Process Orientated and Action Learning: Professional Development for Experts and High Potentials: Principles and Practices
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Development, guidance and evaluation of innovation

Co-funded by the Erasmus+ Programme of the European Union

Discussions on Learning in Germany

Traditional understanding:

Academic vs "practical" realm

Autonomy of University and research/science

vs:

Modern understanding:

Relevancy of University / HEI in their social context

Society expects a contribution from science/Universities for solving complex/holistic societal changes and problems

vs. the logic of scientific disciplines (Scholz 2006)

Framework Concept:

Learning Regions: Universities as a part of an environment for innovation (Stahl/Schreiber 2005)

Innovation, Growth, Employability

Retention of Young People and Experts

Discussions on Learning in Germany

Programme "Learning culture competency development" German Ministry of Education and Research 1995-2007

Universities are not the exclusive place of knowledge and learning

Life long and life-wide learning of
- Individuals
- Organizations
- Businesses
- Communities
- Regions

- Learning in formal education incl. HEI
- Learning in work
- Learning in the social environment
- Learning in the web (virtual space)
- Learning in adult learning support organizations

Core cocept: Competence

http://www.abwf.de/main/publik/content/main/publik/handreichungen/begriffliche_grundlagen.pdf

Discussions on Learning in Germany - Competence as a central concept

In addition to other learning results as knowledge, skills, abilities,

the term competence expresses…

 the **disposition** of an individual **to self-organize** Kirchhöfer p. 64

Learning competence means the disposition

- to learn self-organized,

- enter relevant relationships and cooperations and to

- anticipate potential patterns of action and decision making Ibd 67

Theoretical background....

Constructivist theories of learning:

"Adults can learn, but they are un-teachable" (Siebert)

Basically self motivated, self-directed learning

Learning is not the accumulation of knowledge, but a change and re-construction of our internal models or concepts in face of our prior experiences.

Interaction between myself and the environment, influenced by knowledge

First-order learning: unreflected change of behaviour

Second-order learning: reflective change as a consequence of knowledge, observation, conceptualisation

Consequence for teaching: Take the learner's perspective.

	Behaviourism Watson, Pawlow, Skinner, Thorndike	Cybernetics Wiener, Frank, v.Cube, König	Cognitivism Bruner, Ausubel, Anderson	Constructivism Dewey, Watzlawik	Developmental Orientation Current further dev. Of constructivism
Learning is..	Change of behaviour, stimulus and reaction	Processing of information	Active processing of information	Construction of knowledge through experience in complex and real life situations	Competency development through solving concrete problems in challenging real situations
Role of Learner	Black box, passive	Information processing system	Active learning through cognitive processs based on current knowledge	Active construction of knowledge and meaning through continuing interaction	Active learning through real action and reflected, continuing development of competences
Focal Claim	Change through external manipulation	Exchange of information between teaching and learning system. Presentation is key to learning	Learning is determined by complex mental processes and requires fine tuned teaching	Meaning of information is not retrieval of stored information but is re-constructed depending on the actual situation	Implicit and explicit gaps in competences are overcome while solving problems/challenges Knowing and acting are integrated
Mode of Learning	Seminar	Object orientated simulation	Moderator, knowledge, seminar model	Subject oriented simulation	Multiplier model Problem based learning Coaching Self learn centre

Therefore....

Action Learning!

On Macro Level:

Building competencies which are relevant...

on the basis of **real life processes** and challenges as a reference point (what for) AND **learning opportunities** (how to learn, where to learn, with whom to learn)

On Micro Level:

Activity and collaboration orientated learning methods in organised learning environments

Walk the talk

Beaty 2003

Theory matches German Tradition....

Dual System of Vocational Learning: "Apprenticeships"

The backbone of German Industry and high skilled quality work

Basic characteristic of the system: **in** the work process **for** the work process from day one

Learning: cognitive apprenticeship: work with and learn from those who are really doing it, "the Masters"

Integration of doing and insight

Work and reflect

70ies: Academisation of vocational training: gap between theory and practice emerged "practice shock"

Since late 80ies: process-orientated learning in initial and continuing training as a new paradigm: action research funded by Ministry of Education and Research, coordinated by Federal Institute of Vocational Educational and Training (BIBB) (Modellversuche)

Key Concept of vocational training....

Principle of complete action

Inform

Plan

Decide

Act

Control

Evaluate

Modell der vollständigen Handlung

Work activities are always targeted and intentional and the basis of mental concepts of the work process. These are not always fully explicit but can also be implicit and automated. These operative representations integrate visual and verbal concepts of the process.

Regulation of work processes means that in a regulatory circle the aim of the process is defined and the result is evaluated.

Plans of action can be also be fine-tuned and made more explicit through reflection and verbalization during the process.

German Tradition....

Impact on Higher Education:

Maximise contact between HE and fields of practice.

Two-way communication and common research process **at eye level**

"Dualisation" of Higher Education Studies: **Dual Studies**

Integrating academic studies and work in a company

More than 100.000 students in >1500 programmes

https://www.dhbw.de/english/dhbw/cooperative-education-at-dhbw.html

https://www.oth-regensburg.de/en/study/course-overview/dual-cooperative-study.html

" Teaching philosophy" of Universities of Applied Sciences in Bavaria...

„Learning happens in an individual by actively confronting him/herself with new knowledge.
This confrontation can happen in different forms: alone, by observation, in conversation, or in interaction with other learners, by doing assignments or working with texts or through handling technical devices.
Overall, learning is a targeted activity to appropriate or understand something.

For higher education this means that **the learner is in the centre of learning**.
The mission of the teacher is to enable learning, to **design learning environments**, which **enable and encourage the learner's own activities**.
Teachers are learning enablers and learning compagnions.

The approach of **pedagogical constructivism** is the scientific foundation of competency orientated teaching.
The DIZ promotes this approach as Universities of Applied Sciences want to teach relevant and useful knowledge rather than dead knowledge which is separated from the future field of practice.
The Universities of Applied Sciences want to support young humans to develop to citizens who can cope with the demands of transformative societies."
https://www.diz-bayern.de/diz/aufgabe/lernphilosophie, transl. ISOB, emphasis added

Some approaches to integrate theory and practice in HEI....

Internships

Project learning

Bachelor/Master thesis based on working on a real-life problem of a company

Integrating of cases from regional companies in teaching

Problem Based Learning Teaching Methodologies

Encouraged by....

Wettbewerb Innovative Lehre

https://www.oth-regensburg.de/fakultaeten/architektur/aktuelles/aktuelles-dateilansicht/news/einblicke-in-die-innovative-vielfalt-der-lehre.html

Some methodological Approaches....

Teaching vs. Expert Peer Learning....

Didactics of active methods of **teaching**:

- Problem Based Learning

- Experimental Learning

- Just in time Teaching

- Learning assignments

- Expert interview

Aim: Development of Learnability (Nyhan) as a personality trait.

Learning professionals are professionals in learning and supporting learning

Experiential Learning....

Learning is the critical reflection of the difference between an experience vs. my prior concepts, with the intention to explain these. New concepts are the result of a negotiation of prior concepts and new phenomena

1 Experience: I experience something that derives from my expectation

2. Reflection: I reflect about the experience, using my prior concepts

3. Abstract conceptualisation: I abstract from the reflection a new concept

4. Active experimentation: I act on the basis of the new concept to test it for applicability

Take away: In order to facilitate deep learning, we have to design learning experiences which allow for experiencing phenomena, reflect on the interpretation of these phenomena, abstract new concepts from them, and test these by experimenting

Kolb,D.A.1983: Experiential Learning

Exemplification....

Being competent in the illustration of concepts

Active construction on the basis of a concept

Seeing the concept as the commonality of various examples

Example: "She stayed on her chair and moved to the desk" – we see an office chair with small wheels

But we see a chair also in a wheelchair a throne, a seat, etc.

Take away: To learn from examples I must learn to abstract the concept from one or more examples and transfer the concept by constructing another example

Watson/Mason (2003): Mathematics as a constructive activity

Project Learning....

Enquiry-based learning

Selection and evaluation of information to solve an open problem.

A project is a timed activity with a concrete result

Claim: concepts are learned best when the learning is situated in an actual context

Example: the concept "force" is best learned when discussed in the context of the forces at work in a bird wing in action...

A guiding/driving question provoked inquiry, often in collaboration, which inspires skills like communication, evaluation, selection of information

The acquisition of knowledge is required to solve the problem and finish the project successfully

Yet, the project is not primarily designed to measure/test the knowledge by transfer from abstract to practical, but to **inspire interest and meaning**

Problem: effective deep learning, but time-consuming. Often in conflict with examination/curricular requirements

Buck Institute (2012): Project based learning for the 21st century

Peer Instruction....

Students are confronted with a challenge, which they try to solve in small group work.

Then they present what they found out and discuss their solution.

The teacher adds some concepts if needed and the students improve their presentation

"ConcepTests"

www.learningcatalytics.com

Mazur (2007): Peer Instruction

Just in time teaching....

Claim: Intrinsic motivation increases deeper cognitive processing

The teacher posts short questions that require the application of key concepts already before the lesson.

He/she analyses the answers

The lesson itself builds on the understanding and gaps in understanding shown

Requires virtual communication (as Moodle or Email)

Wider concept: **Flipped classroom**

Simkins, S./Maier, M. (2010): Just in time teaching

Deep reading....

All prior methods require that students actually do read before the lesson.

A reading test can be the prerequisite for participation

Guiding questions can effectuate a deeper reading and

E.g.: Describe five conceptual problems that the text addresses and answer two of these

Write a graphical concept about the text

Write a short song about the text

Roberts/Roberts: (2008): Deep reading… IN: teaching Sociology 36(2), p. 125-140

- Stahl, T. (2002): Emergence of new partnerships: The learning region and its potential roles in lifelong learning. In: Colardyn, D. (ed.): Lifelong learning: which ways forward?, S. 143-153, Utrecht

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- Beaty, L. (2003): Action Learning. Ltsn Continuing Professional Development Series No 1 https://www.advance-he.ac.uk/knowledge-hub/action-learning

- Kolb,D.A.1983: Experiential Learning

- Watson/Mason (2003): Mathematics as a constructive activity

- Buck Institute (2012): Project based learning for the 21st century

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General Principles

Abstract:

Make and revise mental models (concepts) from experience

Reflect:

By exchanging perspectives (e.g. With another person). Talk, explain...

This is easier among peers rather than hierarchical "know all – know nothing" relationships. Joy of contact and common interest.

Collaborative inquiry.

Experiment:

Concept meets reality

Experience:

Acquiring new information from the environment.

Job of teacher: scaffolding. Build a guiding structure that guides concept and sense making, but is supportive and non-directive

Palfreyman 16

Teaching vs. Expert Peer Learning....2

For professionals:

- Collaborative self-development

- Knowledge ecology

- Community of Practice

- Learning Communities

- Action Research

- Peer Consultation

- Intervision

- Quality Circle

Conclusion:

Immersion of HEI in the community

Learning in practice, for practice, with practice

Concept of co-researching stakeholders

Requires close contact, network, and collaboration with businesses, society, and the education and community development community

Example of University – Business – Society Cooperation:

Action Research in The Cluster of the Sensors Industry

The Cluster of the Sensors Industry

Association of businesses of the Sensors Industry in Bavaria

HEI

Other relevant stakeholders

80 companies

200 members

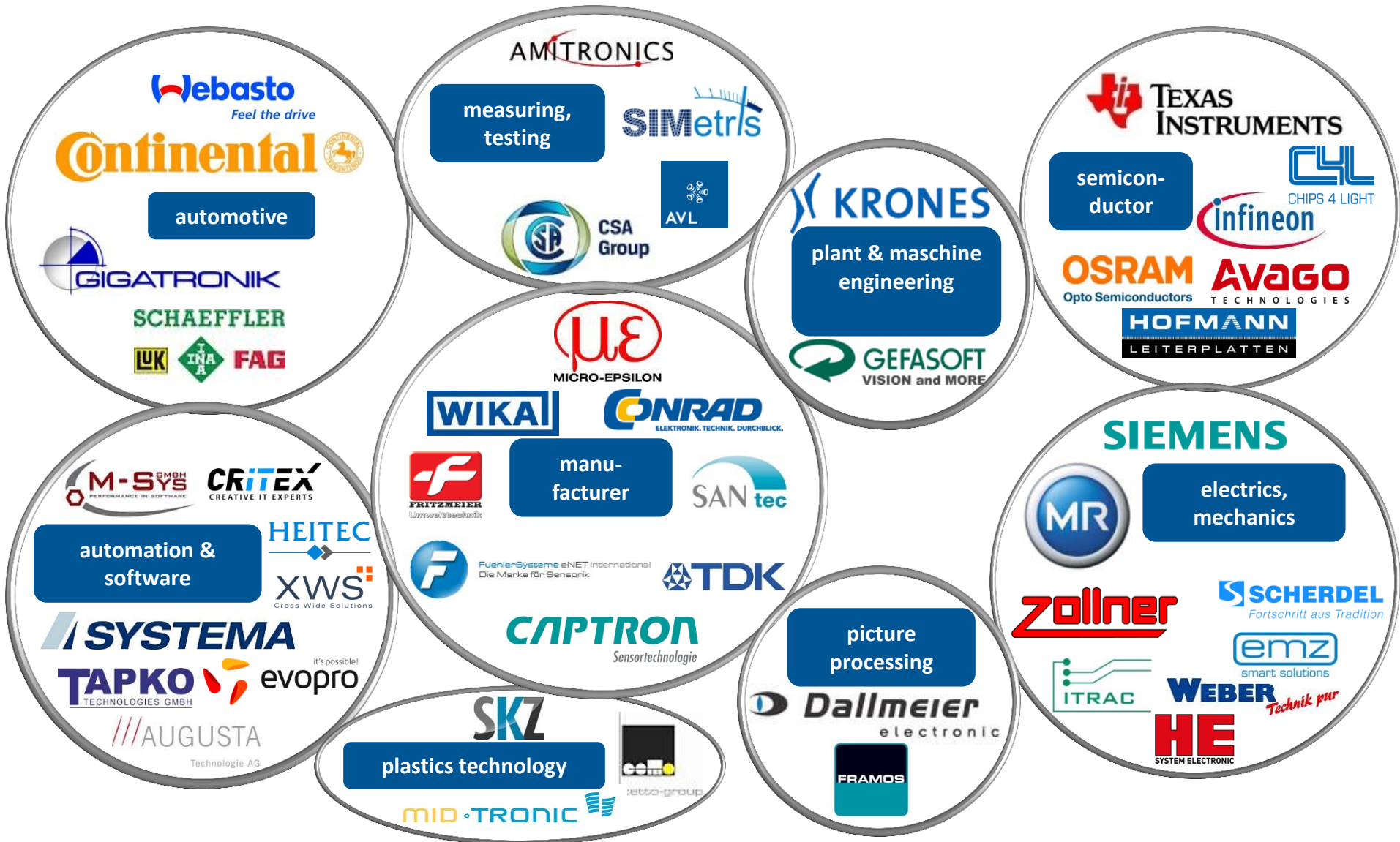Initiated by the federal state of Bavaria with the Municipality of Regensburg
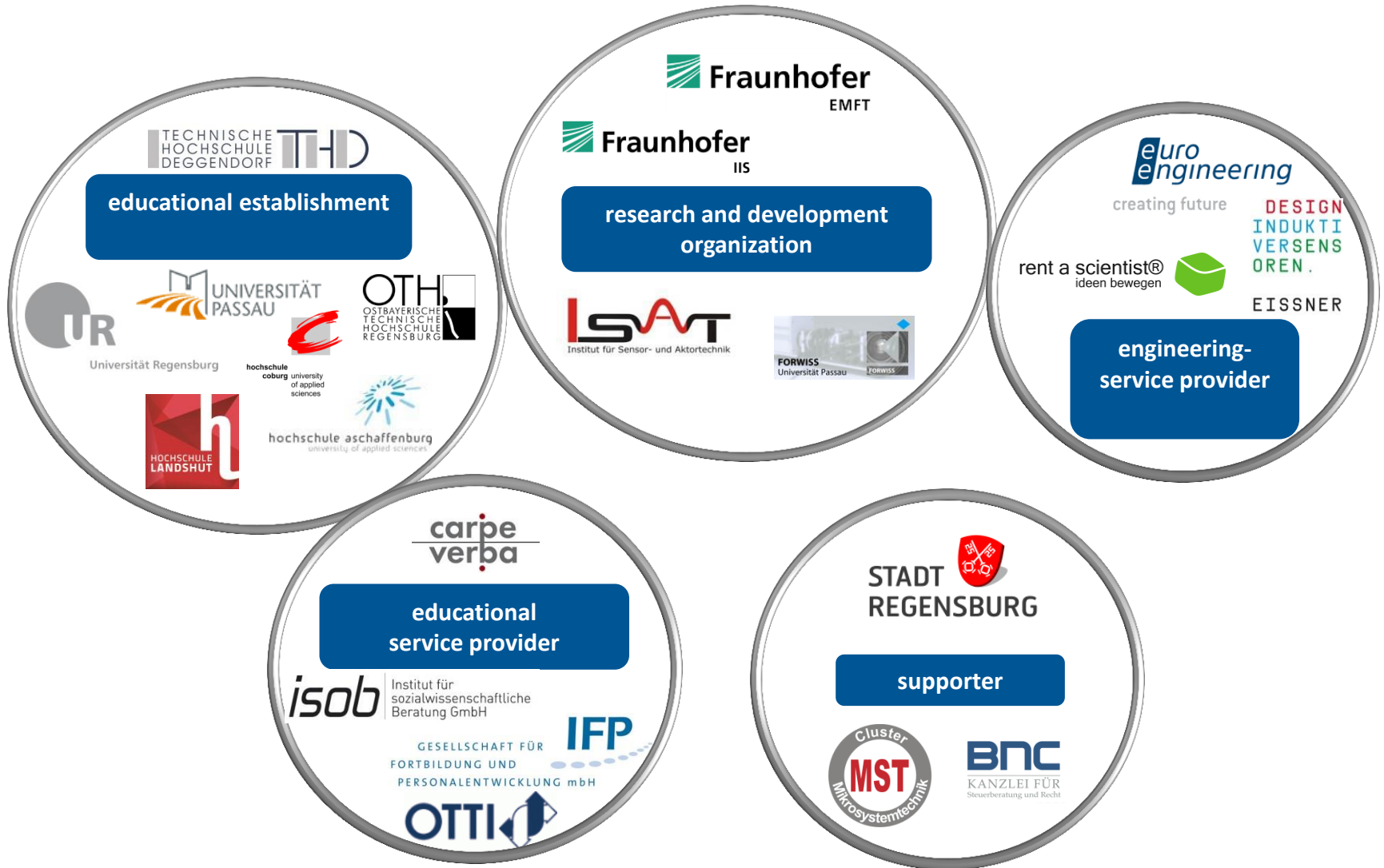

About 15 permanent staff

Laboratories

Situated in TechBase Regensburg

Member Companies

Member Companies

educational establishment

TECHNISCHE HOCHSCHULE DEGGENDORF — THD
UNIVERSITÄT PASSAU
OTH OSTBAYERISCHE TECHNISCHE HOCHSCHULE REGENSBURG
UR — Universität Regensburg
hochschule coburg university of applied sciences
HOCHSCHULE LANDSHUT
hochschule aschaffenburg university of applied sciences

research and development organization

Fraunhofer EMFT
Fraunhofer IIS
ISAT — Institut für Sensor- und Aktortechnik
FORWISS Universität Passau

engineering-service provider

euro engineering creating future
rent a scientist® ideen bewegen
DESIGN INDUKTI VERSENS OREN.
EISSNER

educational service provider

carpe verba
isob Institut für sozialwissenschaftliche Beratung GmbH
IFP GESELLSCHAFT FÜR FORTBILDUNG UND PERSONALENTWICKLUNG mbH
OTTI

supporter

STADT REGENSBURG
Cluster MST Mikrosystemtechnik
BNC KANZLEI FÜR Steuerberatung und Recht

Strategic Partnership for Sensor Technology
Objectives and Activities

Boost potential of further innovation

- Enterprise workshops
- Laboratory presentations
- Colloquia

Networking enterprises

- Cooperation agreements
- Cooperative projects
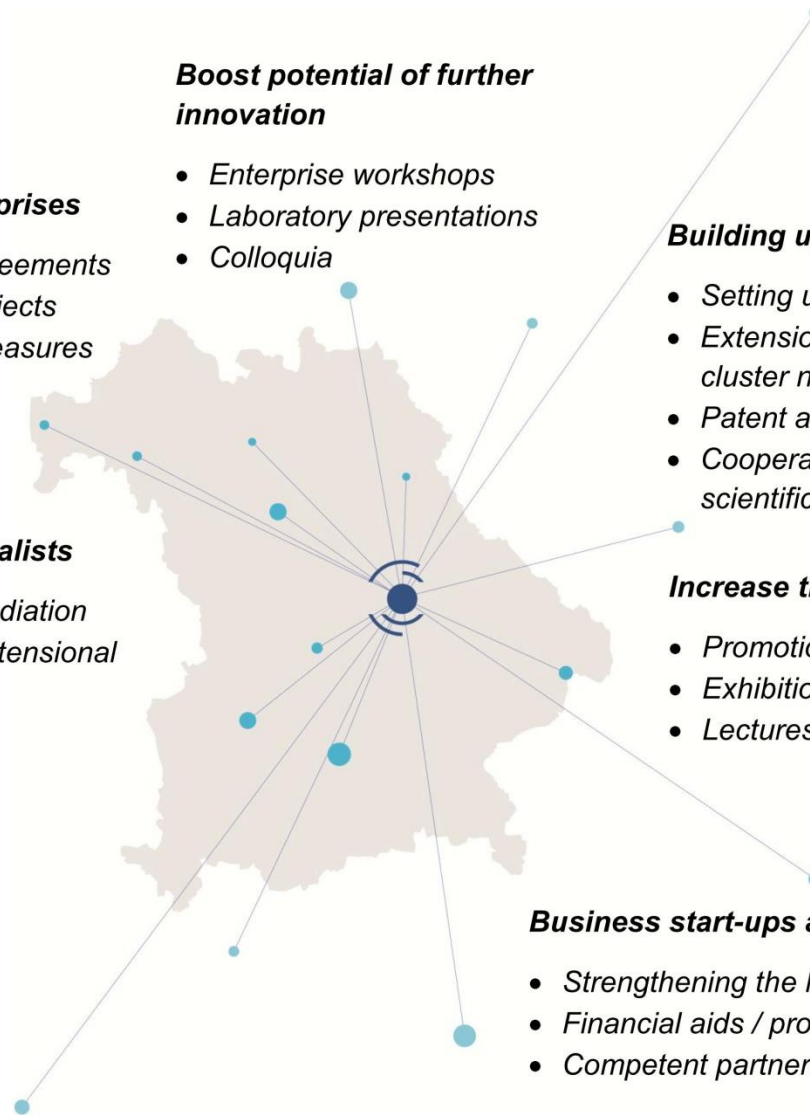- trust-building measures

Building up and extending know-how

- Setting up a center of expertise
- Extension of the Bavarian sensoric cluster network
- Patent applications
- Cooperation with industry and the scientific world

Training of specialists

- Pooling and mediation
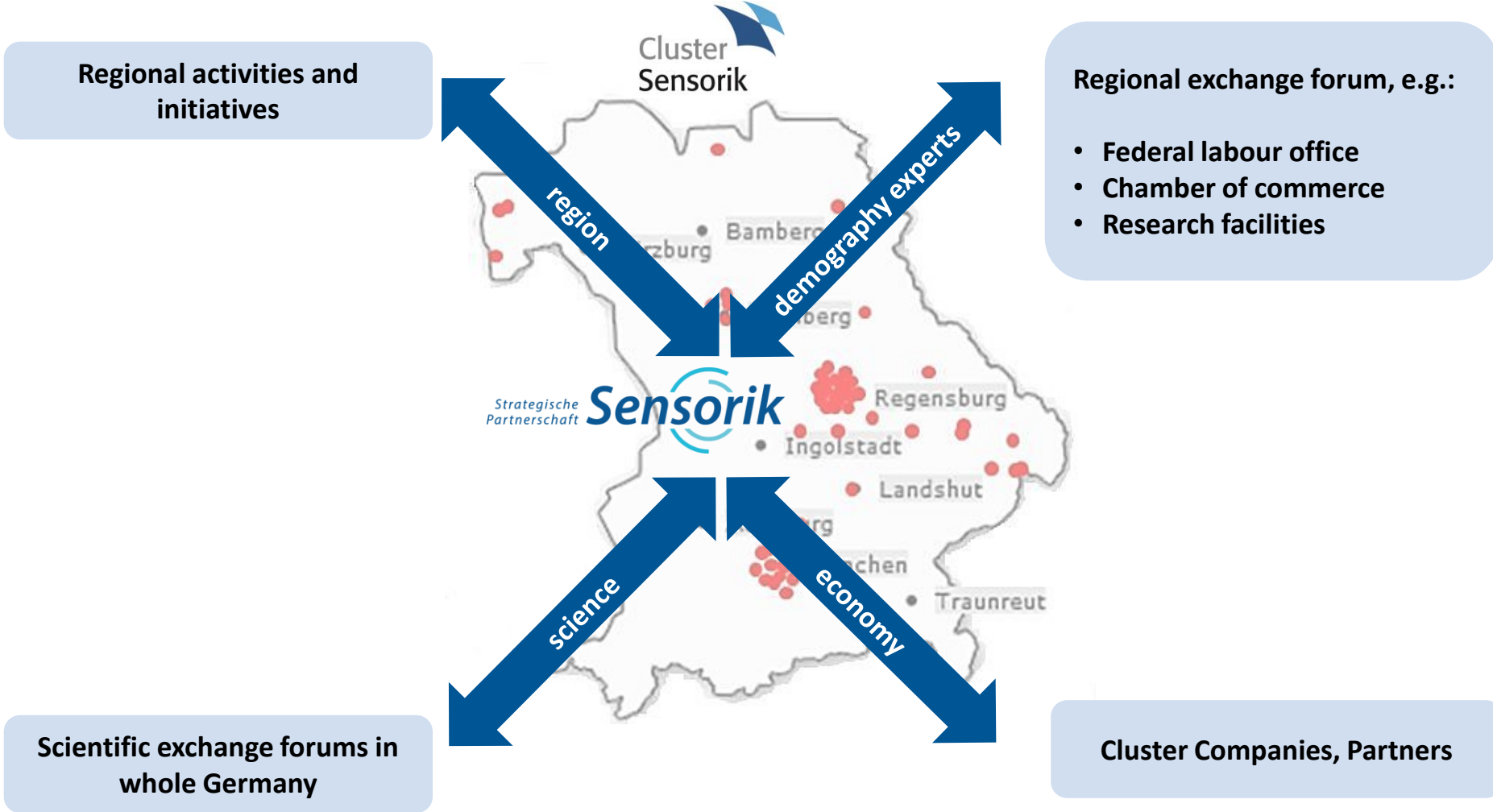- Training and extensional studies

Increase the level of awareness

- Promotion of business locations
- Exhibition appearances
- Lectures and conferences

Business start-ups and job creation

- Strengthening the level of competitiveness
- Financial aids / promotion
- Competent partners / Business Angels

Success Factor of regional Networking –
Cluster as a gateway for all partners

Regional activities and initiatives

Regional exchange forum, e.g.:

- **Federal labour office**
- **Chamber of commerce**
- **Research facilities**

Scientific exchange forums in whole Germany

Cluster Companies, Partners

region

demography experts

science

economy

Action Learning Project:

Developing Digital Learning Strategies for SME in major German Ministry of Education and Research Project "Codiclust"

(ISOB Strategic Partner SoWiBeFo e.V.)

Common action learning of

University of Regensburg:
Professorship for Visual Learning; Centre for Didactics in Higher Education

Action research specialist (SoWiBeFo e.V.)

Cluster organisation SPS e.V.

50 SME of all sizes

Development of

- a service Unit for Digital Learning within the Cluster

- Coaches for Digital Learning: Professional profile and training

- 50 In company Navigators for Digital Learning

- 30 Roadmaps for Digital Learning in companies developed and implemented

Common Thematic Learning on:

- Digital tools
- Organisational development
- Workplace Learning Needs Analysis
- Staff training
- Learning communities
- Project planning and execution
- Presenting
- Filming
- National and international networking
- Survey design and analysis techniques
- 85 related good practices of Digital Learning
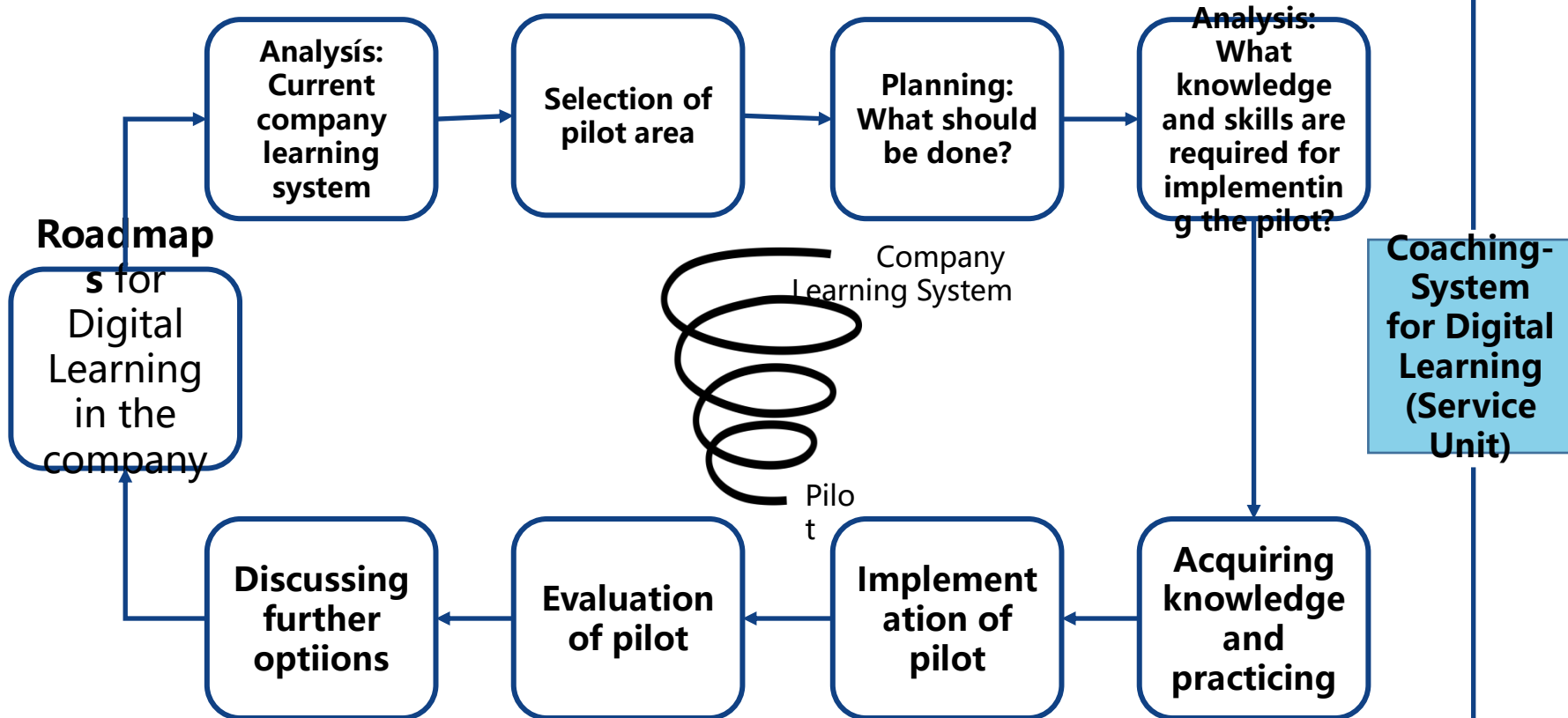- Structures of national research support programmes

Organisational Development „Digital Learning"

Presentation/ Discussion During the training   Continuous consultancy   Cooperations

Good Practice Examples

From the company´s own practice and from external pilot projects

Analysís: Current company learning system → **Selection of pilot area** → **Planning: What should be done?** → **Analysis: What knowledge and skills are required for implementing the pilot?**

Roadmaps for Digital Learning in the company

Company Learning System

Pilot

Coaching-System for Digital Learning (Service Unit)

Discussing further optiions ← **Evaluation of pilot** ← **Implementation of pilot** ← **Acquiring knowledge and practicing**

Input of knowledge

z.B. Theories of learning & didactics, Producing media, using of relevant tools

Seminar „Navigators for digital learning"   **Online Lernen**   **Continuous learning**

Take away:

Universities as a non-hierarchical part of a regional innovation eco-system

From „knowledge transfer" to co-creation, open-innovation and common action research

Universities can develop the regional environment as a field of inquiry and participation

Contributing to innovation and integrating company and society actor expertise can make the in-University teaching and learning more relevant

The regional network can be a critical learning resource for Universities and smoothen the transition of staff and students inside theregion rather than losing them

Building research and development capacities

Requires agility and adaptability and openness to co-creation

This is only possible through person networks rather than institutional relations

(these follow)

Shaping such interfaces and encouraging such network building on all levels is a critical strategic task for University Management

Take away:

Creating hubs and spaces (TechBase; Degginger)

Bringing the University to the City (events, talks)

Being present in the City society

Being relevant, e.g. advice for SME in the current crisis

Science communication (Podcast, newspaper articles, interviews)

Regional society as a reference point, not only scientific journals

Action research is process orientated, solution orientated, not along with scientific disciplines

University internal rules and regulations must reflect this: appropriate indicators of performance

Take-away for Programme Andragogy:

Think   →   Read

Do   ←   Talk

Claas Triebel
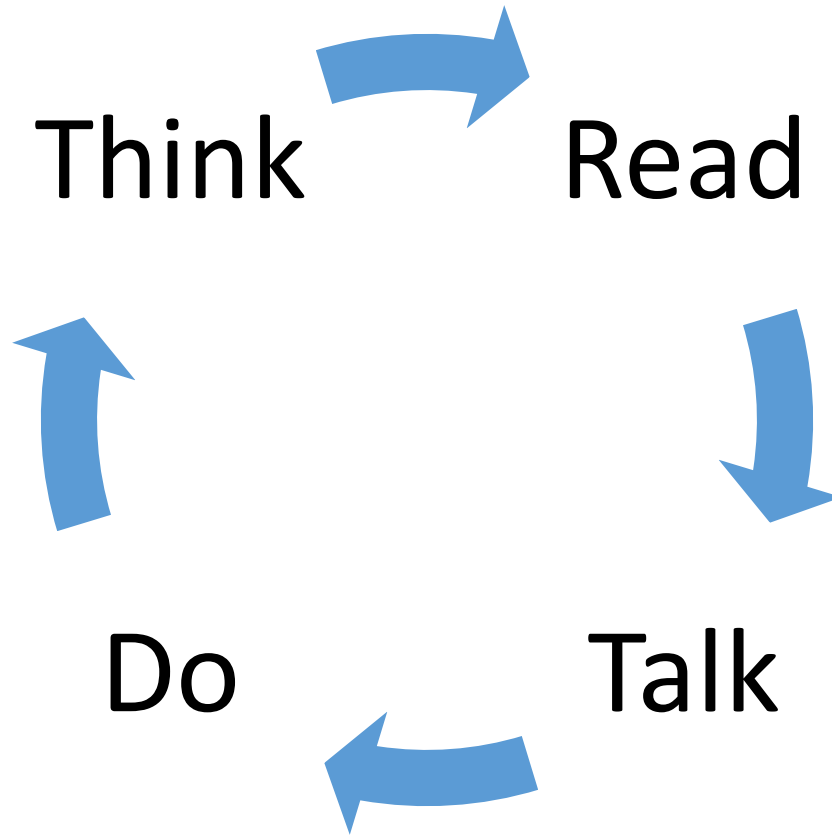
Take away for Programme Andragogy:

Discuss/reflect for each item in curriculum:

- What is the underlying problem/phenomenon, that inspired you to include this point in the programme?

- How would you see that the knowledge you want to acquire has been successfully applied?

- Where would be a field for piloting an intervention based on this knowledge?

- What would be a useful intervention?

Potential assignment: Please design a learning framework for teaching/learning this point. Detail learning goals and learning strategy…

Resources on Didactics in Higher Education

Pool of constructivist learning methodologies:

http://methodenpool.uni-koeln.de/uebersicht.html

Teaching methodologies for Universities of Applied Sciences: Centre for Didactics in Higher Education

https://www.diz-bayern.de/

https://www.diz-bayern.de/publikationen/dina-und-tagungsbaende
Wide publication program, downloadable for free (in German)

Centre for Didactics in Higher Education, University of Regensburg

https://www.uni-regensburg.de/zentrum-hochschul-wissenschaftsdidaktik/das-zhw/index.html
Focus on Digital Teaching, Video Studio
„GRIPS" Tutoring for digital teaching

Resources on Didactics in Higher Education

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