Technische Hochschule Wildau [FH]
Technical University of Applied Sciences
WILDAU

Technology Transfer:

How to drive on the bumpy road from science to market and the other way round?

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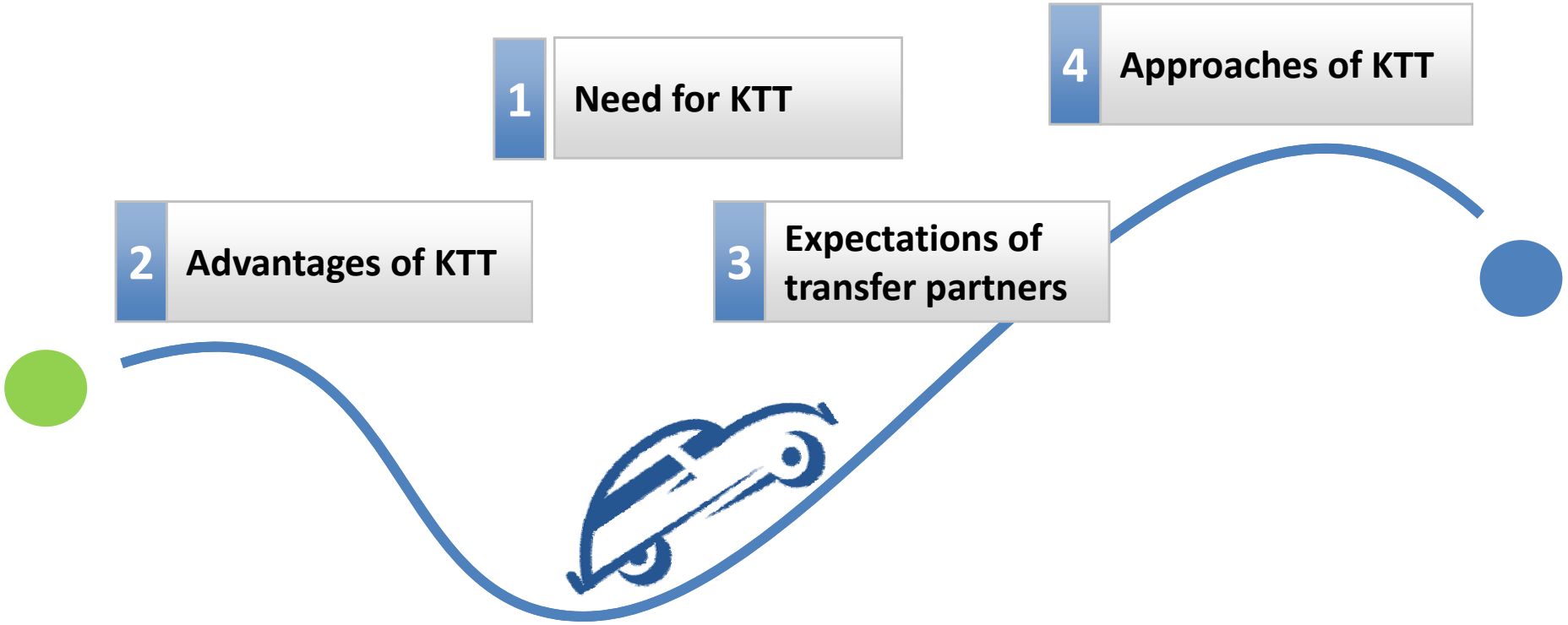
How to drive on the bumpy road from science to market and the other way round?



Motivation for Cooperation between Universities and Companies

Why do we need knowledge- and technology transfer?

- Knowledge, research and development are the key fundamentals for innovation
- Science as a driving force for innovation in the business world
- Increasing importance of high-tech industries and knowledge intensive services
- Companies do often focus on core competencies in R&D, current and mid-term developments as well as current customers needs
- Lack of resources (financial resources, specialized employees) in companies, especially SMEs for permanent R&D activities
- Basic research as a key issue mainly for public research institutions

Source: Blind, 2009, 4; Piller, 2013, 1 et. seqq

Advantages of Knowledge- and Technology Transfer

Advantages for Universities

- Accesability to financial sources
- Accesability to practical issues and relevant fields of applications
- Identification of requirements of the employment market and implementation of corresponding curriculas
- Improvement of employability of graduates and researchers
- Implementation of reference projects and sharpening the University profile

source: Blind, 2009, 7

Advantages of Knowledge- and Technology Transfer

Advantages for Companies

- Improvement of competitive advantages through the accumulation of knowledge and accelerated innovation processes
- Relationships with Universities improve the possibilities in the recruitment of high-skilled personal
- Improved accessibility to public research programs/funds
- Reduction of risks in R&D projects
- Establishment of long-term oriented strategic networks

source: Blind, 2009, 8

Expectation of the Cooperation Partners

Needs	Expectations of Companies	Expectations of Universities
Economic interest	**Success in terms of innovation** ▪ Profit ▪ Risk and time	**Resources** ▪ Finance ▪ Research staff
Know-how	**Competencies in terms of technology** ▪ Access to expert knowledge ▪ Use of laboratories	**Practical experience** ▪ Implementation of results ▪ Insights for education purpose
Human Capital	**Contacts** ▪ Extension of the knowledge base ▪ Recruitment	**Contacts** ▪ Work possibilities ▪ Practical experience
Communication	**Information** ▪ Consultancy ▪ Exchange of ideas	**Information** ▪ Ideas ▪ Conferences, fairs

see IHK NRW, März 2011, 7

What is needed…?

Transfer and Absorptive Capacities.

- Need for **active moderation of the knowledge and technology transfer process**
- Need for **transfer capacity** in order **to trigger and to manage** the transfer of knowledge and technology into market applications

- Need for **absorptive capacities** in the knowledge and technology transfer process

see also Piller, 2013, 10

New Methods in Technology Transfer

Methods in KTT	Description
Open Innovation Platforms	▪ Companies bring in specific problems and researchers should be motivated to screen problems and to develop solutions
Problem conferences	▪ Companies present practical problems and researcher develop solutions in a conference setting format
Match panel – improvement of networking during conferences	▪ Partners will be connected based on background information (delivered before the conference) in order to find partners suitable to the area of interest by using different contact channels
Opportunity recognition workshops	▪ Technical solutions and market needs are discussed and matched in order to trigger new product ideas
Scenario analysis	▪ Visualization of long-term development for strategic decision making processes and the identification of future needs
…	▪ …

see Piller, 2013, 16, et seqq.

Different Approaches in Knowledge and Technology Transfer

How to do Knowledge and Technology Transfer?

- Contract research
- Consulting
- Licensing
- **Spin-offs**
- **Projects in joint cooperation**
- **Joint use of laboratories**
- Student research projects, thesis, …
- Internships

Entrepreneurial Approach: Spin-offs through Technology Scouting

Technology Scouting in a nutshell.

Technology Scouting in Universities and other research institutions

Aims

(1) Identification of promising technologies/technological developments and **encouragements of spin-offs**

(2) Assessment of technological developments in terms of its **readiness for market applications**

(3) Systematic identification of **complementary technologies**, possible **fields of application**, **partners** in science, companies as well as potential customers, and markets

Entrepreneurial Approach: Spin-offs through Technology Scouting

Technology Scouting

Internal perspective

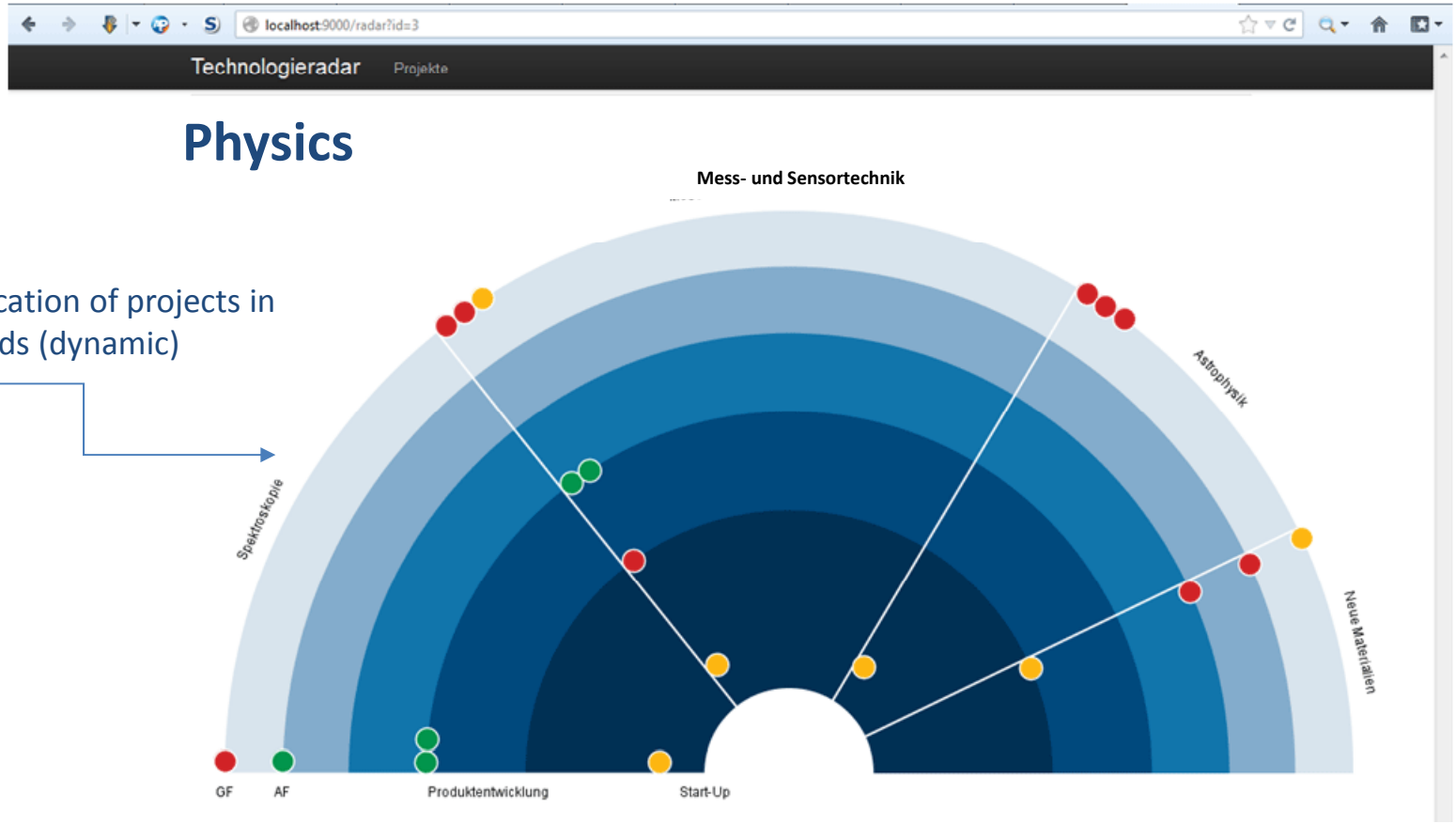
(1) Workshops and direct contact with researchers in University institutes in order to identify promising technological developments

(2) Constantly monitoring and re-evaluation of research projects (e.g., supported by technology canvas, technology radars)

(3) Assessment of spin-off options and alternative transfer options (e.g., licensing)

Entrepreneurial Approach: Spin-offs through Technology Scouting

Technology Radar as a visual tool (webbased application).



Classification of projects in sub fields (dynamic)

- more than 12 months ago
- between 7 - 12 months
- less than 6 months

last contact

Different Approaches: Spin-offs through Technology Scouting

Database (Example)

Areas	Indicators	Sources
Project key data	▪ Responsible Scout ▪ Name of the project ▪ Number of the project ▪ Acronym ▪ Funds by… ▪ Last contact ▪ Contact person ▪ Institution ▪ Research fields of the institute/research group	▪ Technology canvas ▪ Interviews ▪ Desk research
Fields- and sub fields	▪ Scientific discipline and categories (sub-fields) ▪ (Projects can be allocated in several sub-fields)	▪ Technology canvas ▪ Interviews ▪ Desk research
Project description	▪ Short description of the project ▪ tags	▪ Technology canvas ▪ Website
Type of project	▪ Basic research ▪ Applied research ▪ Product development (0 - 3,5 years)	▪ Technology canvas ▪ Interviews
Comments	▪ Free text	
Upload of documents	▪ E.g., technology canvas	
Links	▪ Institute, chair…	
…	▪ …	…

Entrepreneurial Approach: Spin-offs through Technology Scouting

Technology Radar as a visual tool.

Effects of the technology radar

- Overview of projects in several research fields
- Overview about the type of projects (basic research or ready for application?)
- Overview regarding the status of interaction between the researcher and the KTT unit (scout)
- Estimation of the spin-off potential in selected fields of research
- Comparison between different fields of research/institutions with regard to the spin-off potential

Different Approaches: Spin-offs through Technology Scouting

To bridge the Gap between Science and Market.

Technology Scouting

External perspective

(1) Environmental scanning for the identification of potential **fields of application**

(2) Specific search for **complementary technologies, partners and customers** outside the University…

(3) Assessment, storage and processing of information

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see also Piller, 2013, 7 et seqq.

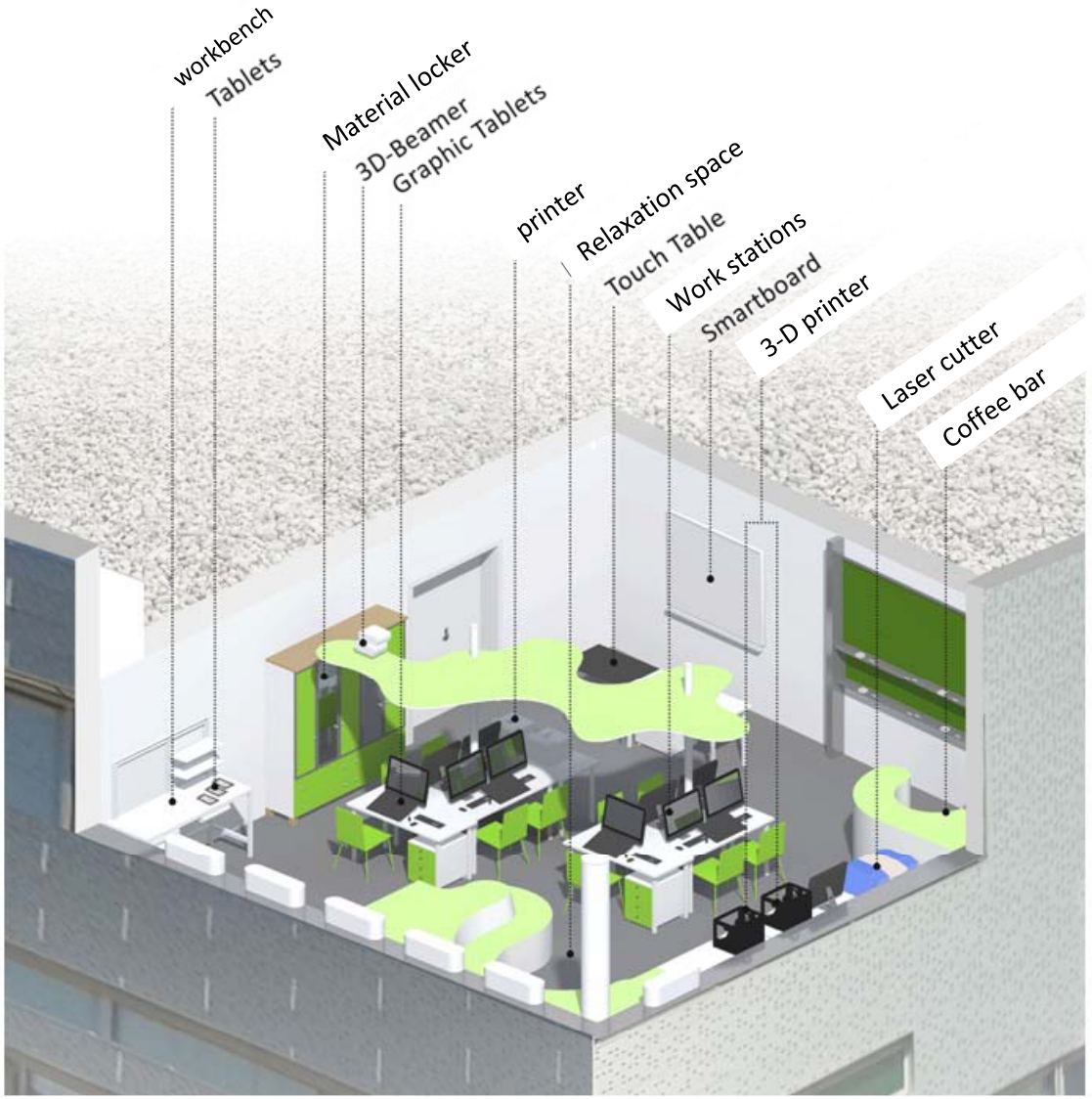
Collaborative Projects and the Use of Laboratories

One Example: The ViNN:Lab Initiative

Have a look on our website and let's stay in touch via facebook.

https://www.facebook.com/ViNNLab
http://www.th-wildau.de/creativelab

Collaborative Projects and the Use of Laboratories



www.th-wildau.de/creativelab

Collaborative Projects and the Use of Laboratories

summer school Check-out 2.0

Communication/presentation

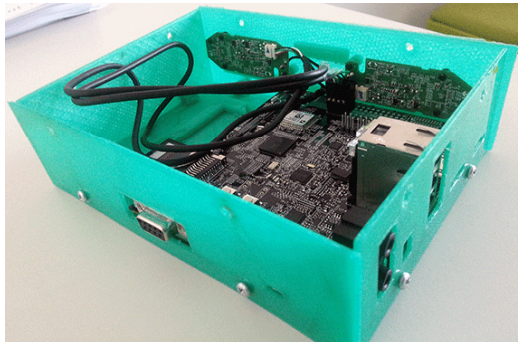
Prototyoing

www.th-wildau.de/creativelab

- Implementation of summer schools in cooperation with ViNN:Lab
- Development of concepts for the “Future of Retail” (new concepts for customer interaction) in cooperation with one of the biggest retail companies in Europe, students from different disciplines, customers, professors, designers…
- Development of concepts, taking into consideration new technological developments (e.g., RFID, locations-based services, indoor-navigation…)

Rapid Prototyping: Use of Laboratories

New product development: application: e.g., logistics
Optical measurement system that measures the distance and the dimensions of objects within parts of a second



http://www.ixellence.com/index.php/de/produkte/ix3d

- With physical fast built prototypes it was possible to visualize a new hardware product much better than with sketches or on the computer
- With help of the prototype it was possible to **use the product**, to **explore the product**, to **experiment** with the product, to **investigate limitations**, to find **solutions**
- Due to the 3-D printing technologies prototyping is much faster and cheaper than with conventional methods
- Rapid prototyping allows the production of a second or third prototype for reasonable costs, helps to reduce the time-to-market, improves communication in the development process, and helps to reduce risks and flops

Key Essentials

Open roads and green light.

- Transfer partners need to be open and transparent on what they have to offer and in what they are interested in.
- Show your areas of competence.

No need to arrive in one day.

- Start with smaller collaborative projects or student projects as a starting point for a long lasting relationship.

Take the fast lane.

- Entrepreneurial culture within the University
- Innovation culture in companies
- Entrepreneurship Education

Contact

Thank you very much!

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ViNN:Lab Open Lab Day – every Wednesday (DIY)

Literature

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