

# Center for Wireless Innovation Norway

<http://cwin.no>

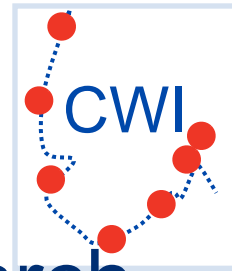


*represented by:*  
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University of Oslo/UNIK  
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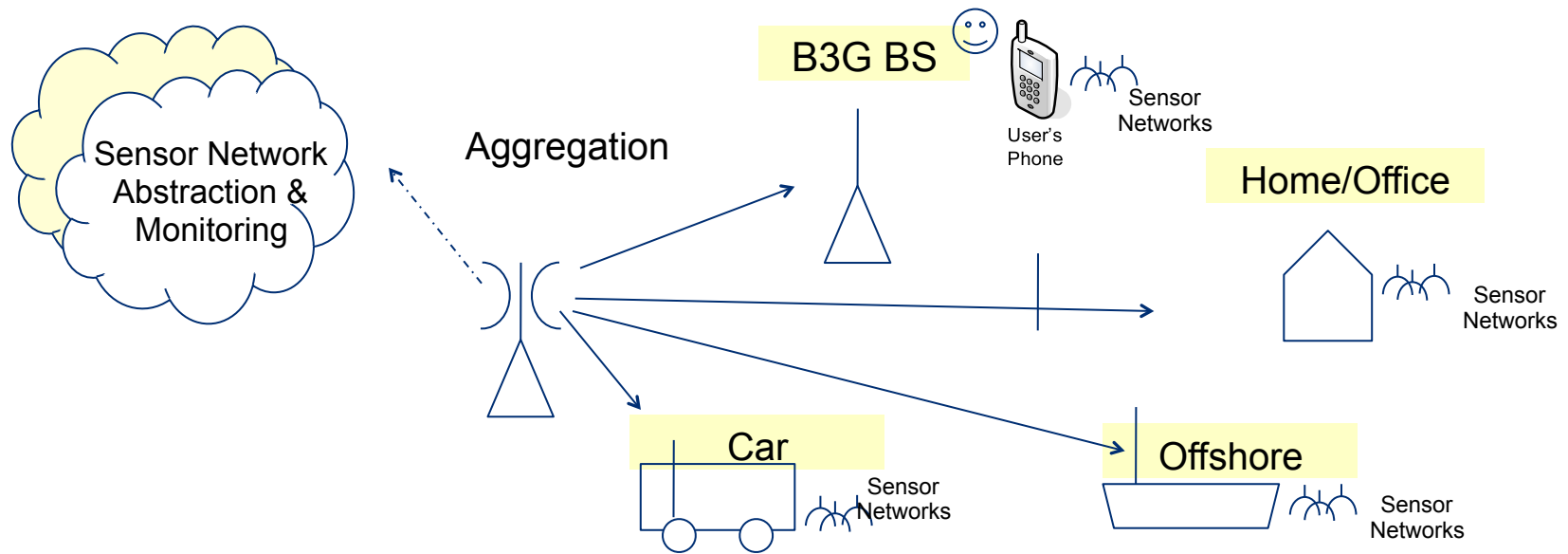


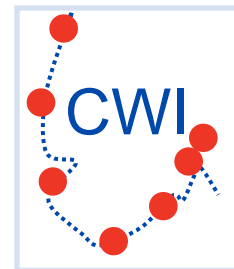
Dec 2009, Josef Noll

# Center for Wireless Innovation



A facilitator for industry and seven research institutions to form strategic partnerships in wireless R&D

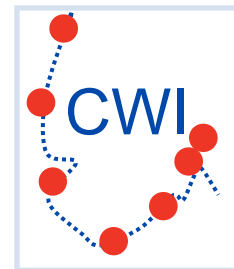




# Visibility & Impact

- CWI aims at being Norway's leading research partner in wireless communications.
- CWI offers companies a platform to create awareness of their products and priorities to a larger audience, and international network ... if desired.
- CWI projects can contribute to visualise user benefits and demonstrate future scenarios to the public and potential customers.



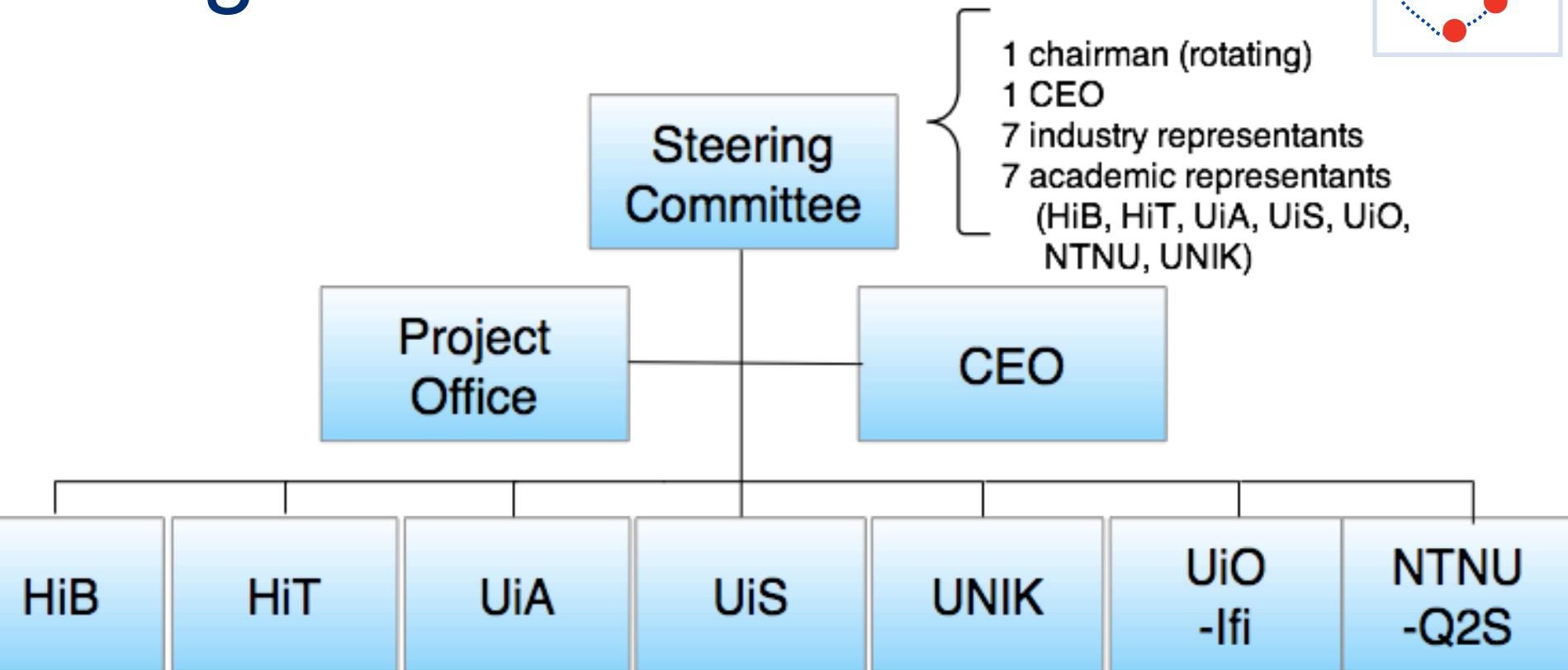
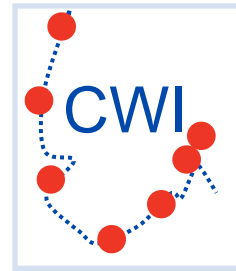


# Applied R&D Contributions

- Input to company strategies and R&D is supported by a broad range of competencies.
- Project teams will consist of professors, senior researchers, PhD students, and talented research students.
- Pre-competitive R&D projects can be co-financed by NFR, SKF, EU between 40-100%.
- Most professors driving CWI have worked many years in industry in leading positions, and therefore have a very good understanding of industry needs.



# Organization



# Why a distributed virtual center?

<http://cwin.no>



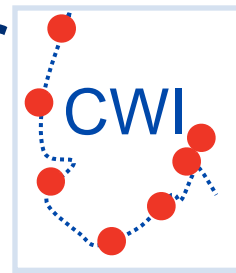
Globalisation

Visibility

Impact

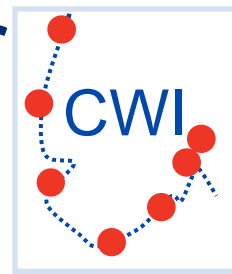


# Because of the close contact to our distributed industry





# Presence of the close contact to our distributed industry



Home Products Services Career Log in

**Wireless Technology - on the ground level**

*Radionor boosts skills and creativity and creates novel wireless positioning and localisation products as well as long range broadband communication products for the civil, telecom and military market sectors. The company contributes in all phases in the design process, from antenna section, radio system front end up to the signal routing control layers. Radionor reach the market sales point through close collaborations with system integrators and international leading vendors.*

Radionor is spinning out its products on a platform of own developed technology IP cores ranging from ultra fast hardware processing engines for adaptive antenna beam forming, physical and medium access control architectures of the IEEE802.11 wireless protocol to embedded Power PC and RISC 32 bits CPU implementations in several different form factors.

Today, Radionor provides volume delivery of dedicated wireless communication modules for tactical wireless broadband apparatus in our partners' product program.

Companies are established based on using our Cordis RadioEye location technology sensor in different market sectors, ranging from applying location information data for real time tracking and analysis of athlete performance to signal automation in large scale public address sound systems for theaters and sound stages.

**NextGenTel** MED PÅ DET NESTE

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Long Haul Microwave for the Network Backbone - Project Traffic and/or SPOT-BEAM Traffic.

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Nera Networks builds All IP network for Telenor subsidiary Promotea

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Bergen

# CWII

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Høgskolen i Telemark

"We are going whale watching with some new friends today!"

...wherever you are!

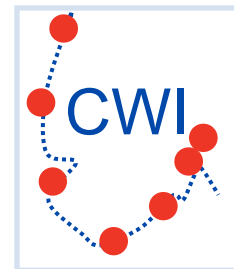
UNIVERSITETET I AGDER

UNIVERSITETET I OSLO

HØGSKOLEN I BERGEN

universitetet i Stavanger



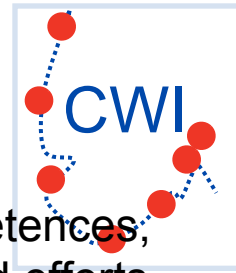


# Highly Skilled Young Talents

- Companies will very competent young engineers requiring less initial competence development, and thereby contribution much earlier to the company.
- CWI will include the most talented students in research projects.
- “Research Students” will have much deeper specialized knowledge about wireless systems and greater problem solving skills than can be taught during BSc/MSc education.



# Research Challenges

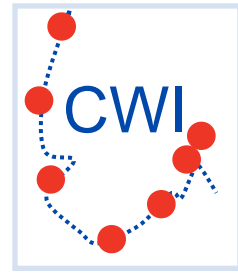


- **Business Integration: Unified Solutions**
  - cross-industry, cost-effective, multi-dimensional, complementary competences, know-how sharing, synergy, larger impact, better exploitation, combined efforts, SOA, widely applicable solutions
  - access, quality, security, payment, ... as a service
  - economic value networks
- **Information Model & API Integration**
  - Resource & service aggregation
- **Access network aggregation and integration**
  - Handling heterogeneous networks
  - Sharing resources & network infrastructure
  - offering logical networks vs. physical networks
  - “switchlets”
- **Wireless technology aspects**
  - facilitating energy efficient, reliable sensor networks
  - “networks of things, services & the real world”
  - virtualization of network nodes
  - instrumentation & observability
  - testing & verification

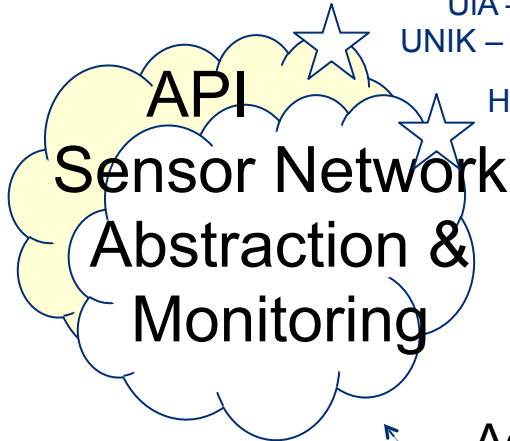


Research Area:

# Sensor Network Integration



HiB – Information Model  
UiA – Security & Trust  
UNIK – Semantic Integration



HiT – Redundancy, Aggregation, Soft Sensor  
HiB – Data Fusion  
UNIK - Virtualization

HiB – QoS, Traffic Eng.,  
UiA, UiS – Mesh Networking

UNIK – context sensor  
UiA – End User applications, eHealth



Sensor Networks

HiB – Energy & Environment  
HiT – Energy

UiA – Service Disc., Remote Access  
UNIK – Green Footprint Monitoring

Sensor Networks

Home/Office

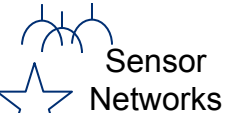
Offshore

HiB - Subsea  
UiS, UiA - Multihop  
Sensor Networks

Aggregation

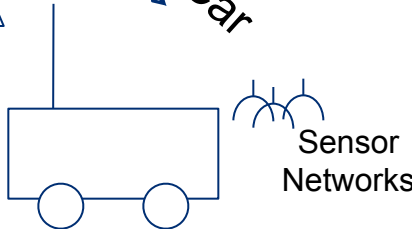
3G/B3G BS

Car



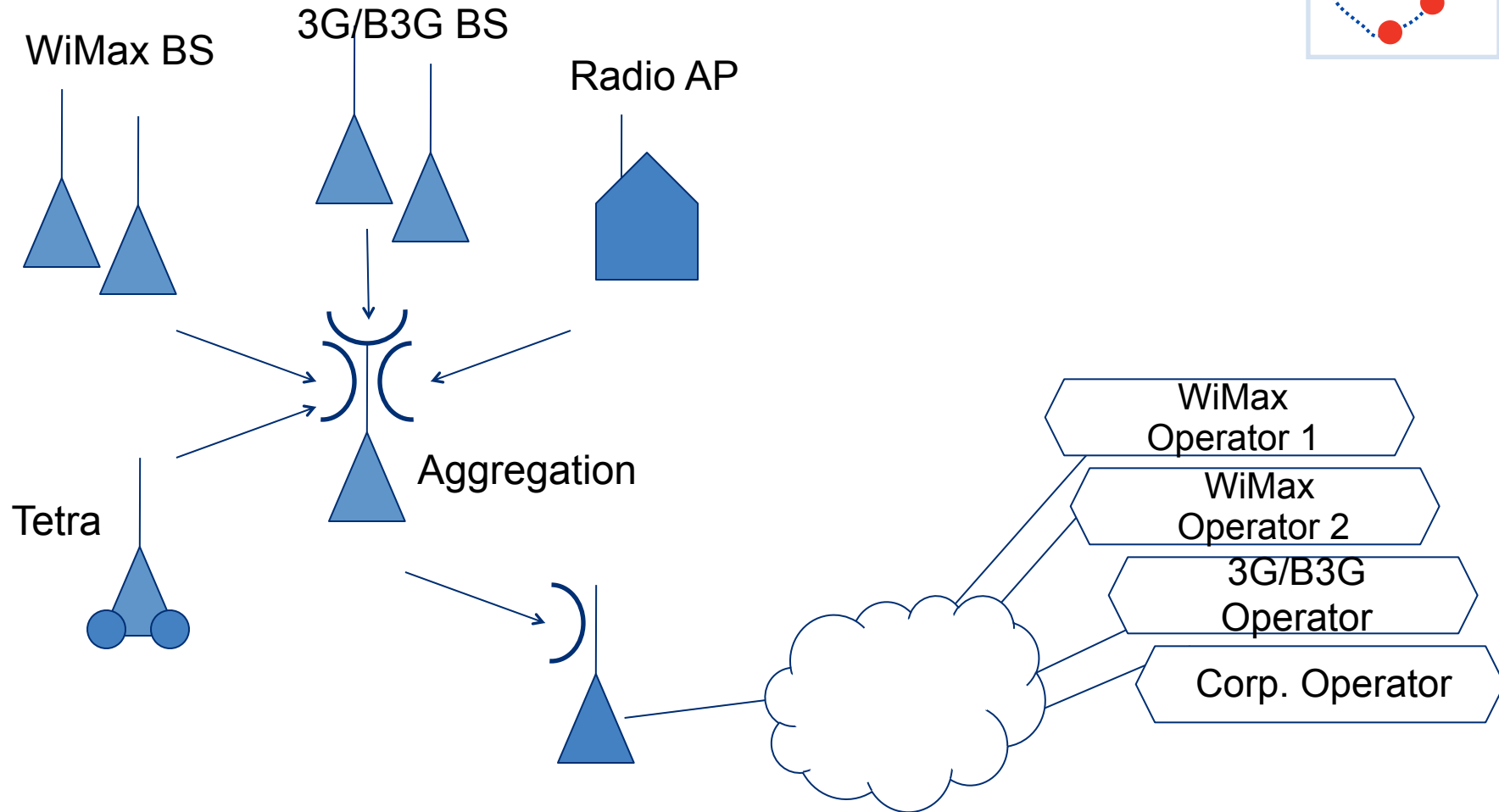
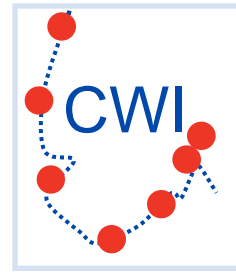
HiT – Energy Efficiency, Soft Sensors  
HiB – Radio Nodes

FFI, UNIK - Security

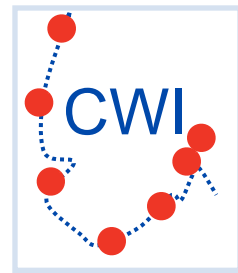


Research Area:

# Aggregation Scenario



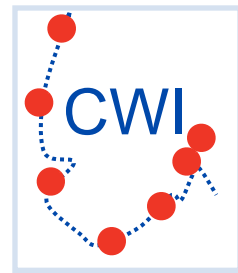
# Status



- Q3 2009 – Anchor with home institutions & industry
- Q3 2009 – Launch Center (official launch in Jan 2010)
- Q3 2009 – Common Workshop with CTIF on 5G  
Co-operation agreement CTIF-CWI, “Nordic extension”
- Q1 2010 – Integrate industrial partners  
Initial talks with Nera Networks, Movation, Telenor, ...
- Q1 2010 – Concept for PhD school cooperation
- Q2 2010 / Q4 2010 – CWI workshops/seminars
- Q2 2010 – Common PhD summer school announced



# CWI Scientific Contacts



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This list contains  
the main contacts

Covering large  
parts of Norway

