application areas and services while **impacting** the quality of life for the global society

By creating synergies between leading academic institutions, research centers and ICT industry in Europe and around the world, **CREATE-NET's** objective is to develop the highest quality research and innovation, while impacting communications-enabled services that improve the quality of life of the global society in focused application areas.

Besides its international scope, one of **CREATE-NET** key goals is to provide significant benefit to the Autonomous Province of Trento by bringing technology and business talent locally, developing patents and start-ups, enhancing the prestige of the province internationally and making an important contribution to the local economy.

Lastly, **CREATE-NET** acts as a promoter of "globalization of knowledge and research", facilitating the cooperation and interaction of research competences around the world to become the focal point in Europe for "engineering of research/innovation", through the promotion and strong participation into the European Alliance for Innovation (EAI).

# RESEARCH, ENGINEERING &



# INNOVATION

## An Innovation twist to Research & Engineering

CREATE-NET's core research focuses on three areas - **eNTIRE**, **iNSPIRE**, and **UBiNT** - working complementarily and in synergy.

With an approach that embraces network technologies, algorithms and user aspects, **eNTIRE**'s focus is on the dynamic control and management of core and access network resources. **iNSPIRE** focuses on technologies, algorithms and methods for the design and the management of emerging and unconventional wireless networks. With a user-centric perspective, **UBiNT**'s research field is on interaction design and innovative methodologies and technologies enabling smart interaction.

CREATE-NET's research goals are a combination of emerging scientific themes within the context of ICT technologies, innovative services that they enable, and their impact on society.

**ENGINE**, with the responsibility of engineering and prototyping provides support to the research areas, transferring their results into solutions for real-life applications.

**INNOVATION**, the newest of CREATE-NET's initiatives, complements the focus on key application domains - Green Tech, Well-Being, Mobile Social Media, Future Internet Technologies - that integrate CREATE-NET's technological research areas, with the goal of incubating start-ups.

The background of the slide is a complex network diagram. It features a dense web of white nodes connected by thin white lines, set against a dark blue background. The nodes are arranged in a somewhat circular pattern, with some larger nodes acting as hubs. The overall effect is that of a sophisticated, interconnected communication or data network.

# eNTIRE

Bridging the gap between communication services and network provisioning

# eNTIRE

## Network and service technologies and infrastructure

The broad research scope of the eNTIRE area consists of the dynamic control and management of resources at various levels, spanning from optical transport and cognitive wireless resources to communication and computing ones. Such dynamic control and optimized usage of resources is pursued leveraging on extensive knowledge on network and service technologies,

namely in the fields of the optical transport control plane and routing, cognitive radio, access networks coexistence and interoperability, cooperative networking, broadband wireless, data management, modeling and energy-aware use of computing resources. This research finds applications in both the IT industry (energy-efficient data-center management, Enterprise 2.0) and the telecommunication industry where it contributes to the evolution of traditional operator business models.

Amongst the key competences of the eNTIRE area:

- Optical networks control plane and routing
- GMPLS/MPLS networks
- Cognitive radio
- Spectrum sensing and dynamic allocation
- Broadband wireless access
- Energy-efficient use of access technologies and computing resources
- Cooperative networking
- Data and data-center management



**iNSPIRE**

When everything communicates

# iNSPIRE

## Networking & security solutions for pervasive computing systems

The **iNSPIRE** research team pursues a multidisciplinary approach to devise innovative networking and security solutions for pervasive computing systems. The group's activities are inspired by a hybrid approach, whereby research is deeply intertwined with experimentations, leading to solutions that are able to turn novel scientific paradigms into working prototypes.

The group works in tight collaboration with the ENGINE team for the realization of prototypes and proof-of-concept implementation of innovative solutions. Key aspects of the group research agenda include: the focus on data as the basic brick of pervasive communication systems, the introduction of security considerations as constituent properties of the system, the design of distributed, autonomic and "green" algorithms/protocols, the development of methods for evaluating performance and the focus on robustness and resilience as key performance indicators for pervasive systems.

The **iNSPIRE** team pursues research on pervasive computing and communications environments. Key competences of the group include:

- Scalable networking solutions for large-scale computing/communications environments
- Platforms for opportunistic networking
- Autonomic network management
- Energy-efficient protocols
- Design and experimentation of multi-hop wireless networks
- Data confidentiality solutions for large-scale systems
- Policy-based access control for distributed right management



**UBiNT**

Enabling smart interactions



# UBiNT

## Ubiquitous interaction group

The UBiNT's research activity focuses on the design, development, evaluation and understanding of user-centered, interactive ubiquitous computing environments. The nature of the technologies investigated in UBiNT drives the research activity through three main phases: acquisition of users' contextual information; analysis of this information to understand users'

contextual situation; and the development of novel interaction modalities in response to the acquired understanding. Realization of these phases employs state-of-the-art methodologies used in the design and evaluation of interactive ubiquitous environments.

The approach of the UBiNT group promotes the use of non-obtrusive technologies, interwoven to a high degree with users' surroundings. Using this approach, acquisition and understanding of users' context becomes minimally intrusive, providing a natural and intuitive interaction environment.

Key competences of the UBiNT group include:

- Context sensing and adaptation for user support in ubiquitous systems
- Human activity recognition techniques
- Interaction design
- Users studies
- Multimodal interaction



# ENGINE

From research concepts to tangible results

# ENGINE

## Engineering and fast prototyping

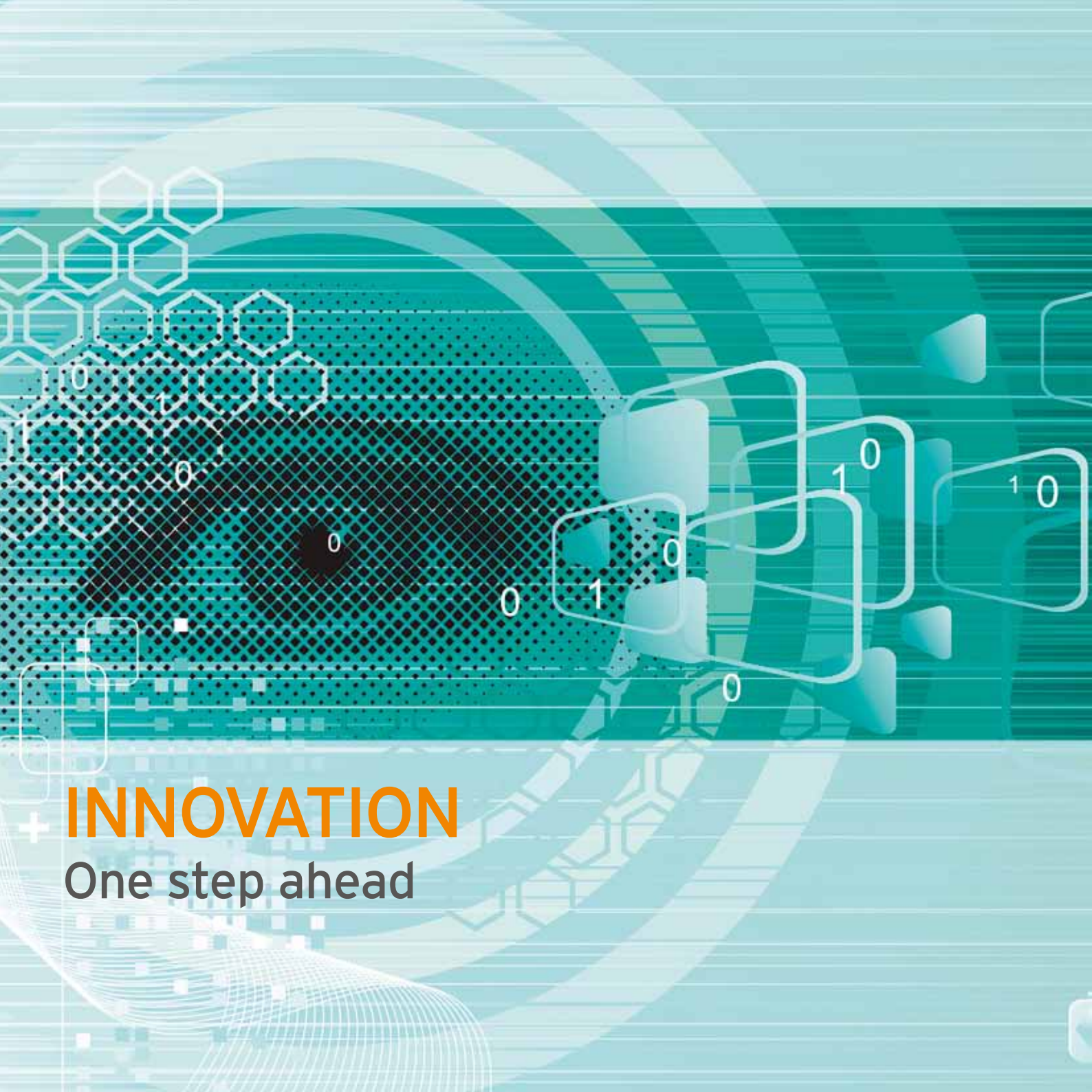
**ENGINE** contributes to the realization of the global CREATE-NET vision by engineering novel technologies to translate research results into solutions for real-life applications for users and communities. This mission is implemented through a tight collaboration with the research areas in the development of proofs of concepts and prototypes for possible long-term commercial exploitation.

Turning research ideas into experimental pilots whose objective is to prove the feasibility and potential impact of innovative concepts is of tremendous importance while performing applied research today. Nevertheless, this “hands-on” approach provides real-world feedback to researchers, helping them to refine their ideas and to identify new challenges, ultimately triggering new research directions.

Furthermore, **ENGINE** is the area within the Center leading all the trusted advisory services toward the local government (PAT - Autonomous Province of Trento) and its affiliated companies with respect to main initiatives such as the core/access high-speed network and the e-Society/e-Welfare plans.

**ENGINE** contributes to the shared vision of the Future Internet by means of advanced experimentation in the following areas:

- Network control and management (optical core networks and multi-hop wireless networks)
- Virtualization of network infrastructures
- Integration between wireless distribution and sensor networks
- Mobile-based applications based on opportunistic networking concepts
- Convergence between IP/Telco networks



# + INNOVATION

One step ahead

# INNOVATION

CREATE-NET's **INNOVATION** activity complements the research and engineering expertise towards the fulfillment of the overall mission of the Center, focusing on four key application domains: Green Tech, Well-Being, Mobile Social Media and Future Internet Technologies.

**INNOVATION**, in cooperation with the research areas, promotes research exploitation and uptake in the industry and in the market, leveraging the expertise of

the engineering team to develop advanced prototypes, translated in innovative services and spin-offs.

True to its spirit that innovation cannot be achieved in isolation, CREATE-NET is also involved in the launch and the promotion of the European Alliance for Innovation (EAI) - an open federated ecosystem where individuals and organizations collaborate to drive innovation in market sectors and technology areas where Europe has the highest potential to be competitive.

Through its role in the EAI, the **INNOVATION** team promotes a distinctive approach to developing a unified innovation landscape, by:

- Building the critical mass to achieve innovation promoting a grassroots approach through the EAI
- Bringing technology-driven applications to society-driven services
- Advancing ICT-based innovative solutions, leveraging on know-how and competences developed through cooperative and applied research
- Transferring results into society and business through field testing and experimentation, and developing start-ups and spin-off activities

# WORK WITH US

Home to creative minds

"I like working at CREATE-NET, a multidisciplinary research environment where you can generate new ideas and quickly turn them into new projects, artifacts and prototypes with a significant impact on everyday life."

Silvia Gabrielli

"At CREATE-NET, I have been given the opportunity to contribute to the best of my abilities, rather than stick to a job description. This mindset gives me plenty of opportunities to grow professionally, be entrusted with exciting responsibilities, all while having fun on the way."

Regis Saint-Paul

Located in the heart of the Italian Dolomites, **CREATE-NET** is home to world-class researchers, engineers, young innovators and entrepreneurs dedicated to developing ICT-enabled solutions, services and products with a tangible impact on the quality of life of today's global society.

Our approach is straightforward:

**Great people make a great work environment; which produces top-notch research and innovation!**

Our multicultural and interdisciplinary staff includes research personnel, engineers, graduate and PhD students from over 20 different nations across the globe.

Are you looking for a challenging, exciting and progressive career that enhances your skills and recognizes your individual and team achievements in a workplace that appreciates diversity? Then **CREATE-NET** is the right place for you.

[careers@create-net.org](mailto:careers@create-net.org)

# SCIENTIFIC PARTNERS

400+ scientific partners including:

- Alcatel-Lucent
- BT
- Cisco Systems
- France Télécom
- Fraunhofer FOKUS
- Georgia Institute of Technology (Georgia Tech)
- INRIA
- Massachusetts Institute of Technology (MIT)
- Nokia
- Siemens
- Telecom Italia
- Tsinghua University
- VTT Technical Research Centre of Finland

# SUPPORTED INITIATIVES

EAI - European Alliance for Innovation

EIT ICT Labs

eMobility - The Mobile and Wireless Communications and Technology Platform

ETSI - The European Telecommunications Standards Institute

E2B JTI

HABITECH - Energy & Environment Cluster

ISI - The Integral Satcom Initiative

NEM - The Networked and Electronic Media Platform

NESSI - Networked European Software & Services Initiatives

CREATE-NET - via alla Cascata 56/D - 38123 Povo, Trento - Italy

Tel: (+39) 0461 408400 - Fax: (+39) 0461 421157 - [info@create-net.org](mailto:info@create-net.org) - [www.create-net.org](http://www.create-net.org)



[www.create-net.org](http://www.create-net.org)