From Research to Change

- *Showcasing and debating successful innovation tools*

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ECIU
European Consortium of Innovative Universities

AALBORG UNIVERSITY

The European Agenda today

A new research and innovation agenda – HORIZON 2020

- A new and challenge-driven approach towards strategic research in the EU
- The agenda for job creation and growth; both focussing on strategic societal challenges and on excellent research for new knowledge creation
- Further promotion of Research & Innovation investment, product and service development, technology transfer, social innovation and public service application, demand simulation, networking, clusters and open innovation through smart specialisation
- Supporting technological and applied research, pilot lines, early product validation actions, advanced manufacturing capabilities and first production in Key Enabling Technologies and diffusion of general purpose technologies

➢ New challenges – new approaches…..

Today's seminar will debate the innovation agenda of **HORIZON 2020** and in particular focus on **how to implement** the innovation agenda - **which instruments** in order to promote successful European research results to to benefit our societies and the growth perspectives for Europe.

How to ensure a catalyzing role of universities and research institutes – today we will showcase good examples of instruments which builds on strong partnerships between key stakeholders to increase European innovation Capacities - we will debate new innovation initiatives at European level. What will work - and what will not?

Today we have the opportunity to discuss and reflect on useful tools for an integrated approach to research and innovation.

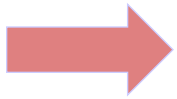
We aim to provide input to the development of future instruments and tools, and last but not least, to provide recommendations to policy makers

Implementing HORIZON 2020 - instruments

What we need to ensure:

- **Involvement of industry/SMEs**
- **Uptake of R&D results**
- **Public Private Partnerships**
- **Synergies with Structural Funds**

Need for stronger integration and more synergies within the Knowledge Triangle both at EU, National and Regional level. All relevant stakeholders at these levels should be mobilised.

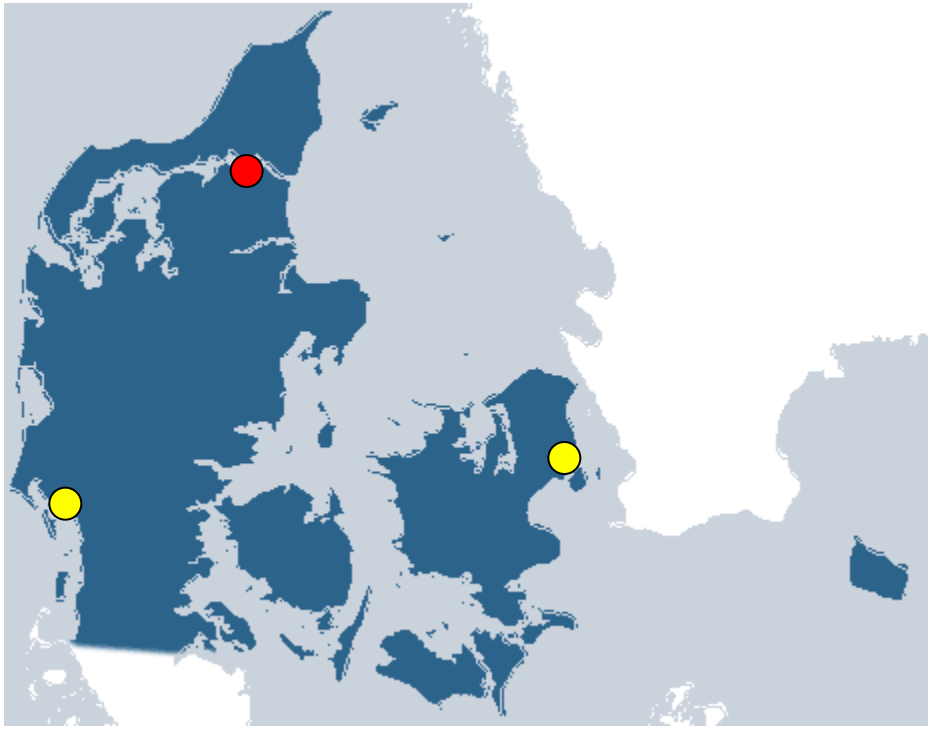


Aalborg University builds on:

- an open and attractive environment for internationally oriented research and education
- scientific curiosity – and close interaction between researchers and students as well as with the surrounding society
- international recognition as a leading university within advanced education with a special emphasis on problem-based project work
- recognized for establishing world-class interdisciplinary research environments
- Developed an intensified collaboration with industrial partners.

Facts about Aalborg University

- Founded 1974
- Faculties:
  - Humanities (2 departments)
  - Social Sciences (5 departments)
  - Engineering and Science (11 departments)
  - Medicine (1 department)
- 18 Departments
- National Building Research Institute (SBi), Cph
- > 16,500 students
- Campuses:
  - Aalborg (Main)
  - Esbjerg
  - Copenhagen
  - Annual budget (2011) in excess of EURO 300 M



AAU commercialization in numbers

- Active Invention Portfolio = 92 (Dec 2011), or 23 cases per TTO
- Number of invention disclosures pr. year 40-60
- 90% of inventions received are assigned to AAU
- 10-30 % of inventions are patented by AAU
- 20-35 AAU inventions are sold pr. year
- License agreements approx. 4 pr. year
- Spin-outs 1-4 pr. Year,
- Spin-out portfolio = 13 (Dec. 2011)

In 2011 Ph.D.'s generated 34 % of all AAU inventions!

From Research to Change
Our vision for cooperation is:

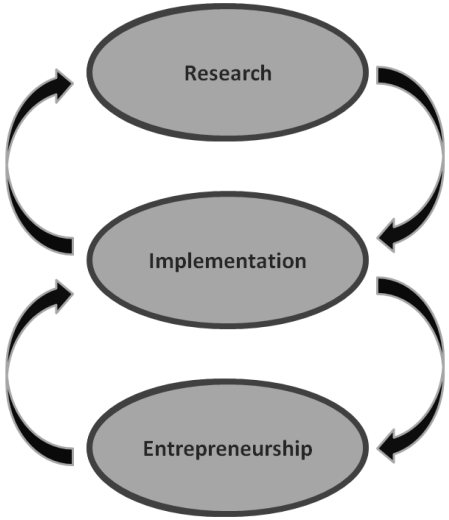
”We will promote and maintain research collaboration with private and public organizations, and ambition is to intensify cooperation both economically and professionally”.

Showcasing success stories……

Cooperation with Industry background

Dep. of Electronic Systems - Mobile device group

- Focus on research and innovation
- Publication, IPR, books
- Implementation and demonstration on mobile phones
- Start-ups



Evolutionary circle for startups

Collaboration with Nokia, Renesas, Samsung, NTTDocomo, Motorola, NBC (collaboration with MIT), Intel, ...

Cooperation with Industry highlights

StartUp Steinwurf:

Focus on software library on network coding (hot topic in research); first worldwide to offer this kind of software, first world wide to demonstrate network coding on the mobile phones; Finalist of VentureCup; founders from AAU and MIT

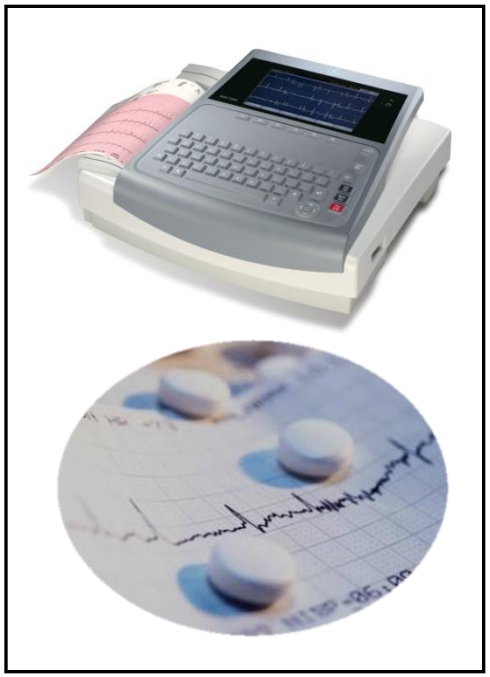
Vodafone Innovation Price:

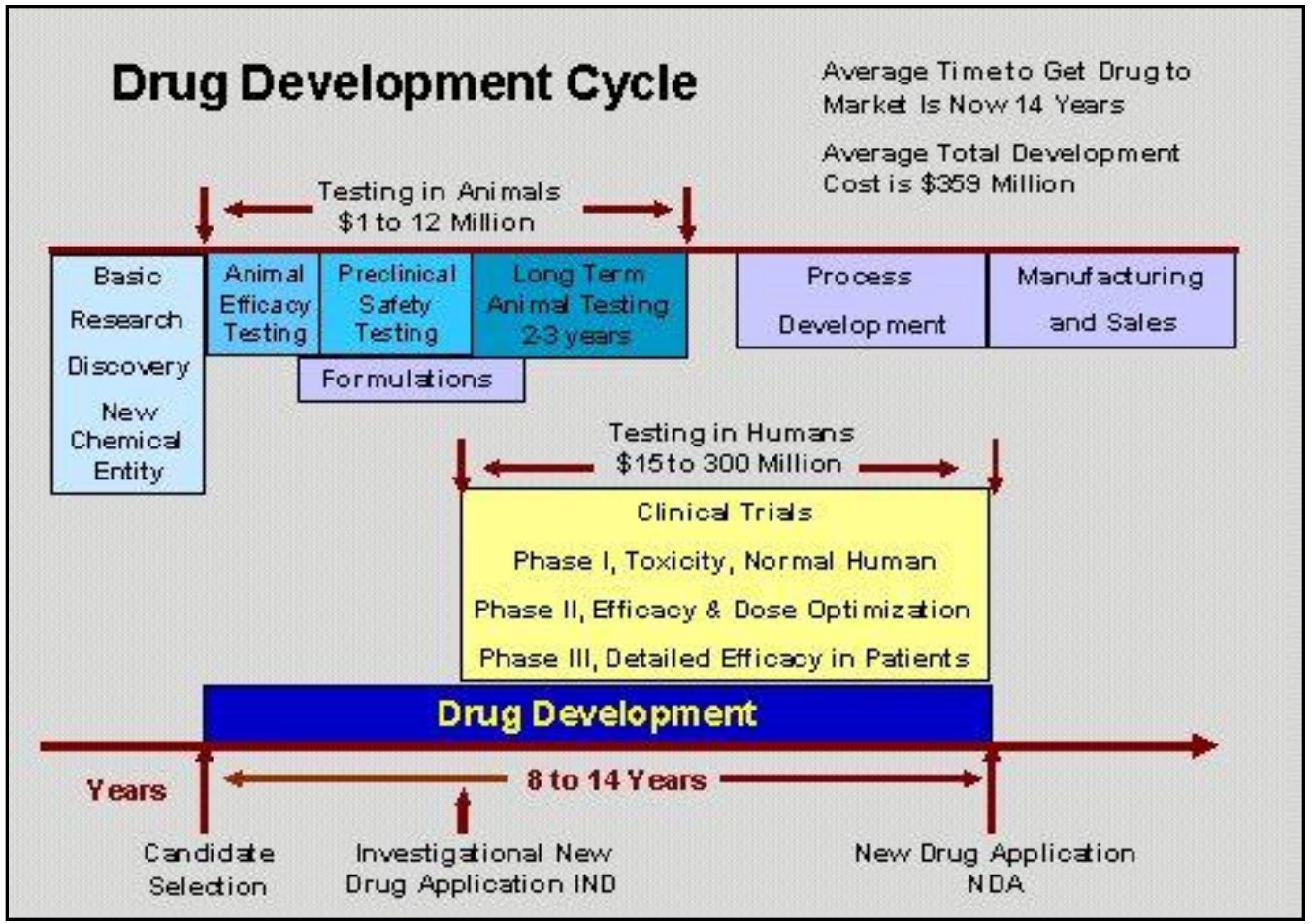
Frank Fitzek received the price for his work on cooperation and cognition in wireless networks.

http://www.youtube.com/watch?v=Mgyf9qnMKP0

Student driven innovation

"AALQTEC – Aalborg Long QT Technology"

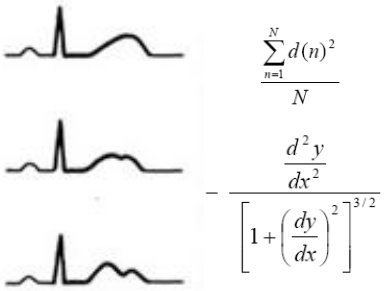




New ECG Analysis
(AAU student project)

QT interval (Old method)

T-wave shape (New method)



Research →

INTERNATIONAL

Department of Cardiology, Robert Ballanger's Hospital, Aulnay Sous Bois, FR
Department of Cardiology, Sourasky Tel-Aviv Medical Center, Tel Aviv, IL
Department of Medicine I, Ludwig Maximilian University, Munich, GE
AstraZeneca, Mölndal, SE
Division of Cardiology, Sahlgrenska University Hospital, Gothenburg, SE
GE Healthcare, Milwaukee, WI, USA
ERT (eResearch Technology, Inc), Philadelphia, PA, USA

NATIONAL

Department of Cardiology B-2141, B2142 and B-2143 The Heart Center, Rigshospitalet, Copenhagen, DK
Danish Arrhythmia Research Center, University of Copenhagen, Copenhagen, DK
Department of Cardiology P, Gentofte University Hospital, Gentofte, DK
Department of Cardiology B, Aarhus University Hospital Skejby, Aarhus, DK
Department of Cardiology S, Aalborg Hospital, Aarhus University Hospitals, Aalborg, DK
Laboratory of Experimental Cardiology, University of Copenhagen, Copenhagen, DK
Statens Serum Institute, Copenhagen, DK
Unit for Psychiatric Research, Aalborg Psychiatric Hospital, Aarhus University Hospitals, Aalborg, DK
Research Institute for Biological Psychiatry, Sct. Hans Hospital, Roskilde, DK
Department of Psychiatry, Psychiatric Hospital Risskov, Aarhus University Hospital, Aarhus, DK
H. Lundbeck A/S, Copenhagen, DK

Commercialization & Product Development ↓

Approval

U.S. Food and Drug Administration
FDA Department of Health and Human Services

Change →

Outcome → SAFE USE

The Case of a Platform project -

Intelligent and Efficient Power Electronics, IEPE

Targeting intelligent handling and use greener energy supply - exemplified by "Smart Grid", "Energy Efficiency", "Renewable energy production", "Smart Cities "," Energy Neutral Buildings", " Smart House "," Mobile Power ".

Funded by the Danish National Advanced Technology Foundation (DNAFT)

Duration:	5 years (2012-2017)
Budget:	14.4 Mill. Euro
DNATF-investment:	7.2 Mill. Euro

The 3 Universities, 4 Companies and 1 network organisation

AALBORG UNIVERSITET

UNIVERSITY OF SOUTHERN DENMARK

Technical University of Denmark DTU

Organisation

Steering Committee:
Partners + DNATF

Project manager role:
AAU

Outreach activities:
CEES

Vestas

kk-electronic

GRUNDFOS

Danfoss

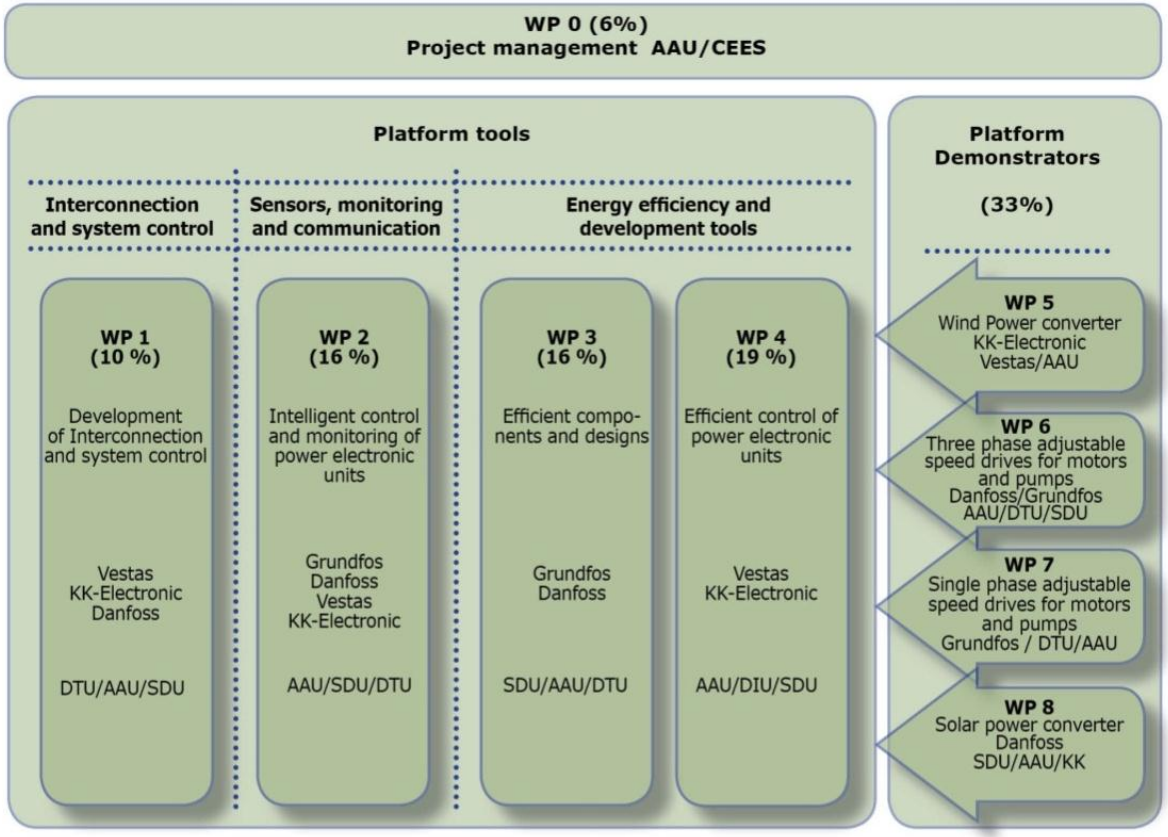
.cees

The success of the IEPE platform is quantified in the following:

A joint development and research effort enabled by the platform include three universities and four Danish leading high-technology companies and the network organisation CEES.

- Synergy resulting from joint technology development
- Reduced cost by at least 20%, min. 20% less weight, volume and improved efficiency
- To demonstrate the usability of new technologies in future products
- Technology platform for new intelligent power electronic concepts
- Tools that can be used for future power electronic equipment design
- Attract and facilitate new companies exploiting platform knowledge
- Fast and flexible incorporation of ideas for potential exploitation

Tools: ~ 60 % of the buget is allocated to research in tools technology and ~33 % of the budget is allocated to demonstrators of the technology.



Relation to succes, slide 2:

2. Reduced cost by at least 20%, min. 20% less weight, volume and improved efficiency
3. To demonstrate the usability of new technologies in future products
4. Technology platform for new intelligent power electronic concepts
5. Tools that can be used for future power electronic equipment design

The Case of a Research and Innovation project -

"Blade King"

Funded by the Danish National Advanced Technology Foundation

"Blade King"

Co-funded by:

The Danish Advanced Technology Foundation

LM Glasfiber A/S (Project Coordinator)

Comfil ApS

Risø DTU – Risø National Laboratory for Sustainable Energy

Aalborg University, Department of Mechanical and Manufacturing Engineering (Technical Coordinator/Lead)

Project budget:

DKK 70 mill. of which DKK 35 mill. is funded by the Danish Advanced Technology Foundation (HTF)

Duration: 1st October 2008 to 30th September 2013 (5 years)

"Blade King" - Objectives

- To demonstrate the viability of "revolutionary fibre technology" for wind turbine blade production and to prove a potential for lowered throughput time by at least 50%.
- Specifically, the success criteria for the platform is the successful demonstration of the following within the grant period:
  - A significant increase of processing speed for the production of wind turbine blades, enabling an increase of the overall production rate of a factor of at least 2.
  - A raise of process automation levels, thereby reducing the need for manual labour.
  - A reduction of process variability, accompanied by a significant increase of the quality of manufactured wind turbine blades (fewer manufacturing defects).

The Case of a Regional Innovation Network Project

"C-MUS"

Co-funded by Aalborg University, the Region and Obel Foundation.

Mobility Challenge North Jutland - Building Innovative Relationships between Aalborg University and key players in the Region

I. The Challenge

How do we get a closer collaboration between Aalborg University and the surrounding business community, local governments, and civil society?

II. The Solution

In 2010 the Cross-disciplinary *Centre for Mobilities and Urban Studies* (C-MUS) established a Regional Think Tank titled *'Mobility Challenge North Jutland'* (MUN).

MUN utilizes the insights from the new 'Mobility Turn' which shows that there are cultural, economic, social, and policy potentials from looking at e.g. physical movements, tourism, virtual movements, freights etc. from the point of view that *'Mobility is more than A to B'*.

The Mission Statement for this new forum is to bring mobility research to the Region amongst stakeholders from the business community, municipalities and civil society.

MUN is based on a membership fee from the business partners and municipalities, and it has worked on concrete challenges identified during workshops in 2010-2012.

III. The Results

MUN has held 5 workshops spread out in the region with the themes;
Mobility Challenges to the Region, Citta Slow, North Jutland from Inside and the Outside, Virtual Mobility, North Jutland one Click.

Furthermore, a common agenda has been established between the members for understanding mobility as 'more than A to B' and seeing this in a perspective of 'getting to' as well as 'getting around' in the Region.

The members have identified new challenges within sectors as diverse as tourism, freight, regional transport, ICT and urban planning.

Moreover the first PhD fellow has started under MUN where national 'Growth Forum' money have been matched with AAU funding to study the mobility of citizens and tourists in Denmark's first National Park (National Park Thy) located in the region.

IV. The Future – MUN 2.0

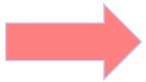
MUN will be continued in a 2.0 version with more members and a lower membership fee. Members have already defined three research projects that will be seek funded with MUN as the facilitator and academic research partner.

MUN is setting new standards for the innovative collaboration between the University and key players in the Region!

Reaching the goals of HORIZON 2020 ….

We need to create **stimulating framework conditions** for transforming new knowledge to new business as well as changing European society towards more sustainability – creating home markets, and paving the way for technology exports.
It requires *new thinking,* not *"business as usual":*

- Streamlining the existing instruments
- New instruments and concepts, eg.
  - Research & innovation platforms and networks
  - Innovation consortia
  - Innovation vouchers
  - Industrial doctoral programmes (PhD, PostDoc)
  - Differentiated SME tools (high & low innovation capacities)



Build on tested and successfully implemented instruments!

THANK YOU FOR YOUR ATTENTION!

www.aau.dk