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Thank you for the invitation

Gert Vilhelm Balling, Special advisor

Danish Agency for Science, Technology and Innovation
Ministry of Science, Technology and Innovation

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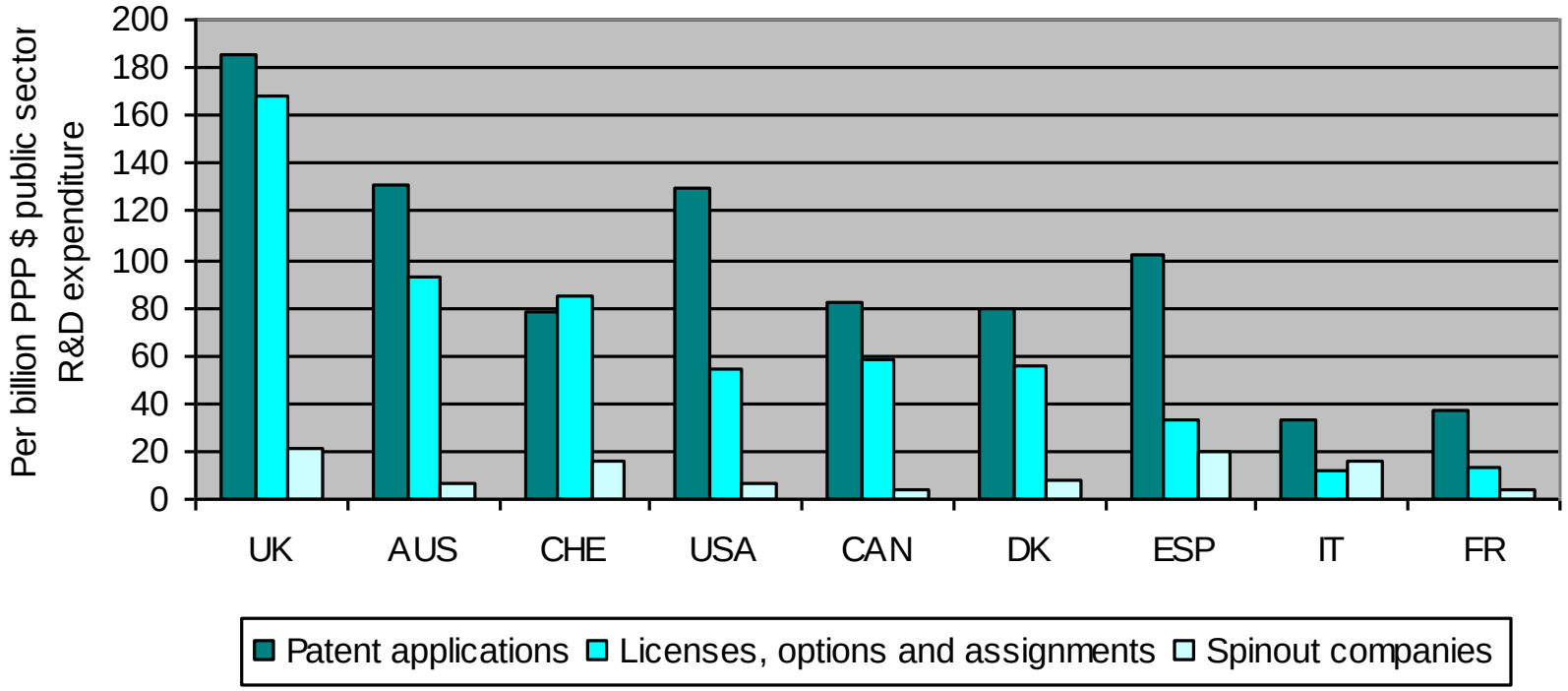
International benchmark

Commercialisation of public reseaerch results in various countries, (latest available statistics)



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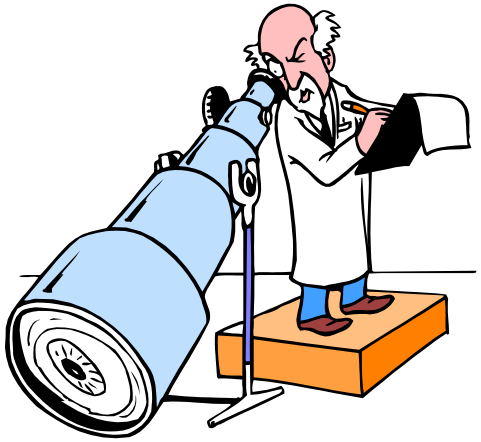
The picture 10-15 years ago

- *Danish universities excellent in research*
- *Lack of entrepreneurial culture*
- *Limited co-operation with industry*
- *Poor exploitation of research results*



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Direct and Indirect Measures

Direct:

- IP Ownership regime
- Refund of university patenting costs
- Development of technology transfer structures
- Proof of Concept Funding
- Training of technology transfer officers
- Guidelines and model IPR-contracts
- Evaluation and documentation

Improved exploitation of university IP

Indirect

- Increased investment in research base
- University management reform'
- Reform of institutional structure
- University performance contracts
- Individual appraisal and reward systems
- Support for universty spin outs
- IP training for students

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Legal Framework on IP Ownership

Direct:

- **IP Ownership regime**
- Refund of university patenting costs
- Development of technology transfer structures
- Proof of Concept Funding
- Training of technology transfer officers
- Guidelines and model IPR-contracts
- Evaluation and documentation

Improved exploitation of university IP

- 2000, Act on Inventions at public research institutions
  - •Instituional ownership instead of professors priviledge
- 5 patent consortias established
  - Researchers have to notify institution
  - Institutions a required to evaluate inventions within 2 months
  - Institutions must establish adequate structure for TT
  - Commercial revenue must be divided
  - Industry must negotiate IPR contracts with institutions
  - Institutions can receive equity in spinout companies in return for IPR

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Refund of University Patenting Costs

Direct:

- IP Ownership regime
- **Refund of university patenting costs**
- Development of technology transfer structures
- Proof of Concept Funding
- Training of technology transfer officers
- Guidelines and model IPR-contracts
- Evaluation and documentation

Improved exploitation of university IP

- 2000 – 2003
- Initial support scheme
  - 5 million Euro
  - Individuakl grants a 20.000 Euro per invention
- 2003 shift in focus from protection towards exploitation

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Development of Technology Transfer Structures

Direct:

- IP Ownership regime
- Refund of university patenting costs
- **Development of technology transfer structures**
- Proof of Concept Funding
- Training of technology transfer officers
- Guidelines and model IPR-contracts
- Evaluation and documentation

Improved exploitation of university IP

- 2005 – 2009
- 5 pilot projects on innovative TT projects at universities with a more market driven perspective.
- 4 million Euro

- 2005 New Act on technology transfer at public research institutions
  - Opens for subsidiary companies that work on market conditions
  - 2 companies established

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Proof of Concept Funding

Direct:

- IP Ownership regime
- Refund of university patenting costs
- Development of technology transfer structures
- **Proof of Concept Funding**
- Training of technology transfer officers
- Guidelines and model IPR-contracts
- Evaluation and documentation

Improved exploitation of university IP

- 2006 -
- Exploitation of early stage inventions. Providing better documentation of technical and commercial potential.
- 100.000 Euro a project – with possibility for second round of funding
- 3½ million Euro a year

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Training of Technology Transfer Officers

Direct:

- IP Ownership regime
- Refund of university patenting costs
- Development of technology transfer structures
- Proof of Concept Funding
- **Training of technology transfer officers**
- Guidelines and model IPR-contracts
- Evaluation and documentation

Improved exploitation of university IP

- 2005 –
- National Network for TT
  - Courses
  - Experience groups
  - Workshops
  - Conferences
- Training is either developed inhouse or by external providers like:
  - ProTon Europe
  - ASTP
  - LES
  - DK Patent and Trademark Office
- Homepage: www.techtrans.dk
  - Info on techtrans
  - Share best practice
  - IP Exchange
  - links: ie Knowledge pool

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Guides and Model IPR-contracts

Direct:

- IP Ownership regime
- Refund of university patenting costs
- Development of technology transfer structures
- Proof of Concept Funding
- Training of technology transfer officers
- **Guidelines and model IPR-contracts**
- Evaluation and documentation

- Initial guidelines 2000
- Contracts and Codicies – Research co-operation between universities and companies" 2004
- Model agreements 2008

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Evaluation and Documen-tation of Commercialisation Performance

Direct:

- IP Ownership regime
- Refund of university patenting costs
- Development of technology transfer structures
- Proof of Concept Funding
- Training of technology transfer officers
- Guidelines and model IPR-contracts
- **Evaluation and documentation**

Improved exploitation of university IP

- Complete figures from 2000
- Annual survey since 2005
- Collaboration with National Network of Technology Transfer
- Feeds into ProTon Europe pan european survey and the ASTP survey.

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Increased Investment in Research Base

- to comply the Barcelona objective
- 1 % of GDP
- Advanced technology foundation

Improved exploitation of university IP

Indirect

- **Increased investment in research base**
- University management reform'
- Reform of institutional structure
- University performance contracts
- Individual appraisal and reward systems
- Support for universty spin outs
- IP training for students

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University Management Reform

- 2003
- Improved model for university management
  - Recruitment of professional managers
  - More people with IP knowledge

Improved exploitation of university IP

Indirect

- Increased investment in research base
- **University management reform'**
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Reform of Institutional Structure

•2007

• Merge of universities and government research institutions to obtain more competitive university structure

• Due to the reform, more than 90% of IP exploitation activities relate to only 7 institutions

• More critical mass at the TTOs

Improved exploitation of university IP

Indirect

• Increased investment in research base

• University management reform'

• **Reform of institutional structure**

• University performance contracts

• Individual appraisal and reward systems

• Support for universty spin outs

• IP training for students

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University Performance Contracts

- Performance contracts
- From 2008 includes ”third mission” activities to provide incentives to engage in TT

Improved exploitation of university IP

Indirect

- Increased investment in research base
- University management reform’
- Reform of institutional structure
- **University performance contracts**
- Individual appraisal and reward systems
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- IP training for students

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Individual Reward Systems

- Danish universities may consider performance in patenting equal to that of scientific publication.
- Most universities provide additional economic incentives for patenting through the wage system.

Improved exploitation of university IP

Indirect

- Increased investment in research base
- University management reform'
- Reform of institutional structure
- University performance contracts
- **Individual appraisal and reward systems**
- Support for universty spin outs
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Support for University Spin Outs

- Focus at university start ups
  - Innovative incubators provide pree seed
  - 25 million Euro per year

Improved exploitation of university IP

Indirect

- Increased investment in research base
- University management reform'
- Reform of institutional structure
- University performance contracts
- Individual appraisal and reward systems
- **Support for universty spin outs**
- IP training for students

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IP Training for Students

- Most Danish Universities offer training in IP issues for graduate and post graduate students.

- Since 2005 a cross institutional academy has provided training and assisted in developing entrepreneurship courses for university students.

Improved exploitation of university IP

Indirect

- Increased investment in research base
- University management reform'
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- University performance contracts
- Individual appraisal and reward systems
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- **IP training for students**

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National strategy to improve commercialisation 2009

- Improved access to early stage gap funding

- Integration of IP- and commercialisation aspects in R&D collaboration and funding schemes

- Stronger incentives for commercialisation at institutional and personal level

- Professional assistance for researchers and entrepreneurs in all stages of the commercialisation process

- Improved training of graduate students in entrepreneur-ship and IP issues

- Implementation of the EU Code of Practice on knowledge transfer and IP management (IP Charter)

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2 initiatives

Patent Exchange

Nordic Tech Trans Network

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Danish Patent Exchange - Background and objectives

- Denmark consists of many smaller and middle-sized public research institutions organized under the National Network of Technology Transfer.

- Wish to increase the effectiveness of the TT sales process

- Wish to aid industry in finding the technologies it needs

- The service was to be linked to the internet platform of www.techtrans.dk (one-stop-shop-Denmark) and base the patent exchange on an internet-based infrastructure

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Danish Patent Exchange - Platform Issues

- Important to present inventions in a way non-specialists can understand

- Easy-to-use tool - based on customer needs and using categories from the earlier patent consortia that users were familiar with

- Produce test site and test-subsites

- Big usability test with different segments of the primary user groups to be sure that the final result matched the expectations of the actual user

- The platform was to secure an easy quality control on update and searchability

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www.patentexchange.dk

PATENTEXCHANGE

CONTACT | SITEMAP | PRINT | DANSK

SEARCH

PRODUCTION
Production technology | Materials | Construction | Durable Consumer Goods

BIOTECHNOLOGY
Biotechnology | Health | Medico technology

IT
IT | Telecommunications | Electronics Measuring techniques | Nanotechnology

FOOD
Biotechnology | Food | Agro industry

ENERGY
Energy | Transportation | Environment | Supplies

COLLECTIVE LIST
All presentations

PATENTEXCHANGE

RESEARCH BASED PATENTS

The Patent Exchange is the only collected data base of published patents and patent applications from public Danish research institutions.

The public research institutions mentioned are all members of The National Network for Technology Transfer.

PRESENTATIONS

Each research patent or research patent application is purblished with a note on its commercial potentials, including a Management Summary where possible.

Futher, each presentation is completed with contact information to the TechTrans Office of the public research instiution in question.

NEWS SERVICE

Please use the RSS serice to keep updated on new research patents from public Danish

LATEST PATENTS

15.06.10	Fault-tolerant electrical machine and drives
15.06.10	Self-Deploying Space Structures
20.04.10	New production method produces pure Anatase at low temperature and low cost
20.04.10	Position List Word Aligned Hybrid
14.04.10	MoDest GrassUp
14.04.10	RobWorkMill
08.04.10	Javeleon

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08.04.2010

DNA CONTROLLED ASSEMBLY OF LIPID MEMBRANES

The present invention offers an ultra-sensitive, simple and low cost method for detecting nucleic acids which can be used for point-of-care and early disease diagnosis.

12.05.2010

OMNISENSING NANOBIOSENSOR

The invention is a generic nanobiosensor, which can be tailored in the laboratory to measure virtually any small chemical molecule with a molecular weight less than 1000 g/mol and with high affinity and specificity.

22.05.2010

PRODUCTION OF MONASCUS LIKE AZAPHILONE (POLYKETIDE PIGMENTS) AND DERIVATIVES IN SPECIES OF PENICILLIUM SUBGENUS BIVERTICILLIUM

The main idea of the invention is to use certain non-toxigenic filamentous fungi to produce pigments that can be used as colorants in food and non-food applications.The use of fungi permits the production of pigments under controlled conditions in bioreactors - and the patent includes the use of a...

22.05.2010

ALL-OPTICAL CONTROL OF THZ WAVE PROPAGATION

The invention describes a method of controlling THz light inside a waveguide using optical light, and has a wide range of applications within THz technology.

03.11.2008

AMANY – A CONJUGATED FLEXIBLE INTERCALATOR

The invention is a chemical modified nucleotide, which can be built in a single stranded DNA sequence under standard procedure. This DNA sequence will fluorescence when it binds to a specifically double stranded DNA sequences, thereby making it possible to detect different double stranded DNA...

03.11.2008

ALKYNES USEFUL FOR TREATMENT OF DIABETES

12.05.2010

OMNISENSING NANOBIOSENSOR

The invention is a generic nanobiosensor, which can be tailored in the laboratory to measure virtually any small chemical molecule with a molecular weight less than 1000 g/mol and with high affinity and specificity.

ADDRESS

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OWNER

University Of Southern Denmark

MORE

The sensor consists of a nanoparticle, 30-50 nm in diameter, made of polymer and a sensing component. The sensing component is encapsulated in the nanoparticle when the latter is synthesized. When the target of the sensor diffuses into the particle, which is porous, it binds to the sensing component.

The binding is associated with a change in conformation, which is relayed to a change in signal from the sensing component. The signal is usually fluorescence, but other forms of signals can be built into the sensor.

BUSINESS OPPORTUNITIES

The nanobiosensor can be used in many contexts. Either in its original form in bioassays to analyze for chemical compounds in laboratories or in a modified form to be inserted into small portable instruments to measure specific compounds, e.g. sugar, amoni acids, drugs, etc.

TYPE

Patent application

MORE
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TYPE
Patent application

CATEGORY
Biotechnology

PRIORITY DATE
10.07.2009

PRIORITY NUMBER

JOURNAL NUMBER
SDU 647-123

INTERNATIONAL PATENT APPLICATION
US 61224487

Related News:
University of Southern Denmark

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Danish Patent Exchange - Attention

- Presence of the Secretariat at important conferences and market places giving business cards away and promoting the system with a live audience

- Automatic generation of data base information to other platforms like Flintbox

- Cooperation with big matchmakers like RTI, Competitive Technologies, IRC etc. based on the patent exchange

A Nordic Technology Transfer Network

An e-based knowledge pool network

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Nordic TT Network

- Main objectives– Specific regional objectives

- *To increase the effectiveness of the TT process*
- *To aid industry in finding the technologies it requires*
- *To build value adding links and relationships that don't exist at present*
- *To generate opportunities for joint ventures and commercial collaboration*
- *To bring the TT communities closer together by forming a Nordic regional TT forum*
- *To base the Nordic Regional TT Network on an e-based infrastructure*
- *To cross-fertilize the regional innovation environment*

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The Knowledge Pool is for:

- Anyone commercialising technology

- Anyone seeking technology

- Anyone in between

4 rules:

1) Only one sentence allowed

2) Must be a question

- *Does anyone know….?*
- *Does anyone have….?*
- *Has anyone got….?*

3) Replies to the questioning person only

4) No offers allowed

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What kinds of question to ask:

- *Technology seeking*
  - *Has anyone got any technology that can …..?"*
- *Company contacts*
  - *"Does anyone have a good contact at…?"*
- *Experience*
  - *"Can anyone recommend a….?*
  - *"Has anyone heard of….."*
- *Market Knowledge*
  - *"Does anyone have any knowledge or market information of…..?"*
- *Investor seeking*
  - *"Does anyone know of any investors who have investment interests in…..?"*

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Questions asked

- *Does anyone have a technology available for license for an environmentally friendly windscreen de-icer effective at -30 C that is not methanol, ethanol or isopropyl based?*

- *Does anyone know a CEO candidate for a London based, Australian University - UK Investor, Start-up Company in the image search technology sector?*

- *Does any one know the technology provider for environment friendly refractory aggregate binding technologies used for moulds and cores in the production of metal castings?*

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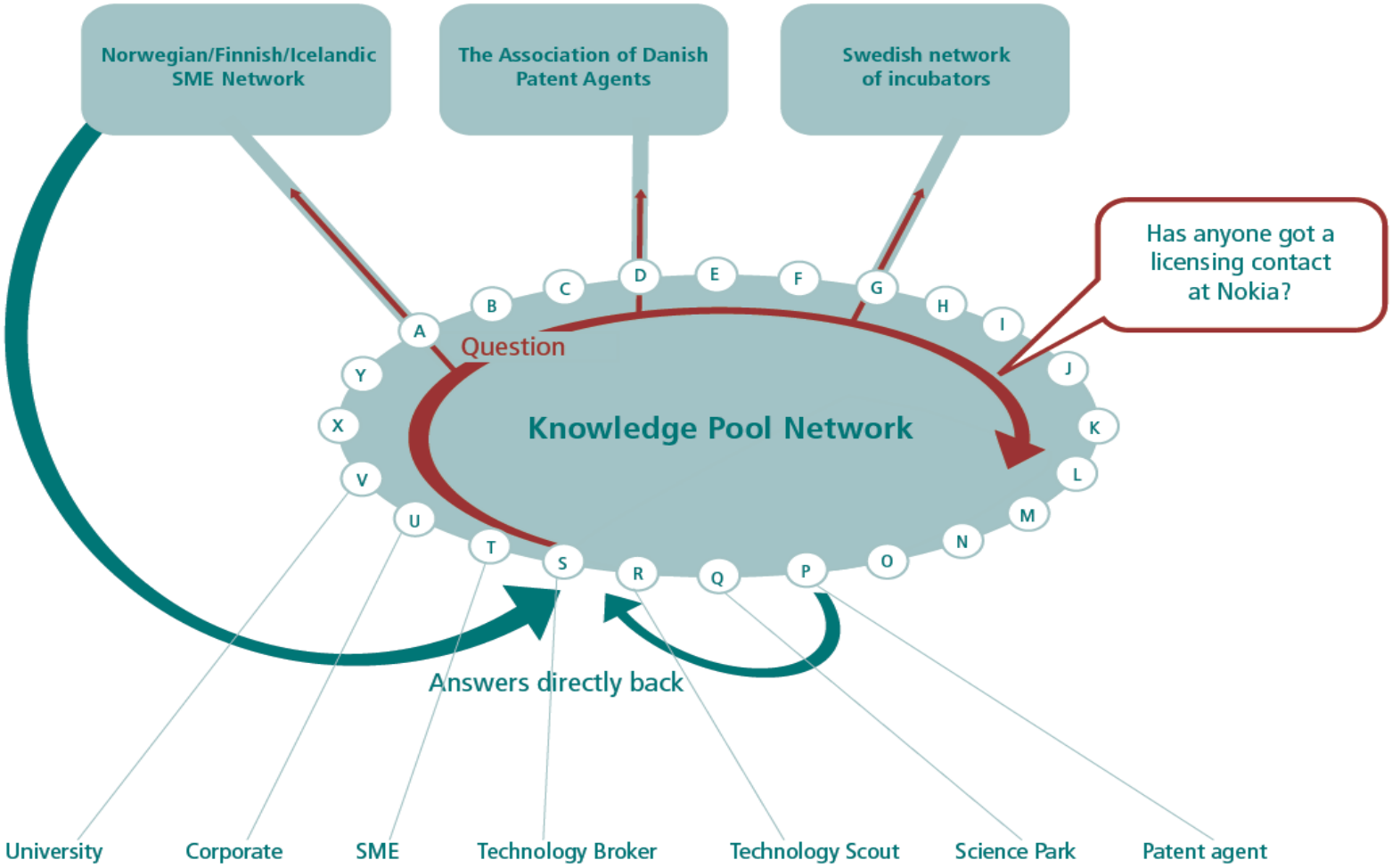
An asset for technology seekers. Creates technology pull for public research!



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Geographical spread & regional development

1. *If you become a member of one of the networks you will have access to all other knowledge pools*
    1. *Listen to traffic*
    2. *Making requests*

“KT metrics” expert group

European Commission
Research DG
Denis Dambois

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European Harmonization

- *Invention disclosures*
- *Patent applications*
- *Patent grants*
- *Licences executed*
- *License income earned*
- *Spin-offs established*
- *Research agreements*

Metrics – points of discussion

- **Patent applications** – *Should applications be counted if they are filed by a research partner?*
- **License income** – *To what extend could indirect revenues, sponsorships etc. be included?*
- **Option agreements** – *What types of agreements should be counted – e.g. agreements with PRO subsidiaries?*
- **TTO staff** – *To what extent should the figures include fundraising and networking personnel?*
- **Spinouts** *vs. Spin-offs vs. Start-ups …*
- **Licenses executed** - *What should be counted, if a single license deal include a package of several technologies?*
- **TT expenditure** – *What should be included/excluded – e.g. remuneration of inventors, reimbursed IP-protection costs?*

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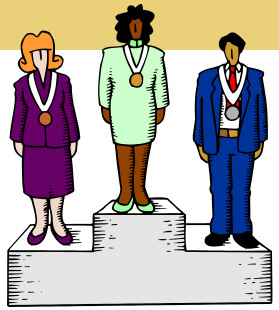

European Innovation Scoreboard