

# Tech Trans Mini Conference Aarhus University

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

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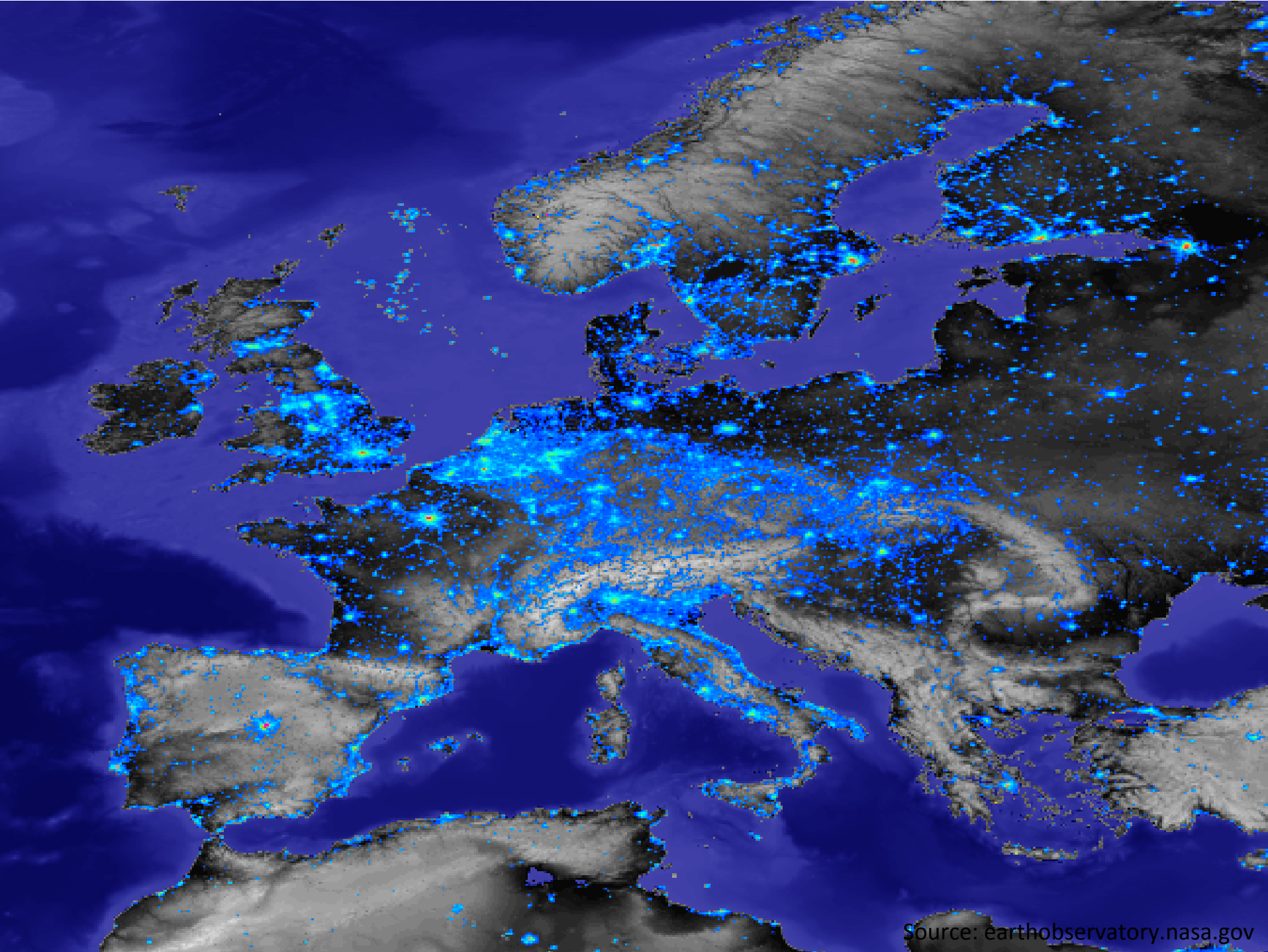
Past VPI & Chair IAB - AUTM, US

*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)



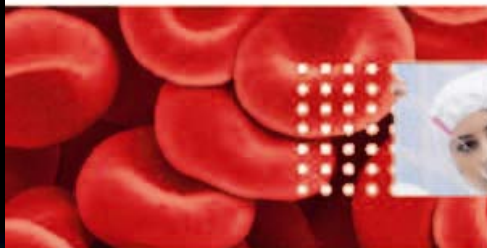
# Techtransfer Leiden University & LUMC

- “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 & resources                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Product & process data transfer                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Clinical trials                                                                                                                                | Manufacturing                                                                                                                                                          | Distribution                                                                                                                                                  | Services, sales, other                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Add2X Biosciences<br>Astellas<br>BioFocus DPI<br>BIOKE<br>Biomatrics Support<br>CAM Implants<br>CIDERUX<br>Crucell<br>Danisco/Genencor<br>DeltaCell<br>DN Age<br>EnzyScreen<br>FlexGen<br>Fytogoras<br>Galapagos Genomics<br>Ladrys<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>Parasus<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>DN Age<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>Biomatrics 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 & resources                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Product & process data transfer                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 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



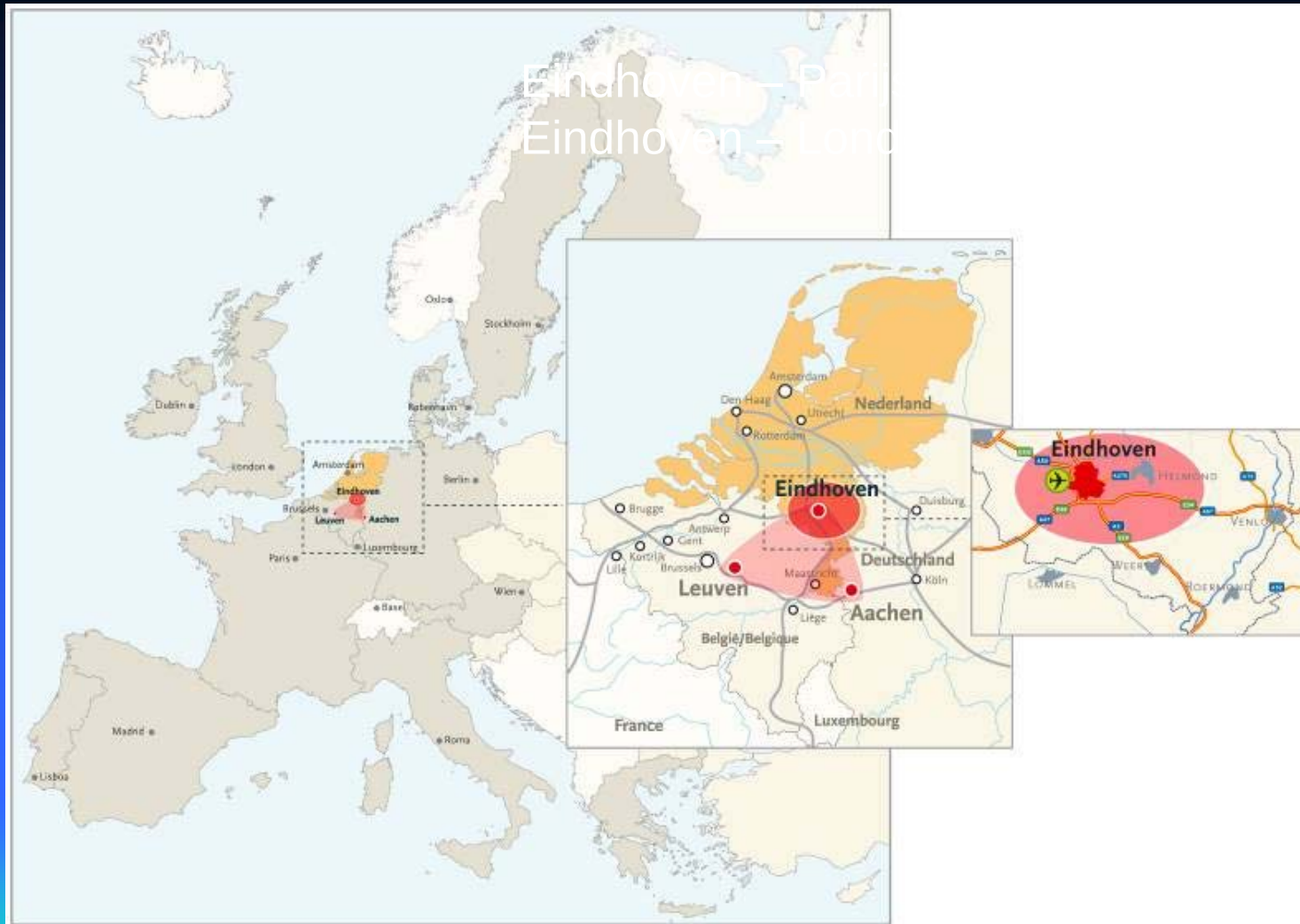
# Further cluster development: PROJECTS

- 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’

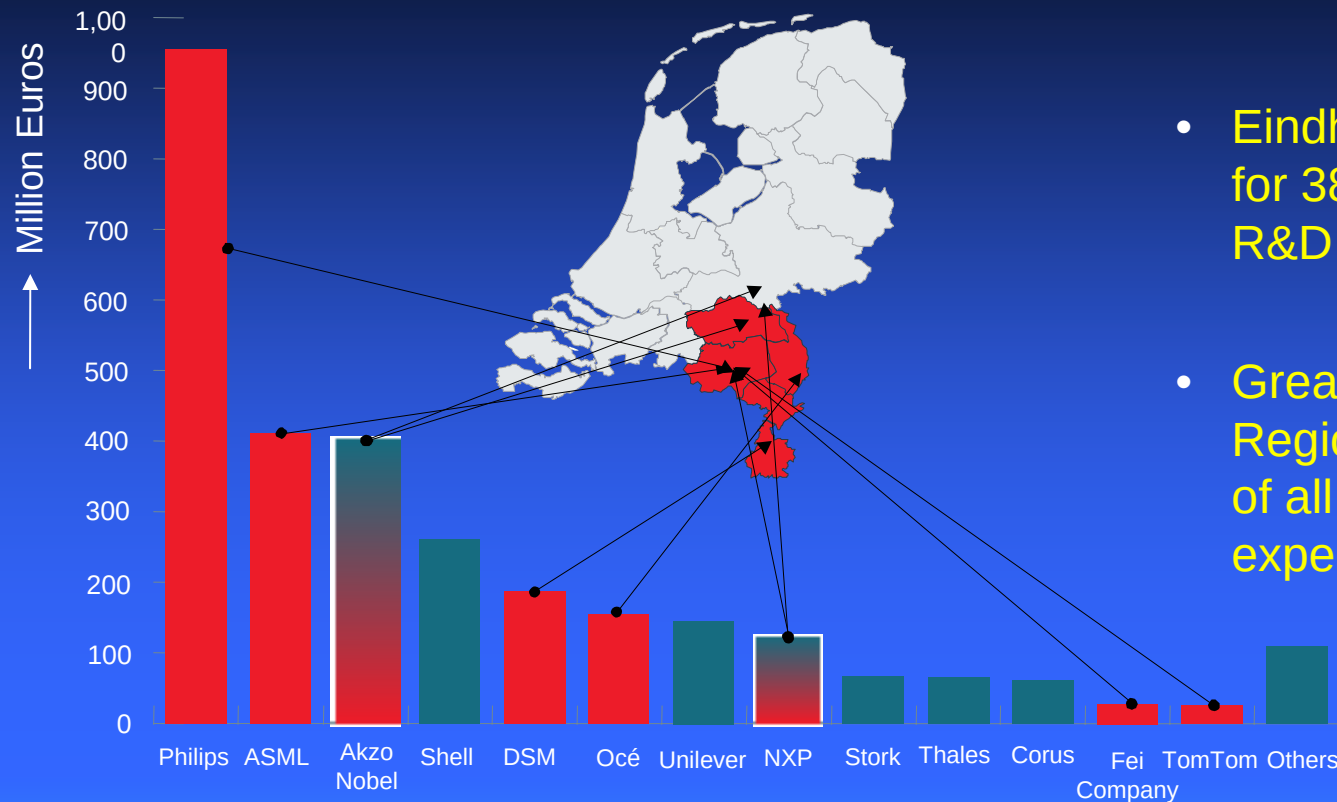
- 40 non-Philips cy's
- TTO TU/e
- High Tech Accelerator:  
bèta techno-starters

# 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



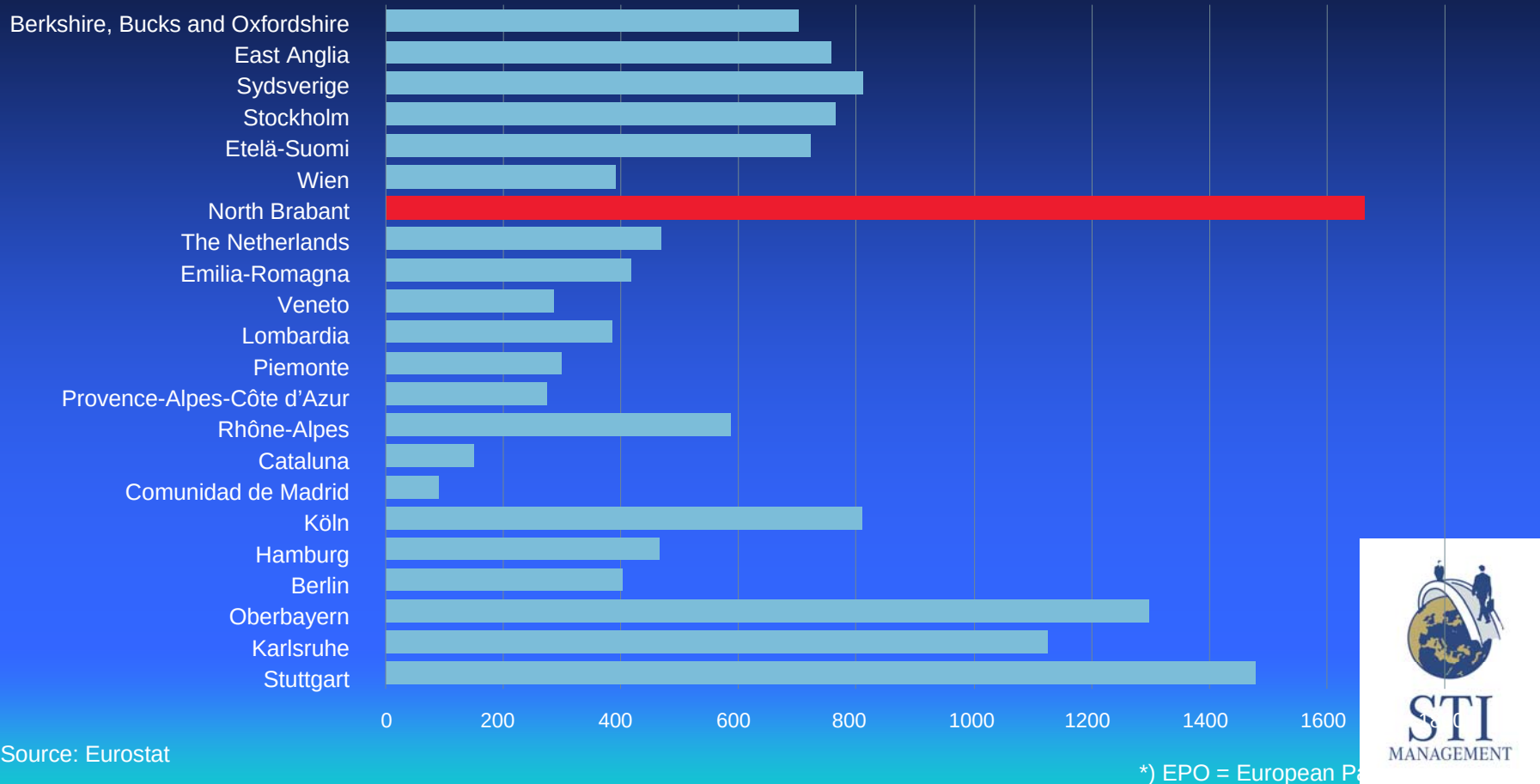
- Eindhoven area accounts for 38% of all Dutch private R&D expenditure
- Greater S-E Brabant Region accounts for 55% of all Dutch private R&D expenditure



# Brainport Eindhoven

## Patent density

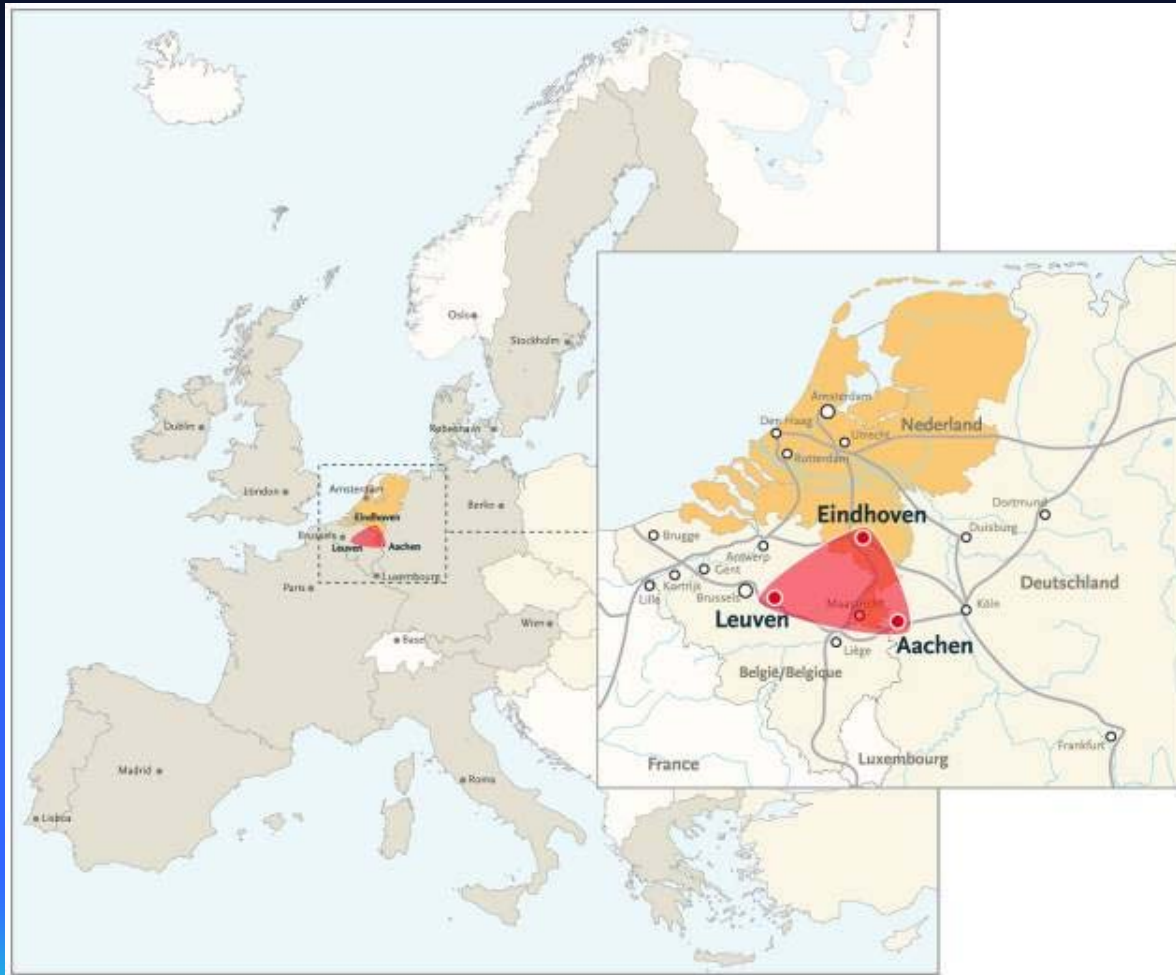
EPO\* patents per million workforce, 2002





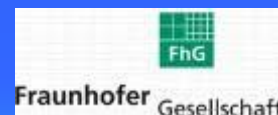
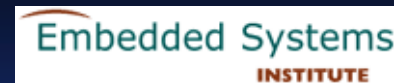
# Brainport 2.0: moving crossborder: “ELAt”

## 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

Adimec

BOSCH

Drägermedical  
A Dräger and Siemens Company

PRODRIVE

NEWAYS

BETONSON

Septentrio

Delem

Bata Industrials

Leica

maas INTERNATIONAL

GEMCO

bkl

Rexroth  
Bosch Group

PHILIPS

TOMTOM

ccm

PDE Automotive

Kverneland

easics

STORK

THALES

Smurfit Kappa Group

AXXICON

FEI COMPANY  
BEAM TECHNOLOGY DIVISION

DAF  
A PACCAR COMPANY

ICT

SIEMENS VDO

AME

OTB GROUP

zylom  
Have fun.

Keytec

NTS GROUP  
NEBATO - TE STRAKE

HANDSHAKE SOLUTIONS

SINGULUS

simac

WPS

Genexis

GOUDSMIT MAGNETICS GROEP

VDE

BARCO

NXP

ASML

halin bv

KM WE

FG

Draka

LG PHILIPS

Amersham Health

SIoux

Atos Origin

Bavaria

campina

Masterfoods

océ

ARM

OPTION

TARGET

Medtronic  
When Life Depends on Medical Technology

Assembleon

DALSA

RIXTRON

Continental  
Tyres Engineered in Germany

Ford

FEV

ERICSSON

DSM

AnSem

ONEACCESS

TELINDUS

umicore

PROMETEC

Microsoft

CEROBEAR

emoteq

VYCON

GRUNENTHAL

Agilent Technologies

PAION

parsytec  
Surface Quality Yield Management

!nBev

Materialise

STI MANAGEMENT

# 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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