



Chalmers addressing sustainability and societal challenges



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President and CEO
Chalmers

33rd Conference of Rectors and
Presidents of European Universities of
Technology

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THE one BIG
challenge:
making ~~10~~ 11 billion
people live well inside
planetary boundaries

“The sustainable production system for tomorrow is larger, more integrated and complex than any of us can build ourselves - we need breakthrough innovation, a new generation of graduates, and collaboration across stakeholder boundaries to succeed,”

Embedded “knowledge triangle” in practice



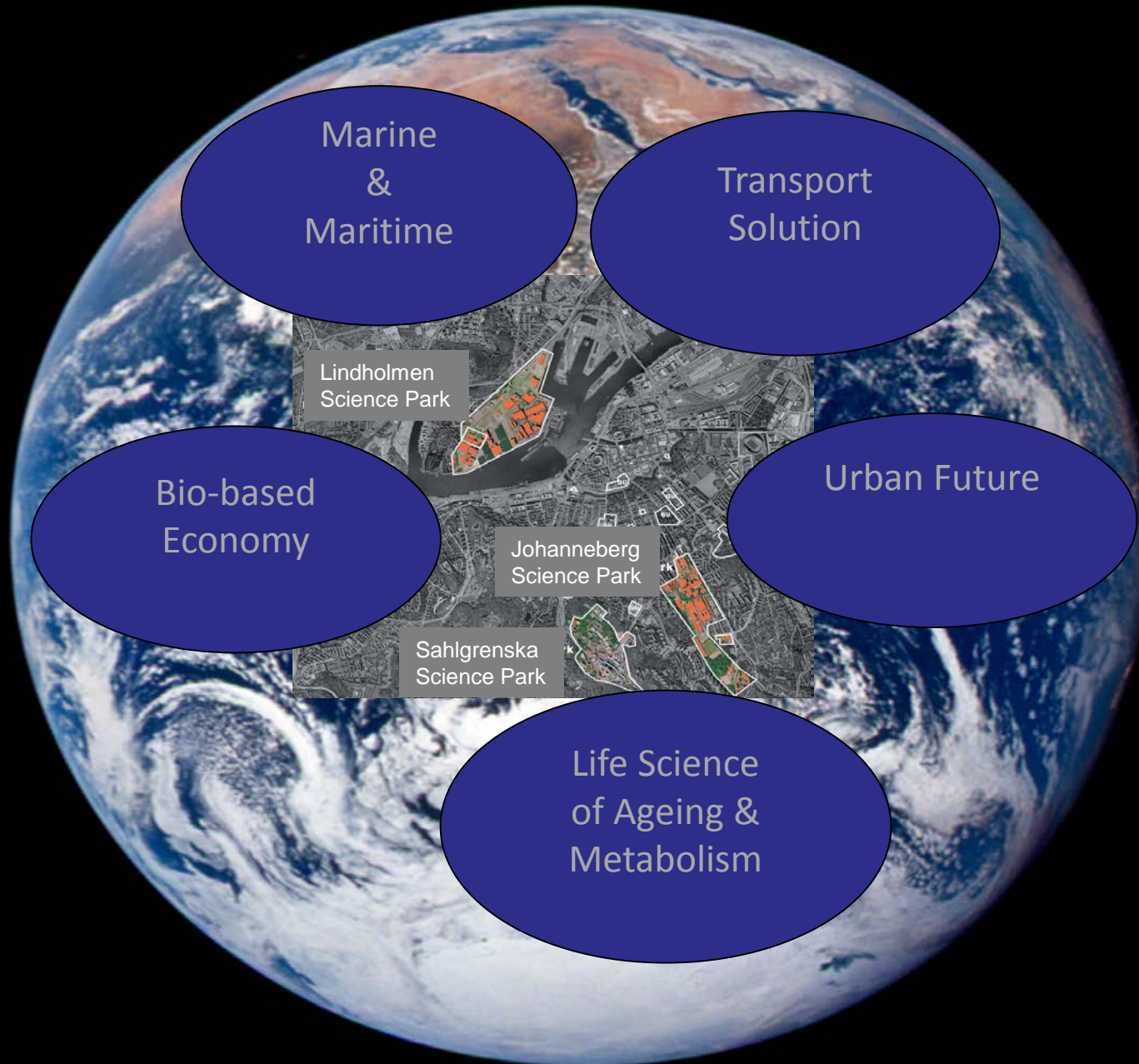
Regions around the world are building up their innovative capabilities

Universities are often seen as the natural hub for these *"entrepreneurial ecosystems"*

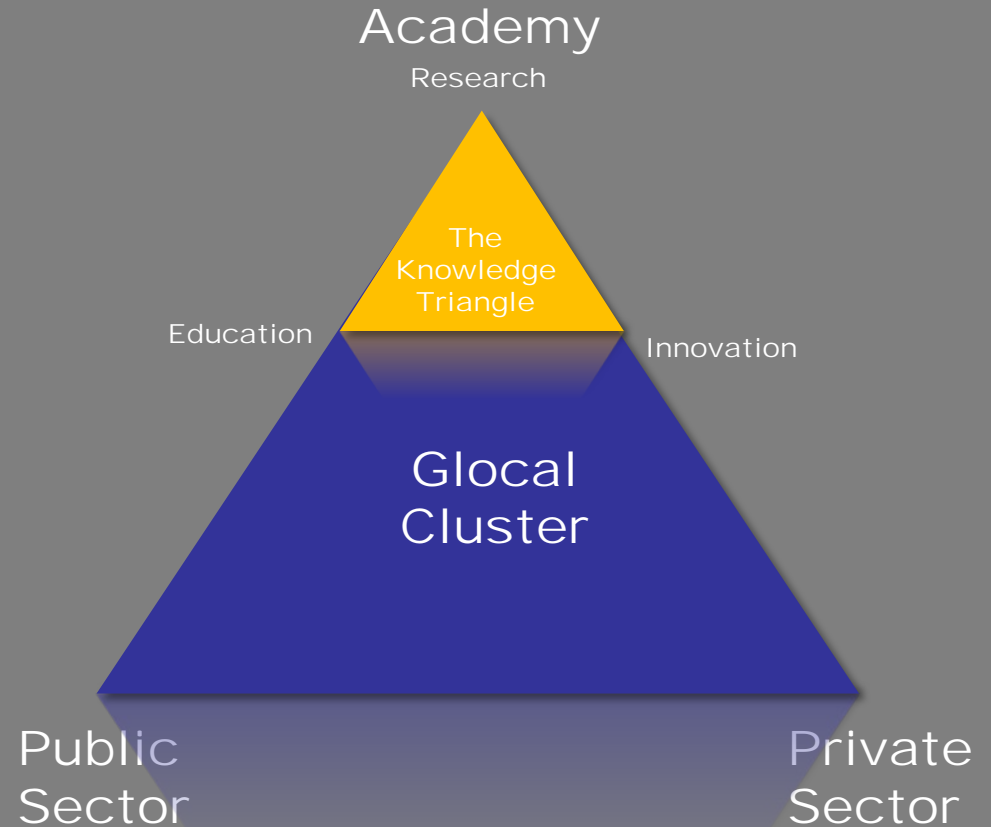
KEY FACTORS

when building entrepreneurial ecosystems

- Senior leadership at the university
- Team of entrepreneurial champions
- Sustained commitment over decades
- Substantial financial resources
- Continuing innovation
- Organizational infrastructure
- Local, national and global partnerships



Five Clusters in West Sweden



The universities act as the hubs for *“entrepreneurial ecosystems”*, as primary source of knowledge, development and diffusion

VISION

Chalmers – for a sustainable future

MISSION

Through internationally acclaimed education and research combined with a professional innovation process, Chalmers' mission is to become one of the world's most attractive universities.



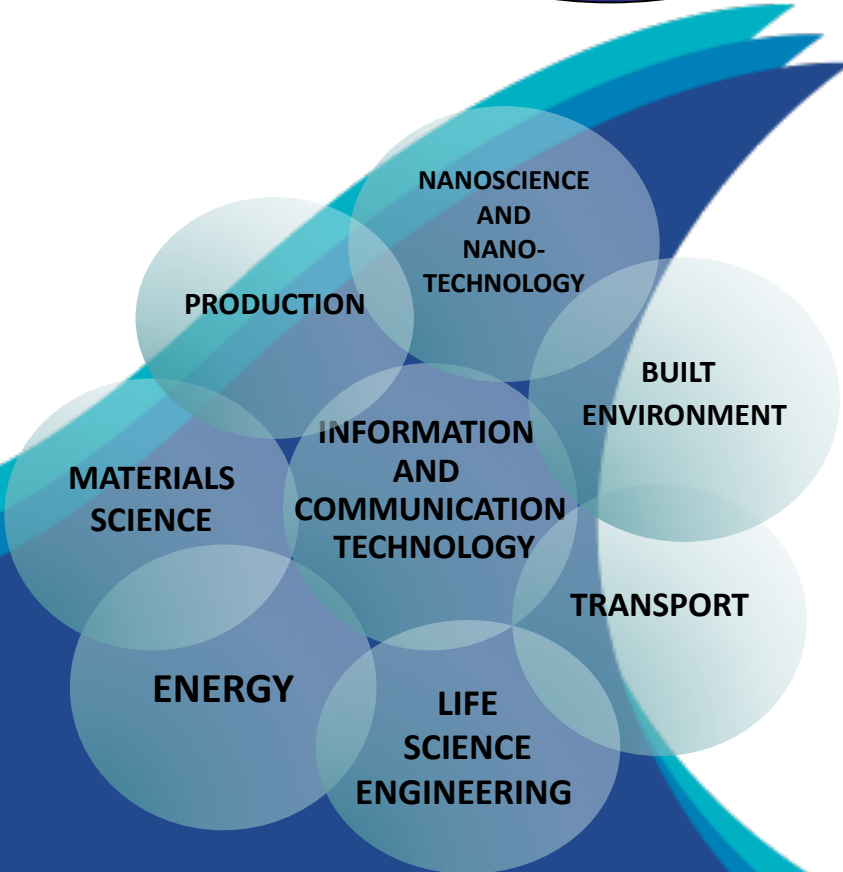
Bio-based
Economy

Marine
&
Maritime

Transport
Solution

Urban Future

Life Science
of Ageing &
Metabolism



- Visibility and focus
- Interaction across the knowledge triangle
- Meetings across boundaries
- International alliances
- Impact on society

SUSTAINABLE DEVELOPMENT

INNOVATION

BASIC SCIENCES

Open access and development meet within research infrastructures

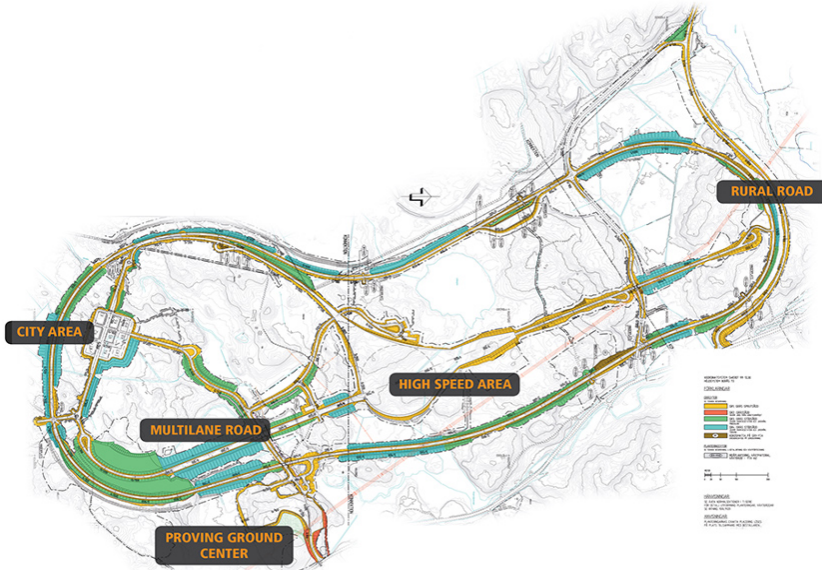


AstaZero – inaugurated August 2014

ASTA – Active Safety Test Area AB

A unique Public-Private-University Test Bed for free research, education, and transformative development of active safety on roads.

Owned by SP, the research institute of Sweden, and Chalmers

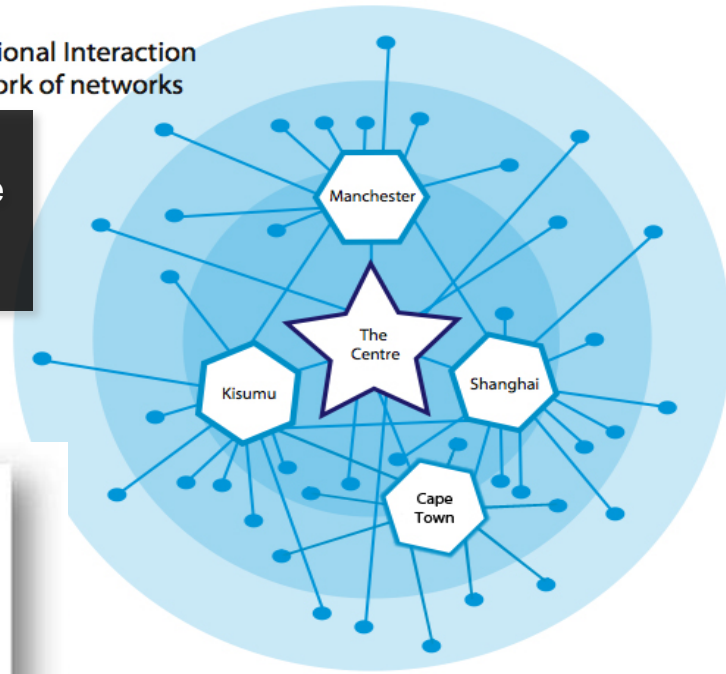




AstaZero
PPU-partnership
Full scale
Test bed

Mistra Urban Futures
An international centre
for sustainable urban
development

International Interaction
- Network of networks



How should we live in the future?
On Campus research and demonstration arena which also includes homes for students and guest researchers.



Positive Footprint
Housing

CONCEPT HOUSE VILLAGE TU DELFT, NETHERLANDS

HSB LIVING LAB CHALMERS, SWEDEN

UT, TOKYO, JAPAN

IIT BOMBAY, INDIA

ETH, SWITZERLAND

CI&ES IVE, SPAIN

HOUSE OF NATURAL RESOURCES + NEST

Climate KIC
flagship

Responsibility to integrate basic and applied science



FET Flagships

- The largest and most visible EU research program
 - **Long term:** 10 years
- *Ambitious but realistic goal:*

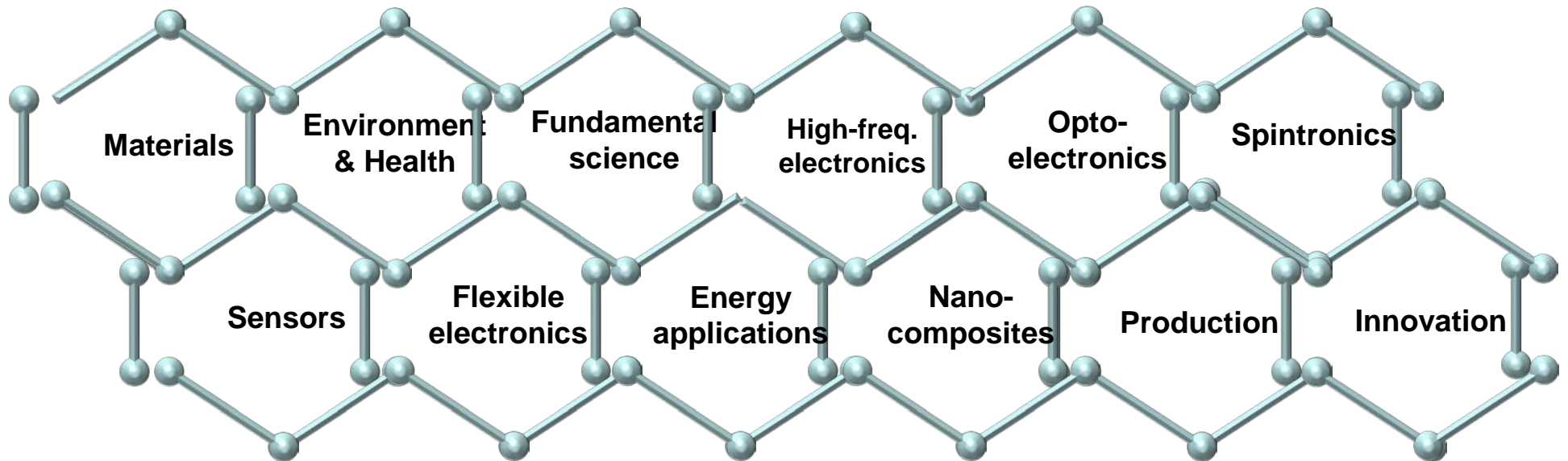
Take graphene and related layered materials from academic laboratories to society as new products, employment opportunities and increased growth

- **Large consortium** of academic and industrial partners (76 legal entities, 125 research teams from 17 countries)
- **Large budget:** initially 21.6 M€/yr from the EC for 2.5 years, growing to 500 M€ for the 10 year period, plus similar contribution from partners and other sources



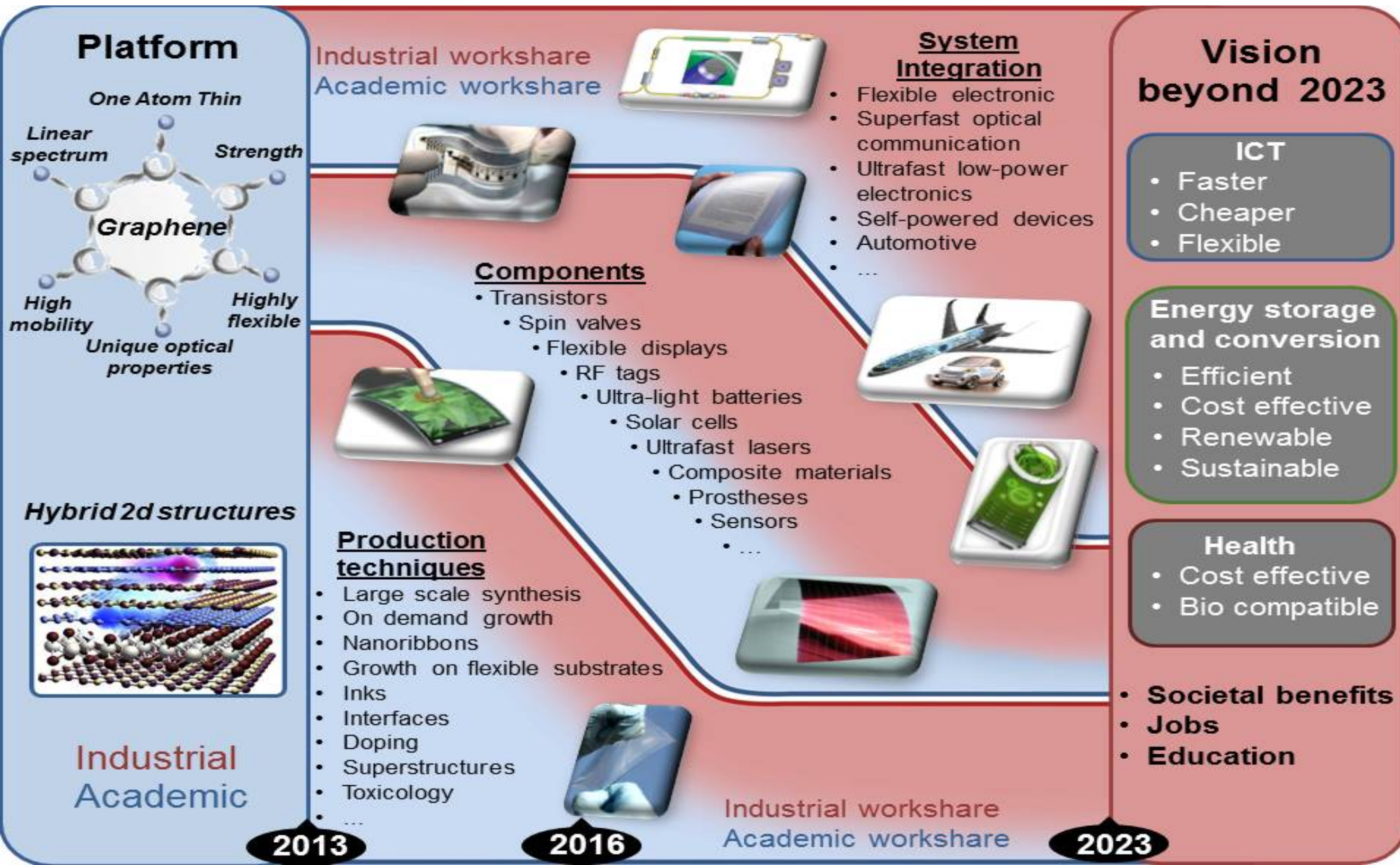
Graphene Flagship

- Coordination and central administration at Chalmers
- 11 scientific and technological work packages, plus supporting work packages on innovation, dissemination, management etc.



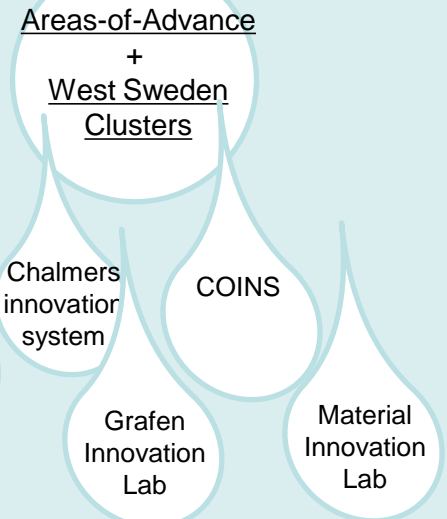
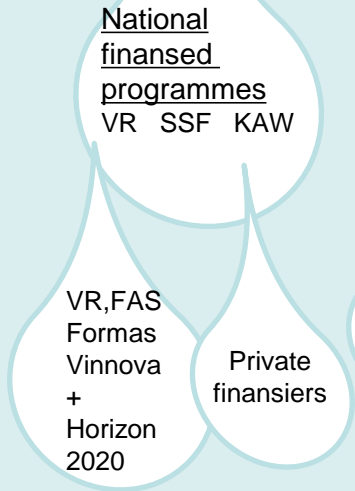
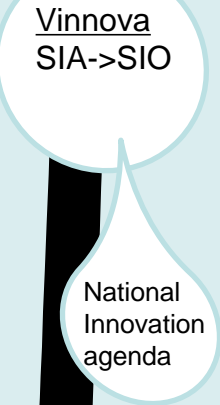
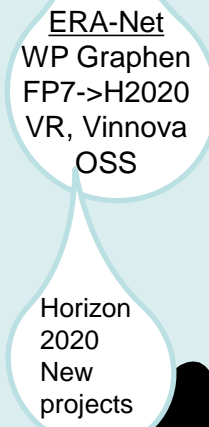
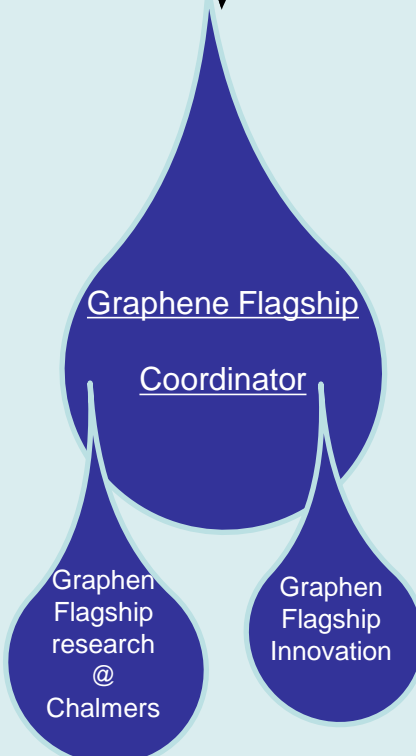
- *Associated members* – affiliated with the flagship and with access to non-confidential information and activities but with no funding or voting rights
- More information at www.graphene-flagship.eu

Scientific and technological roadmap



The Graphene Centre at Chalmers

Coordinates
Local, National, European,
International

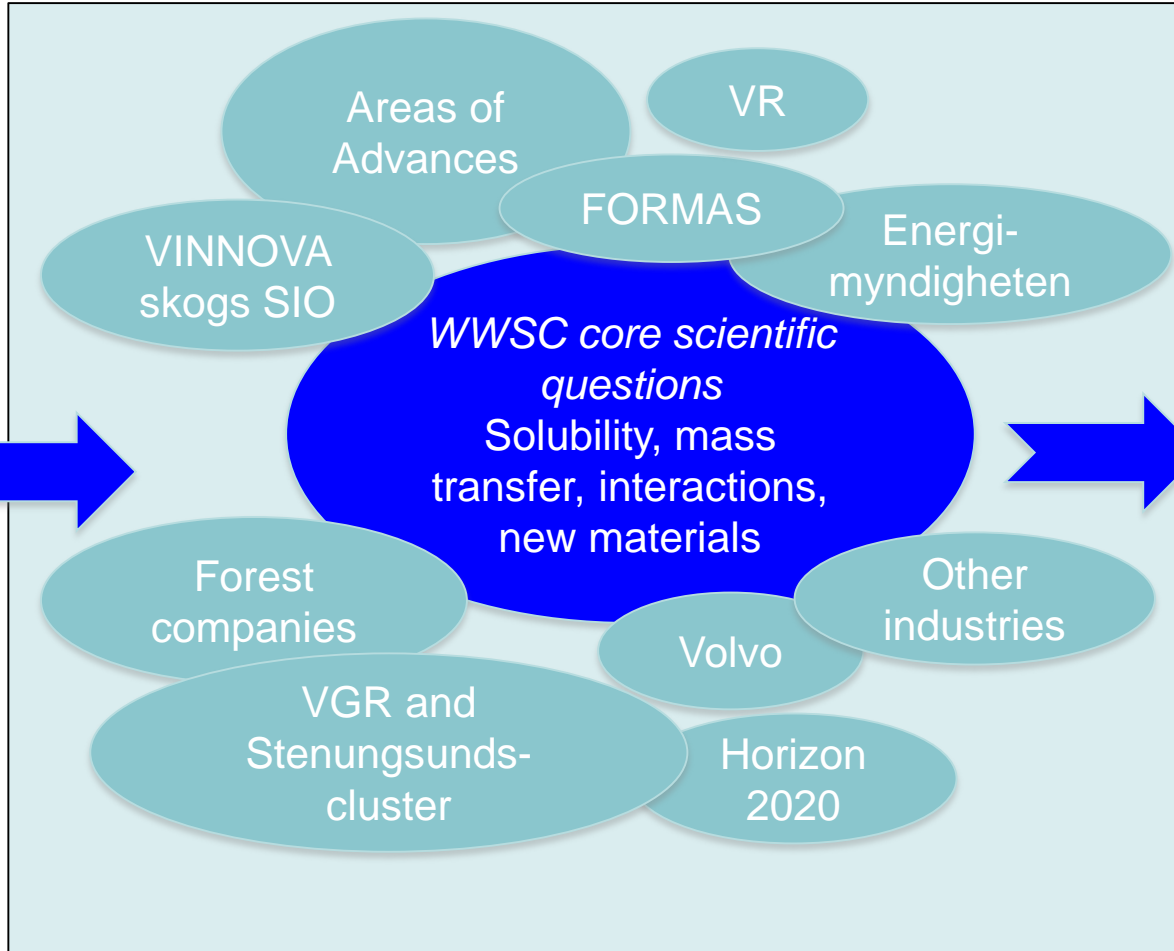




Incentives for cross-discipline inspiration for students and researchers



Wallenberg Wood Science Center The Chalmers nod



Material biorefinery solutions



Packaging



Wood based textiles



Nanotechnology
Grafen, Carbon nanofibers



Biomaterials



High-value chemicals



A PLACE FOR CHALLENGE DRIVEN COOPERATION FOR IMPLEMENTATION OF TRANSFORMATIVE SOLUTIONS

In Challenge Lab students with different background work together and interact with stakeholders from academy, business and society to find leverage points in regional knowledge clusters - to then suggest and initiate solutions to take all sectors in society forward. We believe that students has an ability that goes beyond what any actor in society can do alone. We believe that students are the change agents that can bring about transformative solutions in society.

Challenge Lab intro movie: <http://www.youtube.com/watch?v=WvD4eTmW7E0>

Reality Studio

Experience based learning

Longer field studies

Start with questions; not answers

Exploring

Visions

Goal setting



Sustainability

- a core in engineering education



UNITECH Leadership Program and Network

A network of Academic, Corporate partners and the UNITECH Alumni Association provide a leadership program for extraordinary engineers to build unique competence in:

- Technical knowledge
- Business knowledge
- Cultural awareness

These connections are intended to bring mutual benefit in areas of technical innovation, market opportunities and knowledge sharing.



FORMULA STUDENT



Halo



Focus of yesterday

- Context: Engineering science
- Reduced, “pure” problems (with right and wrong answers)
- Design phase
- Individual effort

Desired focus

- Context: Product & system development
- Systems view; problems across disciplines are complex, ill-defined, and contain societal and business aspects
- Understand the whole cycle: CDIO
- Teamwork, communication



3:e place in Solar Decathlon, China, 2013



Chalmers Innovation is Sweden's leading idea investor and business developer.



1st in Sweden
3rd in Europe
7th in the world

Encubator is Chalmers' Venture Creation incubator, realising ideas together with Sweden's best entrepreneurship education, Chalmers School of Entrepreneurship



1st in Sweden
2nd in Europe
8th in the world



ReVibe Energy (developed in Encubator) won the Nordic Venture Competition arranged by Climate-KIC, the European Unions accelerator for environmental technology.

A yearly critical debate about the challenges we face and how to bring new ideas to the activities of research, education, innovation and collaboration related to the challenges.

The theme 2013 was “*Technology as an enabler for human needs*”, and the ethical issues which connects Chalmers and the responsibility of the engineer.



“What does Chalmers do to make you students prepared?”



Martin Schibbye
imprisoned in Ethiopia for 438 days for doing his job as journalist