

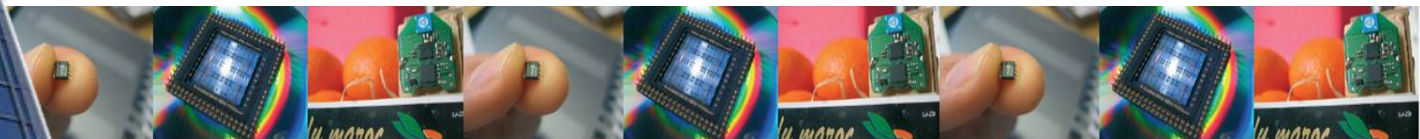
CERES – Centre for Research on Embedded Systems

Co-operating Embedded Systems

- Research in co-production with industry
- Education at PhD, Master and Bachelor levels
- Innovation environment

I SAMARBETE MED

KK-stiftelsen



CENTRE FOR RESEARCH ON EMBEDDED SYSTEMS

CERES

CERES – a KK Profile

This means (according to KKS):

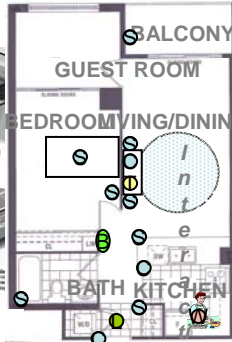
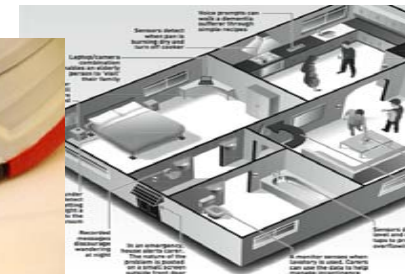
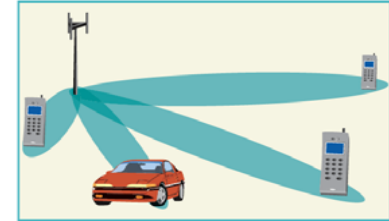
- Is established as a sustainable research environment
- Is prioritized by the university
- Has a rich academic and industrial network
- Has a clearly identifiable research profile of high relevance to industry
- Has strong research competence
- Has a good international reputation



Mats Waltré

CERES – "Business Idea"

- **Co-operation between and within embedded systems as an enabler for new and improved products, services and processes**
- Focus on three application areas:
 - Advanced sensor and communication systems
 - Health technology
 - Traffic and transport



Source: CVIS, 2008

- Research – Innovation - Benefit

CERES – Some Highlights (1)

- "Is established as a sustainable research environment"

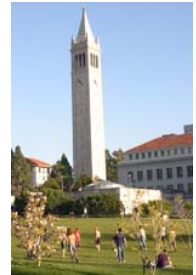
- Currently we are running five (5) research projects financed by the profile funding, and at the same time ...
- ... fifteen (15) projects financed by other sources

- "Is prioritized by the University"

- CERES forms a major part of the biggest research environment at the University: Halmstad Embedded and Intelligent Systems Research (EIS), chosen by the University Board for application for examination rights for PhD

CERES – Some Highlights (2)

- "Has a rich academic and industrial network"
 - » Software development tools for future manycore processors
 - » *Jerker Bengtsson*
 - » Collaboration with UC Berkeley



- » Influences ETSI standard for future radio communication between vehicles
- » *Elisabeth Uhlemann, Katrin Bilstrup*



CERES – Some Highlights (3)

- "Has strong research competence"
- "Has high relevance to industry"

- External evaluation performed in October 2008 stated:

- **The quality of the research**

- Overall we find that the research conducted by the groups in EIS is very good. The research has such high quality that it attracts national attention and performs at an international level.
 - Certain subgroups perform at excellent level. The research is of excellent quality, with publications normally having great impact, also internationally. Without doubt, the research has a leading position in its field in Sweden. Also, certain other subgroups have the potential to become excellent.
 - Furthermore, the long-standing collaboration with industry demonstrated by most of the research within EIS should serve as an excellent platform for future, high quality research and publications.

CERES – Some Highlights (4)

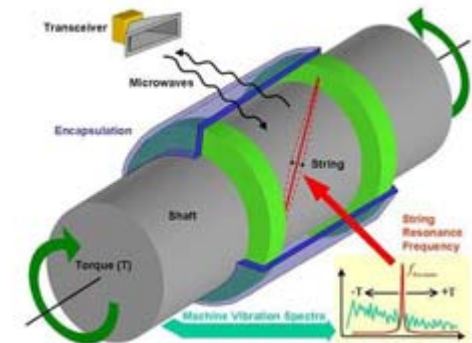
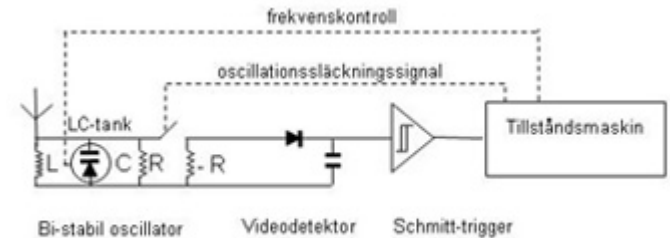
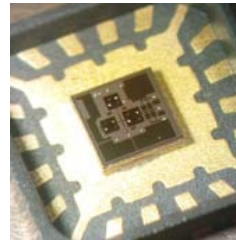
- "Has a good international reputation"
- Gold Medal, Young European Arena of Research, 2008). FP7 Safety and Security
 - *Kristoffer Lidström*
 - Predict road-users' behaviour
 - Will be demonstrated later today (and at the ITS Symposium in Stockholm, 2009)
- RFID Nordic Award 2008
 - *Björn Nilsson*
 - Low energy RFID systems
- Second Prize, PhD Forum, FPL 09 International Conference on Field Programmable Logic and Applications, Prague, Sept 2009
 - *Zain-ul-Abdin*
 - High-level programming of reconfigurable systems



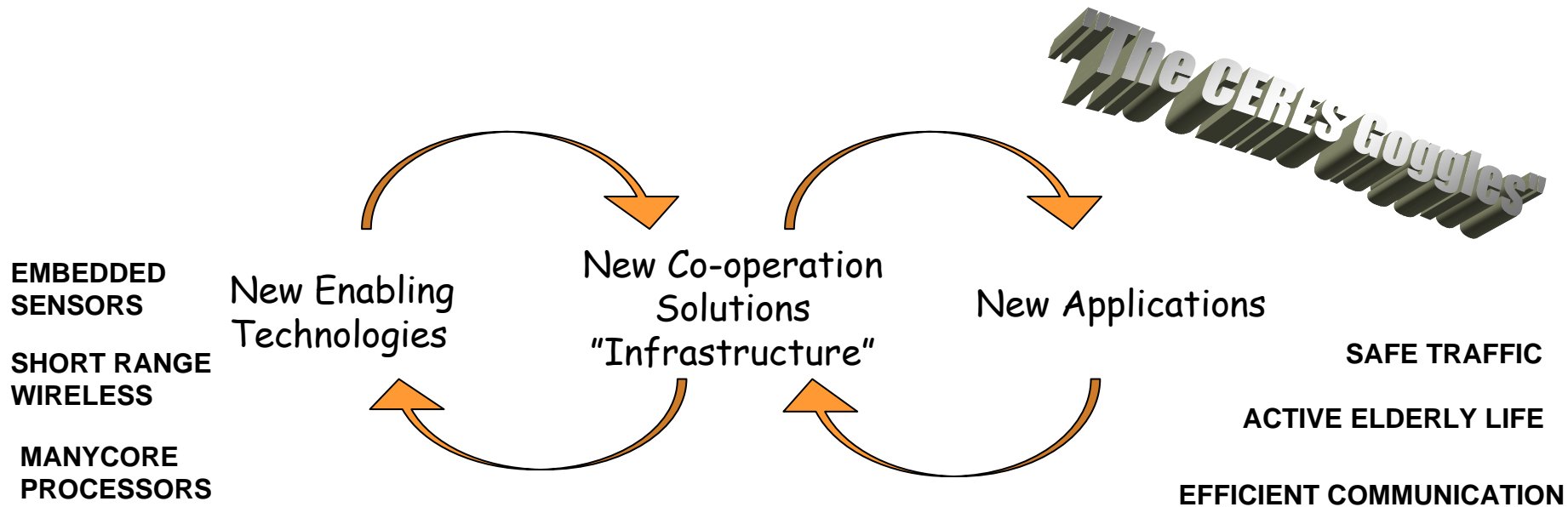
CERES – An Environment for Innovation

- New, extremely low-energy radio technology
 - *Pelle Wiberg, Urban Bilstrup, Emil Nilsson*
 - International patents
 - Spin-off company *Lepton Radio*

- Advanced lab resource (e-lab)
 - Ex. New touch-free measurement method (*Sondero Technologies*)



CERES Focus: Co-operation Solutions



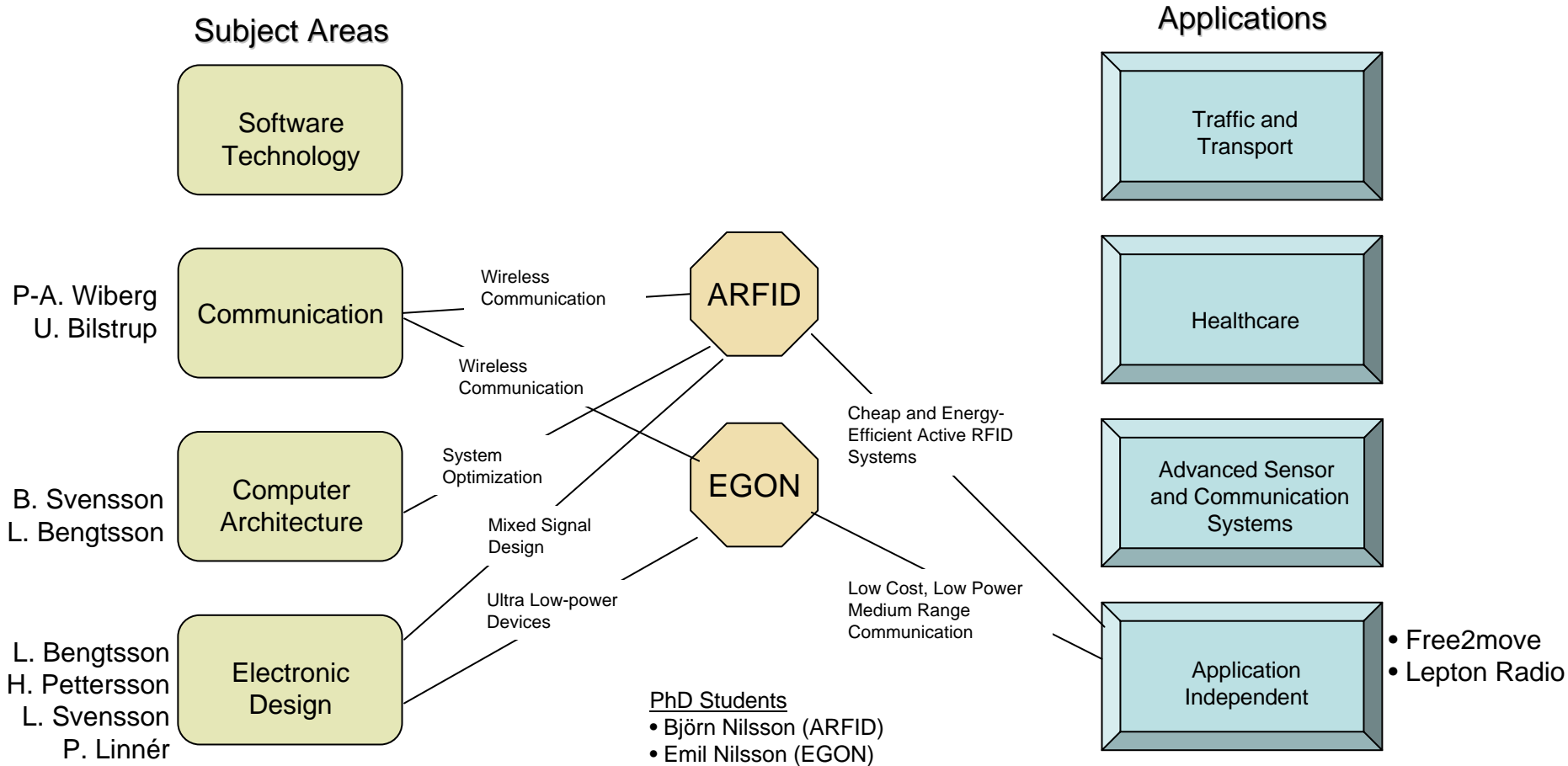
Research in architecture, software, and communication.

Bridging the gap between the basic enabling technologies and the applications that can take advantage of them.

CERES – How we work

ARFID – Active RFID VLSI Architectures for Small-Area Low-Power Wireless Devices

EGON - Active Backscatter Radio

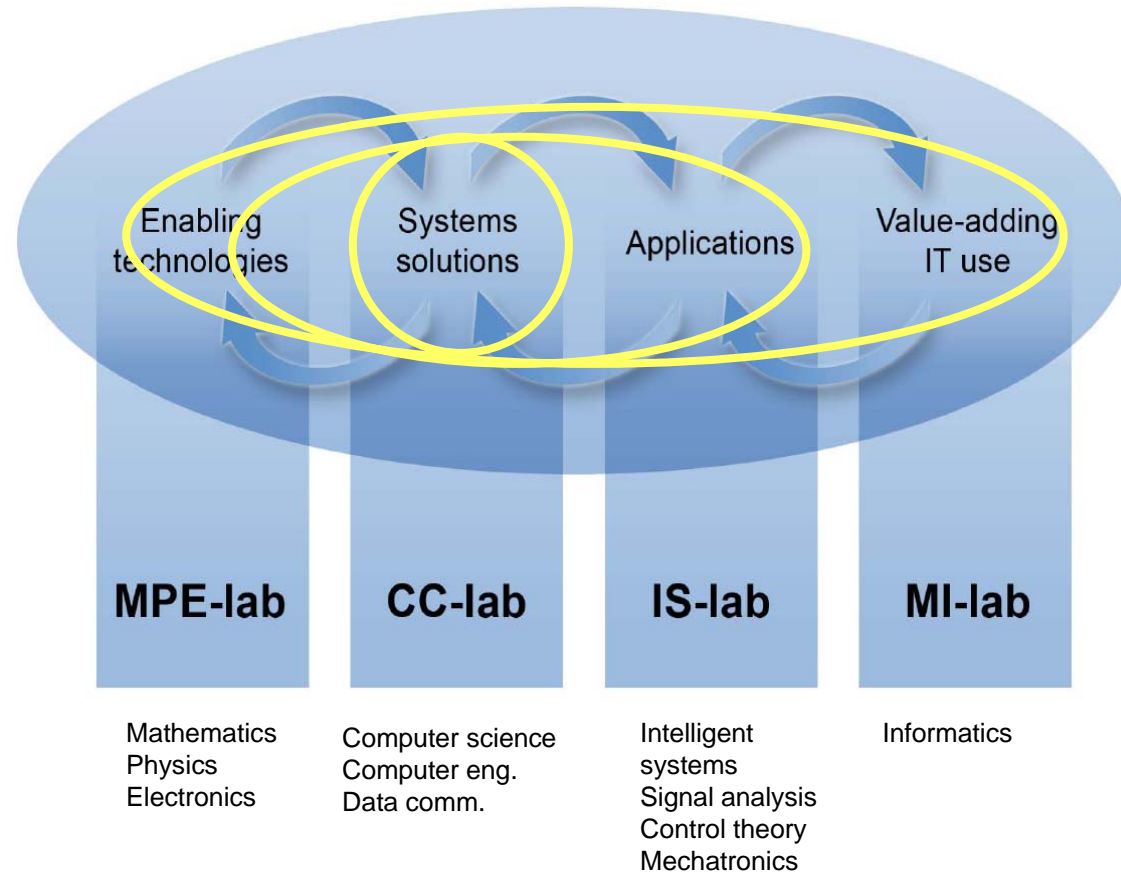


CERES in a Broader Context

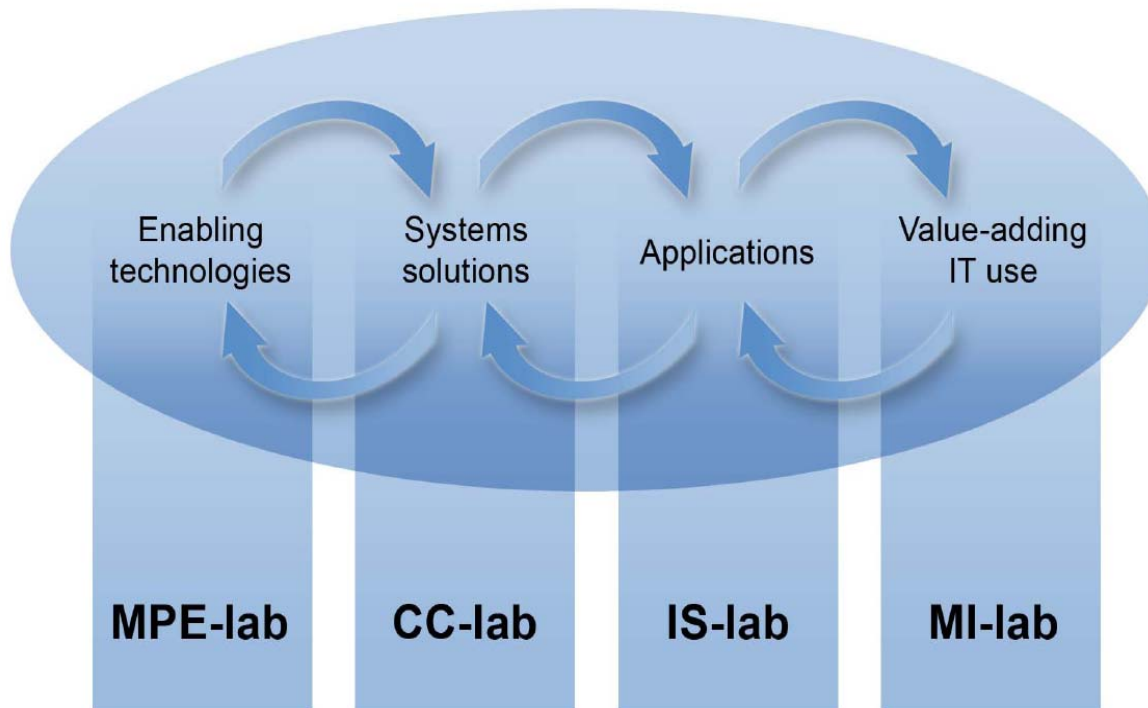
- Forming part of
 - EIS – Halmstad Embedded and Intelligent Systems Research

Implies

- A broadened offer to our partners

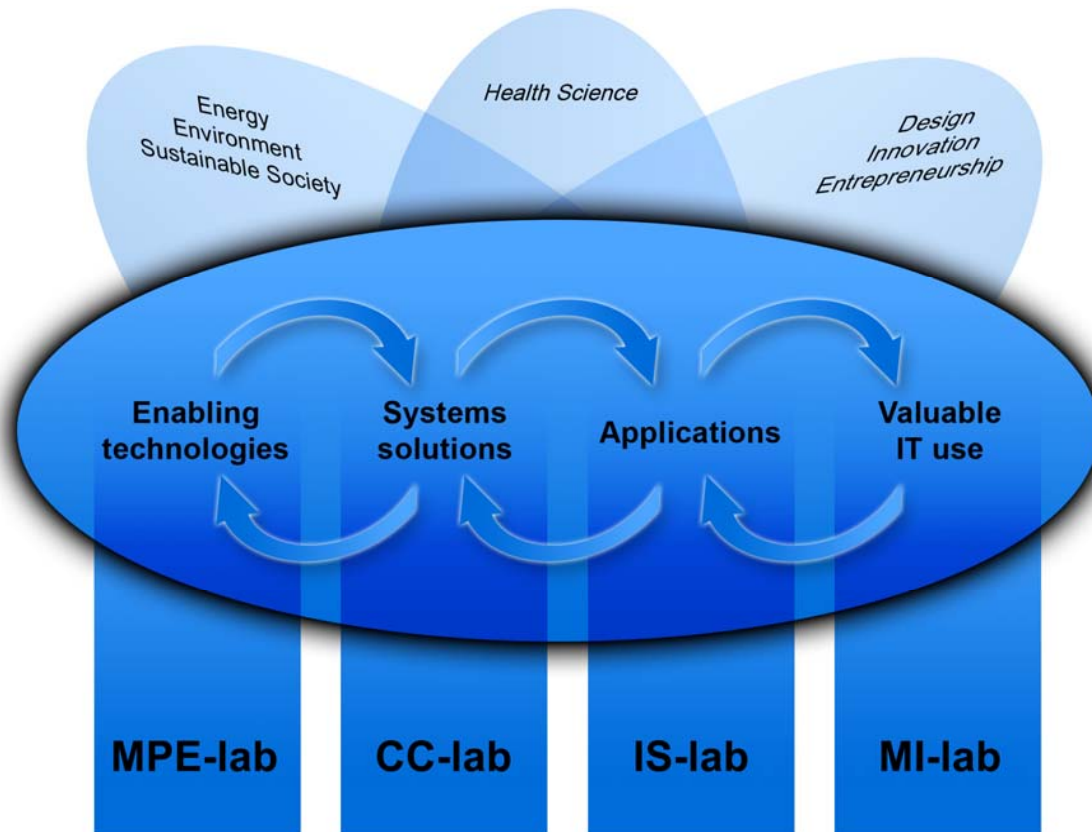


From enabling technology to value-adding services and products



Collaborating research and education environments with totally about 85 people, of which 28 have a PhD and 30 are PhD candidates.

Research turnover 2008: KSEK 35 850 (of which 19 897 (56%) is externally funded)



CERES (and EIS) - Partners

- Ca 10 companies as "founding partners" of CERES
-
- 25 – 30 companies in partner network
- International partners
 - Academic (PSU & OHSU, UC Berkeley, TU Berlin, UFRGS, Newcastle University, ...)
 - Industrial (Ambric/Nethra Imaging, ST, ...)

Many different forms of co-operation

Benefits for Industry

- Joint research (co-production)
- Joint competence recruitment (e.g. junior researcher / assistant professor)
- Joint competence development (e.g. industrial PhD student)
- e-lab – advanced laboratory resource
 - VLSI design (digital/analog/mixed), RF measurement, ...
- Advanced consulting
- MSc and BSc thesis projects
- International networks (centres of excellence, regions, industry, ...)
- Research project formation and application
 - Eurostars, ARTEMIS, Var Dags IT, VINN Verifiering, Forska & Väx, EU FP7, KKS, ...
- Innovation Support
 - minST, teknIQInnovation, Health Technology Centre Halland, Imego, SP