

# Tech Trans Mini Conference Aarhus University

*“State-of-the-art Innovative Clusters”*

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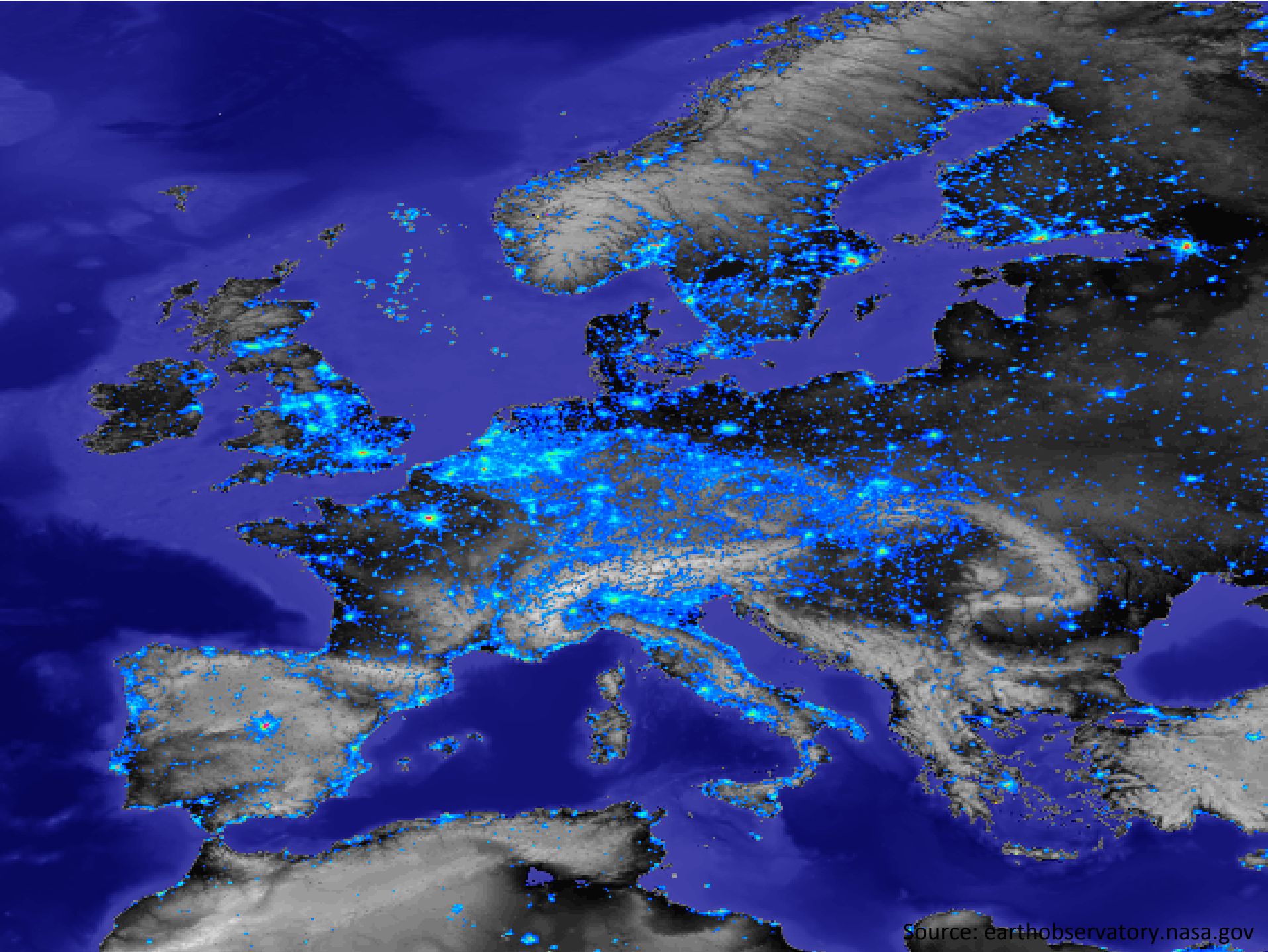
Past VPI & Chair IAB - AUTM, US

*Aarhus, 30 June 2009*



# Presentation

- Covers: 2 Dutch examples of physical “**Clusters**” (cf M.Porter)
- Remarks based on:
  - own work experience in b2b & academia/TT
  - work in IAB's, professional associations a.o.
  - exposure to these Clusters in recent years



# Netherlands – Innovation Policy/1

- Ambition: transform “Dutch Delta” into even more dynamic innovative economy
- *Innovation Platforms I & II*. Chair: Prime Minister, members from triple helix. Generate strategic innovation plans.  
2009: TT = core task PRO's. Target public spend: 2.5% of R&D
- *Extra funding* for R&D/innovation. 2009: 20 MM€ for TT.
- National *Science & Technology & Innovation* policies advocate:
  - “*focus and mass*” in *key* strategic *sectors* in which NL has high potential to attain position of excellence: high tech systems & materials (incl nano), life sciences & health, logistics, water management, food & flowers, sustainable use & supply of energy and creative industry
  - *public-private* interaction and knowledge use (cf. “EU paradox”)

# Netherlands – Innovation Policy/2

- **Instruments** used:
  - R&D taxbreaks (e.g. WBSO)
  - macro investment schemes (ex proceeds “gas bubble”)
  - **leading Technology Institutes** - innovation consortia re polymers, metals, telematics, food & nutrition, separation technology, pharma, sustainable water technology and green genetics
- Policy addition 2006: **territorially oriented funding** - stimulate specific regional economic hot spots: “**Peaks in the Delta**”

# Example 1: *Leiden* BioScience Cluster



## *“Leiden - the life sciences Capital of Holland” (BP)*

### Attributes:

- ✓ High class academic heartland with diversified funding:
  - ✓ University Ao1575 – “influential learning beacon” (Yale)
  - ✓ LUMC: “prominent” and “elite” research (PR’s)
- ✓ 1st NL dedicated Science Park (1984) + Poortgebouw:  
**FOCUS:** *biomedical/bio molecular SC + biopharma prod*
- ✓ High Q incubator and real estate for R&D
- ✓ Leading companies: J&J Centocor, Genencor/Danisco, Unilever spin-offs, Crucell, Octopus, Galapagos, HAL
- ✓ Strengthened TechTransfer infrastructure
- ✓ Support infrastructure - value chain



# Leiden Bio Science Park

- Clustered area of 120 hectares (= top 7% EU – IASP)
- 60 companies - > 3,100 employees
- 8 knowledge institutes with - 2,900 employees in life science, R&D and education/training
- LUMC – 6,500 employees
- Expansion plans Oegstgeest: 130 MM€



# Leiden incubator facilities

## BioPartner Center:

- ✓ Focus: young biotech/pharma related firms
- ✓ 2 buildings; > 6,000 m<sup>2</sup>
- ✓ > 30 tenants
- ✓ Flexible turnkey lab & office space; > 17 m<sup>2</sup>
- ✓ Shared facilities
- ✓ Services & management support
- ✓ Additional building by 2010:
  - ✓ Accelerator



# Private multi tenant buildings

- BEAGLE Darwin/SL Plaza: 7,500 m<sup>2</sup>
  - \* high tech lab's
  - \* tenants e.g. Galagapos Genomics, Pharming Group & Microsafe
- BEAGLE Zernike (ready 2010)



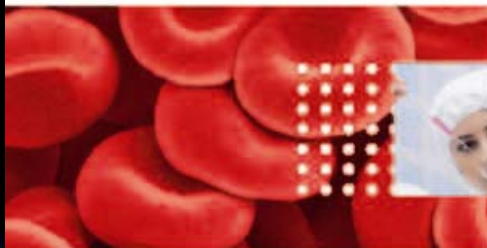
# Techtransfer Leiden University & LUMC

- “Valorisation Project” 2006 – 2010. Total investment: 5.9 MM€ (2.5 MM€ SKE from gov’t)
- Activities:
  - scouting & screening
  - IP protection
  - facility sharing
  - business coaching
  - funding: pre-seed (2.3 MM€) and seed (13 MM€)
- Annual output objectives ~ € science input & benchmarks

**LURIS**

Leiden University Research and Innovation Services





LEIDEN BIO SCIENCE PARK  
Key to discovery

## Value Chain



| Biorefinery & research                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Product & process development                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Clinical trials                                                                                                                               | Manufacturing                                                                                                                                                          | Distribution                                                                                                                                                  | Services, sales, other                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Add2X Biosciences<br>Astellas<br>BioFocus DPI<br>BIOKE<br>Biometric Support<br>CAM Implants<br>CIDERUX<br>Crucell<br>Danisco/Genencor<br>DeltaCell<br>DNage<br>EnzyScreen<br>FlexGen<br>Fytogoras<br>Galapagos Genomics<br>Ladtrys<br>LACDR<br>Leiden University<br>LUMC<br>LION<br>Lorentz Center<br>Membrane Protein Lab<br>Mentor Medical Systems<br>Naturalis<br>OctoPlus<br>Paracore<br>Pharming Group<br>PhotoBioChem<br>PRISMA<br>Proteobix<br>Promega Benelux<br>Proscend<br>Protein Labelling Inn.<br>Sanguin blood bank<br>SerivoxIS<br>Stem Cell Innovations<br>TNO Quality of life<br>ToBBB<br>Top Institute Pharma<br>Virosome Biologics<br>Vivuron<br>ZoBio | Add2X<br>Astellas<br>CAM Implants<br>Chiral Vision<br>Crucell<br>Danisco/Genencor<br>Derpharox<br>DNage<br>FlexGen<br>Holland Biotechnology<br>Kahviik Farms<br>LACDR<br>Mentor Medical Systems<br>MucOx<br>Myxobius<br>OctoPlus<br>OndooNalco<br>Pharming Group<br>Prisma<br>Promega Benelux<br>Protein Labelling Inn.<br>Proteobix<br>Sanguin blood bank<br>SerivoxIS<br>SU Biomedicine<br>TNO Quality of life<br>ToBBB<br>Top Institute Pharma<br>Virosome Biologics<br>Xendo | Astellas<br>BioImaging Technologies<br>Biometric Support<br>Centocor<br>CHDR<br>LACDR<br>TNO Quality of life<br>Top Institute Pharma<br>Xendo | Biocult<br>Centocor<br>Crucell<br>Danisco/Genencor<br>FlexGen<br>Kahviik Farms<br>Mentor Medical Systems<br>OctoPlus<br>Promega Benelux<br>Sanguin blood bank<br>Xendo | BIOKE<br>Danisco/Genencor<br>Mentor Medical Systems<br>OctoPlus<br>Pharming Group<br>Promega Benelux<br>Sanguin blood bank<br>SerivoxIS<br>Verilabs Nederland | BaseClear<br>BioTop Medical<br>Coshe<br>Hogeschool Leiden<br>Holland Biotechnology<br>Kahviik Farms<br>LAP&P<br>Mediant<br>Modis<br>MicroSafe<br>Promega Benelux<br>PROXY Laboratories<br>Rainbow Oxidations<br>Schonkelaars EO<br>Soriver<br>STI management<br>SynBio PSI<br>Verilabs<br>Xendo |
| Biorefinery & research                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Product & process development                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Clinical trials                                                                                                                               | Manufacturing                                                                                                                                                          | Distribution                                                                                                                                                  | Services, sales, other                                                                                                                                                                                                                                                                          |

# Support Infrastructure

- drug development - TNO
- drug delivery – OctoPlus
- DNA sequencing, forensic support – Baseclear
- microbiology testing – Millipore/Microsafe
- QA, QC, stability testing, assay dev, validation – Proxy
- process dev., RA, GMP, pharma engineering – Xendo
- clinical trials – CHDR
- manufacturing & distribution – Katwijk Farma
- regulatory affairs – BioTop
- technology transfer – STI Management



# Further cluster development: LLMS

- 10 year plan with 6 major action lines
- Key players: local PRO's, biomed cy's. Chamber of Commerce, City, Naturalis
- Joint marketing/promotion, comm's & acq
- Education and labour market
- Facilities, infrastructure and urban planning

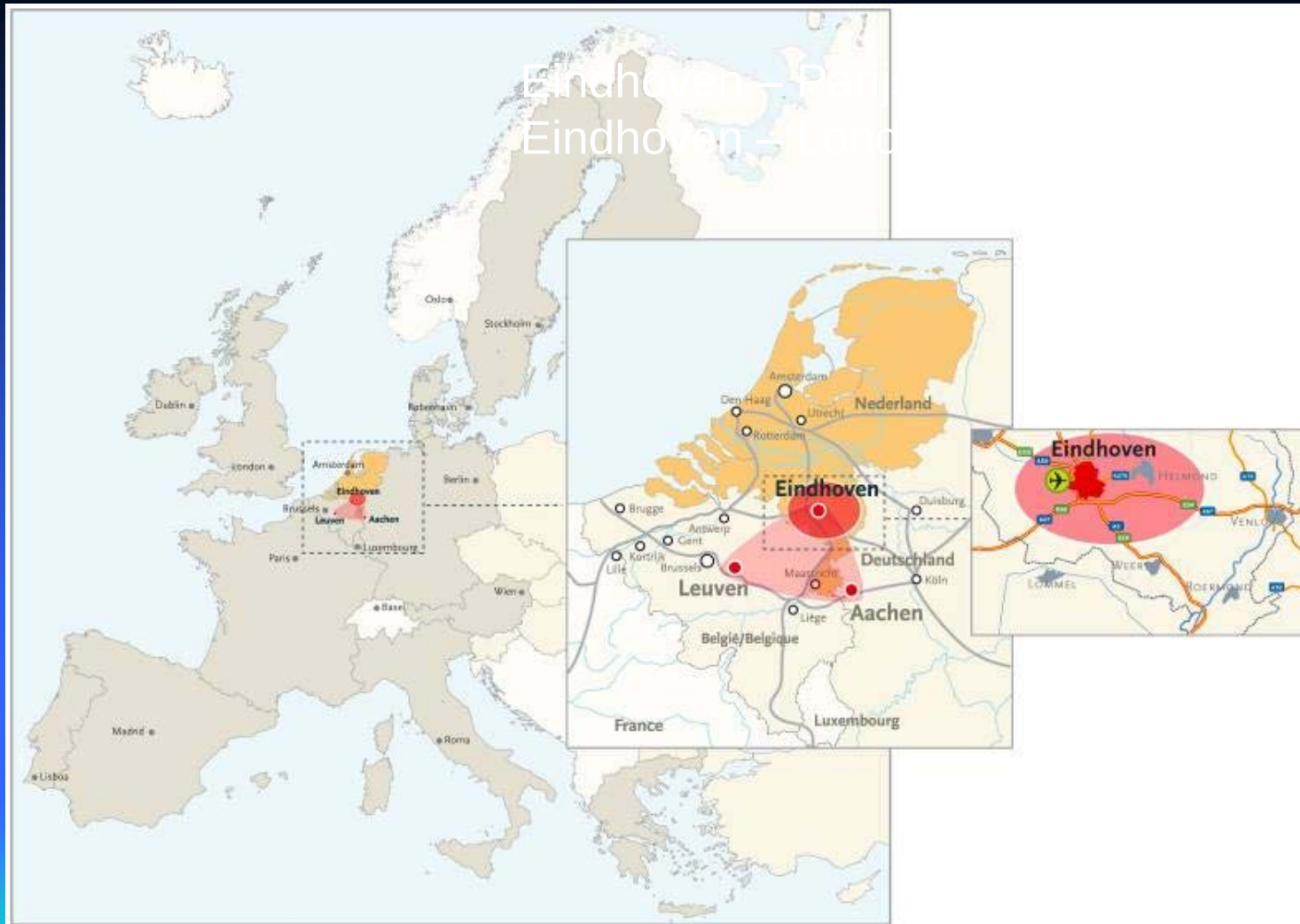


# Further cluster development: PROJECTS

- Expat Center
- HRM network, labour pool & internships
- Bio-factory simulator - education, training & demonstration
- Junior Science Lab: training of high school teachers on state-of the-art lab equipment
- X Lab: bridging high school-university: multidisciplinary science education for pupils of 21 regional high schools



# Example 2: Eindhoven *Region*



# Eindhoven Region

- From industrial mainport to "*Brainport*"
- Attributes:
  - high density of top-technology companies and research/knowledge institutes
  - critical mass: full triple helix value chains:  
fundamental research => product development =>  
design => manufacturing => marketing
- Motto "applying tomorrow's technology today"

# An open and innovative ecosystem ... today



Life Tech



High Tech Systems and materials



Design



Automotive



Food



# An open and innovative ecosystem

## Nucleus: Philips Hightech Campus



‘Open Innovation campus’

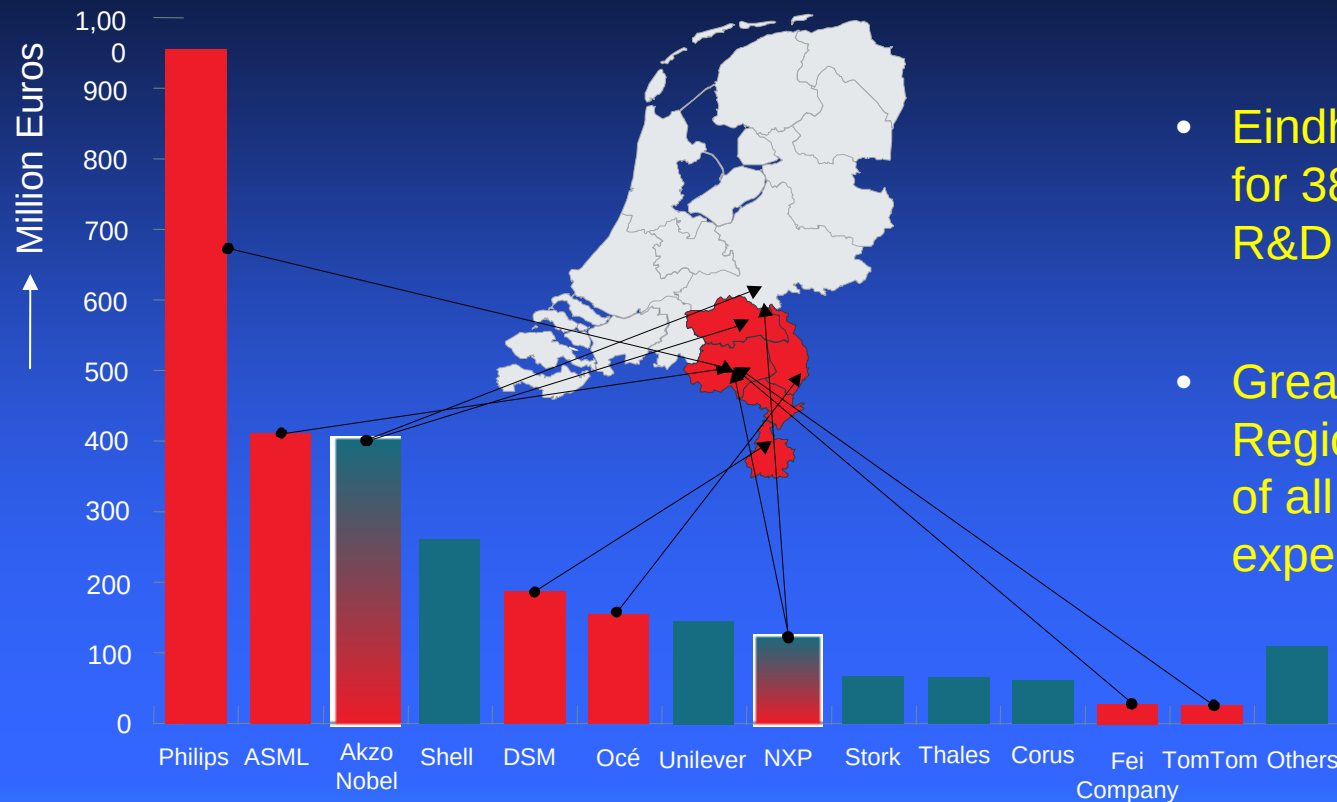
- 40 non-Philips cy's
- TTO TU/e
- High Tech Accelerator:  
bèta techno-starters

# Brainport Eindhoven

- High ranking EU “hot spot” re:
  - productivity
  - innovation potential
  - competitiveness
- Strengthening further by means of:
  - open innovation networks
  - joint research centers, facilities and programs
  - international companies and R&D headquarters: TOM TOM a.o.
  - start-ups
- Further ambitious 1.75 billion € plans in “Navigator 2013: beyond Lisbon - moving frontiers”
- However: current rough economic climate – NXP et al.

# Brainport Eindhoven

## Private R&D expenditure

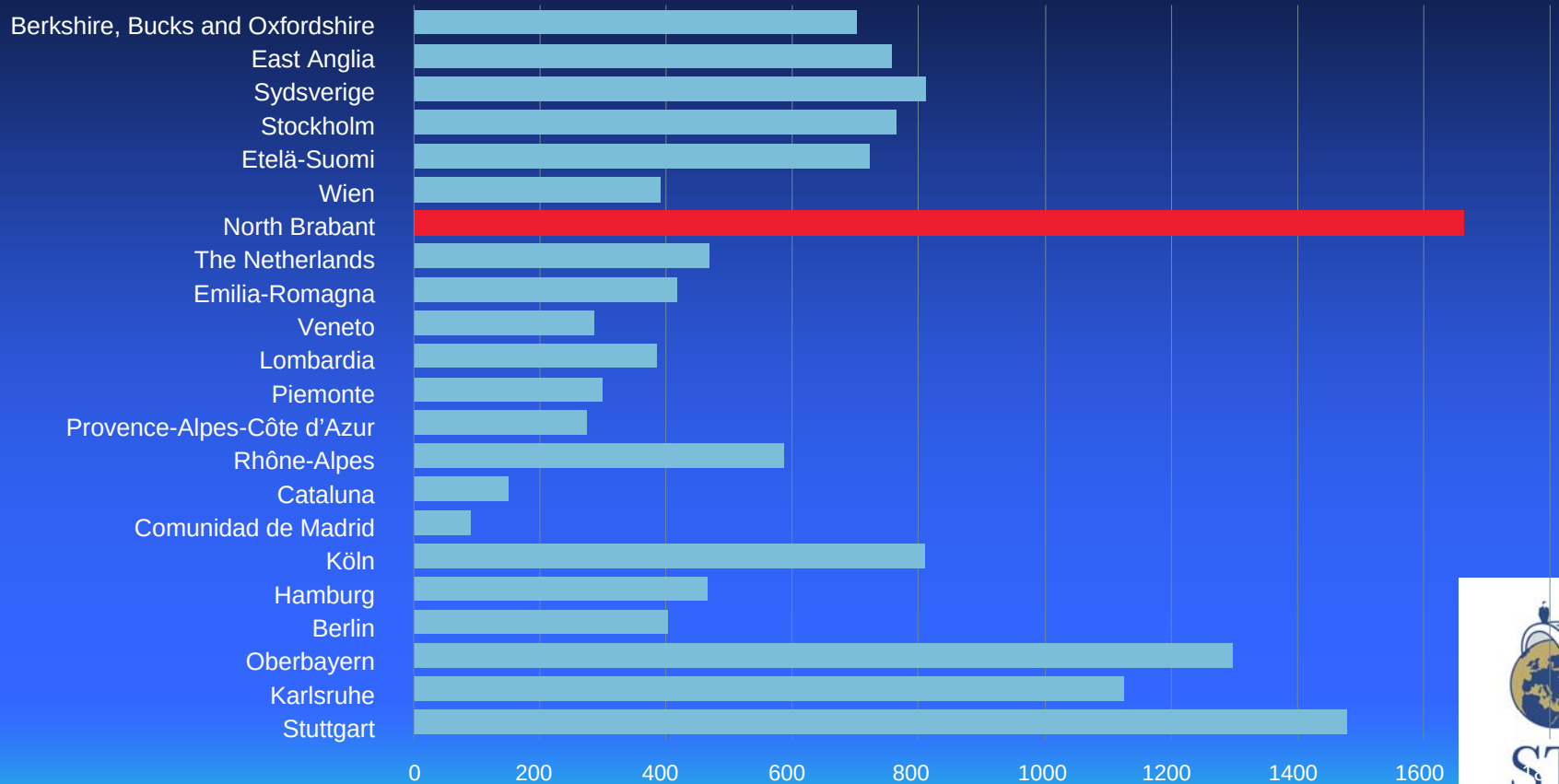


- Eindhoven area accounts for 38% of all Dutch private R&D expenditure
- Greater S-E Brabant Region accounts for 55% of all Dutch private R&D expenditure

# Brainport Eindhoven

## Patent density

EPO\* patents per million workforce, 2002



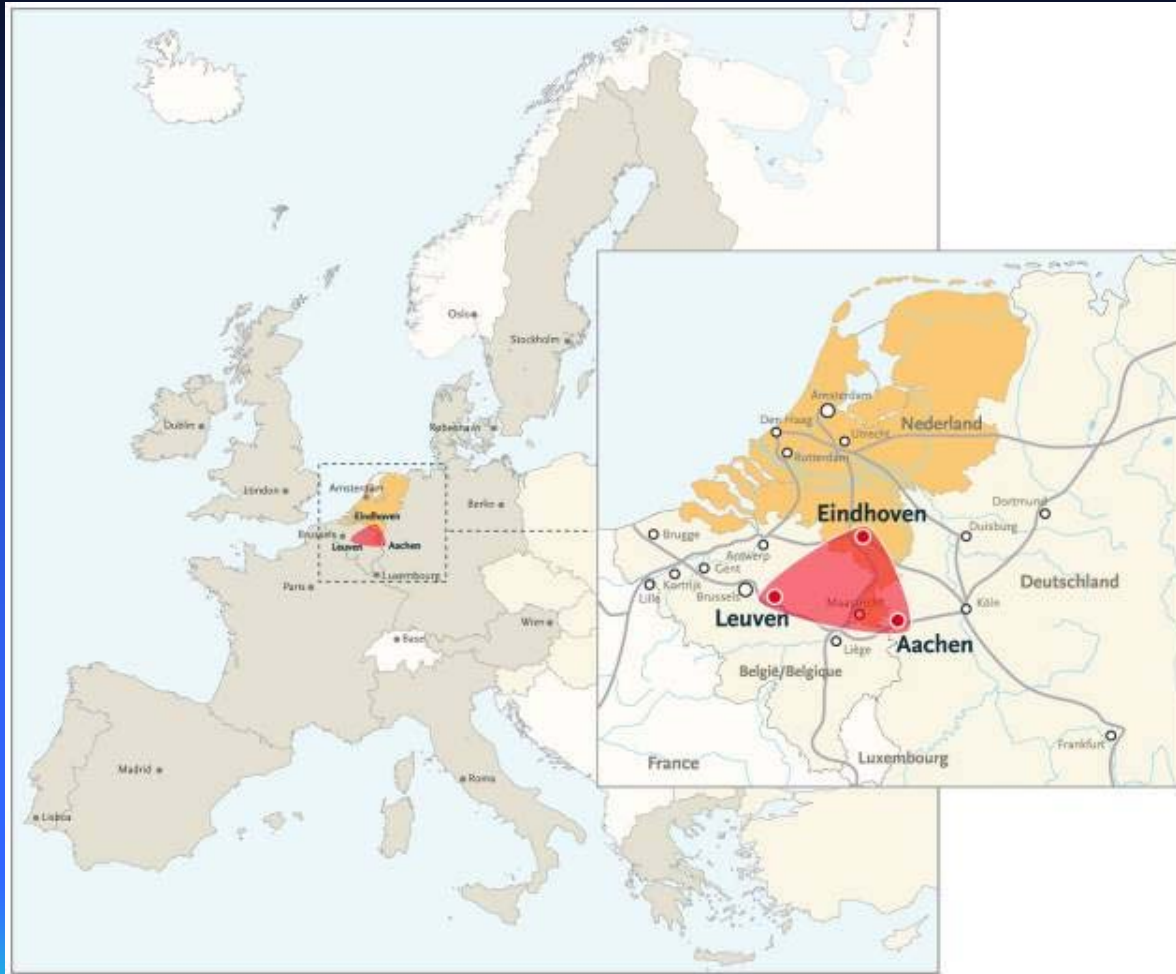
Source: Eurostat

\*) EPO = European Patent Office



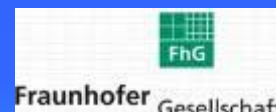
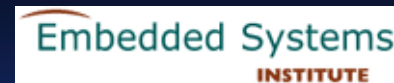
# Brainport 2.0: moving crossborder: “ELAt”

## Eindhoven – Leuven - Aachen triangle



- 14,269 km<sup>2</sup>
- 5.9 million inhabitants
- 2.8 million active labor force

# ELAt: research institutes/PRO's



# ELAt: companies



# ATTRIBUTES “CLUSTERS”

- ✓ Dedicated area x Science Park
- ✓ Location: easy access to/from “mainports”
- ✓ Clear thematic focus
- ✓ High Q real estate & support infrastructure
- ✓ Proximity of high Q PRO's & higher education talent
- ✓ Good mix of actors – value chains
- ✓ Anchor tenants + “go far's” vs “mom & pap's” => image
- ✓ Critical mass
- ✓ Availability of risk capital – angel, POC, seed & VC
- ✓ Regional embedding + international outlook
- ✓ Professional area/Science Park management
- ✓ Commitment stakeholders + continuity => “ideopolis”

# TAK FOR YOUR ATTENTION

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