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# eCOMPETENCE IN EUROPEAN PERSPECTIVE - RELEVANCE, CONCEPTS AND MEASURES FOR eCOMPETENCE DEVELOPMENT

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## **Symposium on eCompetence and eDidactics**

Humboldt-Universität zu Berlin

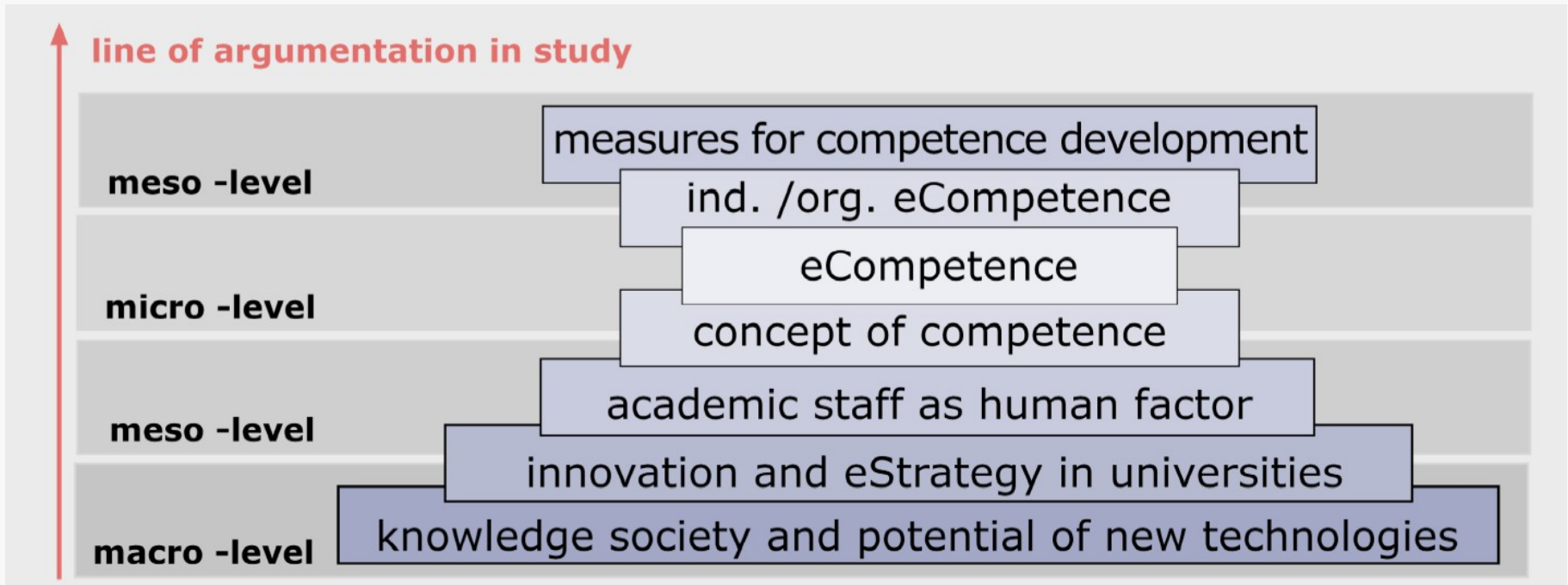
28. August 2006

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1. RELEVANCE OF THE eCOMPETENCE TOPIC
2. PROJECT BACKGROUND
3. THE CONCEPT OF COMPETENCE
4. FROM COMPETENCE TO eCOMPETENCE
5. MEASURES FOR eCOMPETENCE DEVELOPMENT
6. DISCUSSION

## PART 1: LEVELS OF eCOMPETENCE RESEARCH IN HIGHER EDUCATION



## PART 1: EUROPEAN COMMISSION POLICY DISCOURSE ON INNOVATION

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### EU KNOWLEDGE SOCIETY

(EU Working Paper 419, 2005)



Europe moves towards a ***post-industrial society***.

***Knowledge*** and ***research*** are key factors for its growth.

## **PART 1: MAIN OBJECTIVES OF THE LISBON STRATEGY**

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### **THREE LISBON OBJECTIVES**

(Verheugen Speech/05/647, 2005)



1. To raise EU capacity to grow through knowledge, research and innovation;
2. To make Europe a more attractive place to invest and work;
3. To create more and better jobs.

## PART 1: ROLE OF UNIVERSITIES IN LISBON STRATEGY

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### UNIVERSITIES HAVE VITAL ROLE IN FIRST LISBON OBJECTIVE

***1. To raise EU capacity to grow through knowledge, research and innovation***



### MAIN FUNCTIONS OF UNIVERSITIES

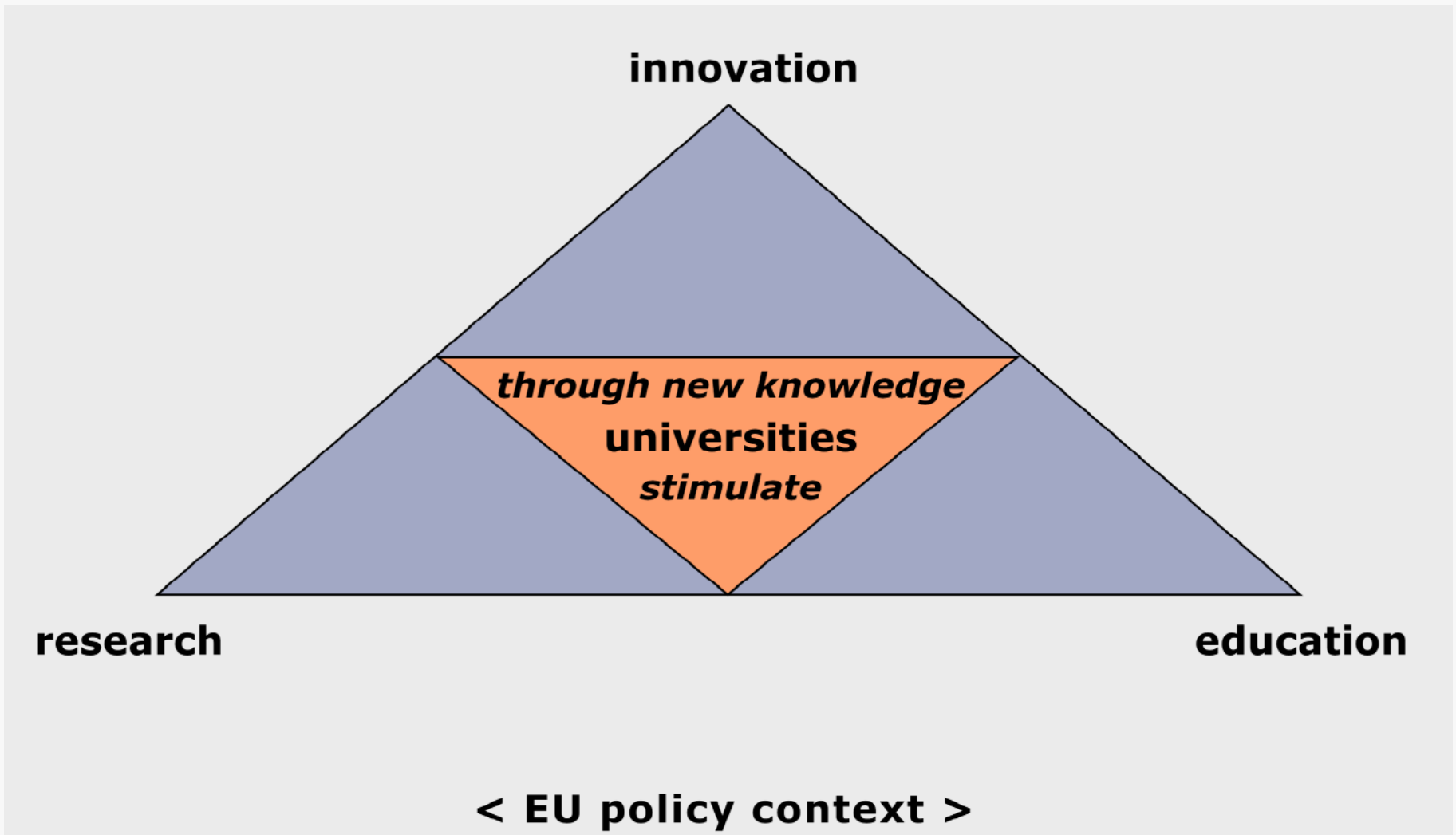
(EU Communication 152 final, 2005)

***Research + teaching*** are the core business of universities.

Research creates ***new knowledge*** + teaching transmits new knowledge.

New knowledge, applied in economic and social sectors, drives ***innovation***.

## PART 1: KNOWLEDGE TRIANGLE IN LISBON STRATEGY



**To strengthen the three poles, the EU needs innovative + effective universities**

## PART 1: CURRENT STATE OF EUROPEAN UNIVERSITIES

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### PROBLEM

**Potential of universities** to act within Lisbon strategy is weakened by external + internal change.

### EXTERNAL CHANGE

**Twin drivers** of change: globalisation and technology -> raise competition.

### INTERNAL CHANGE

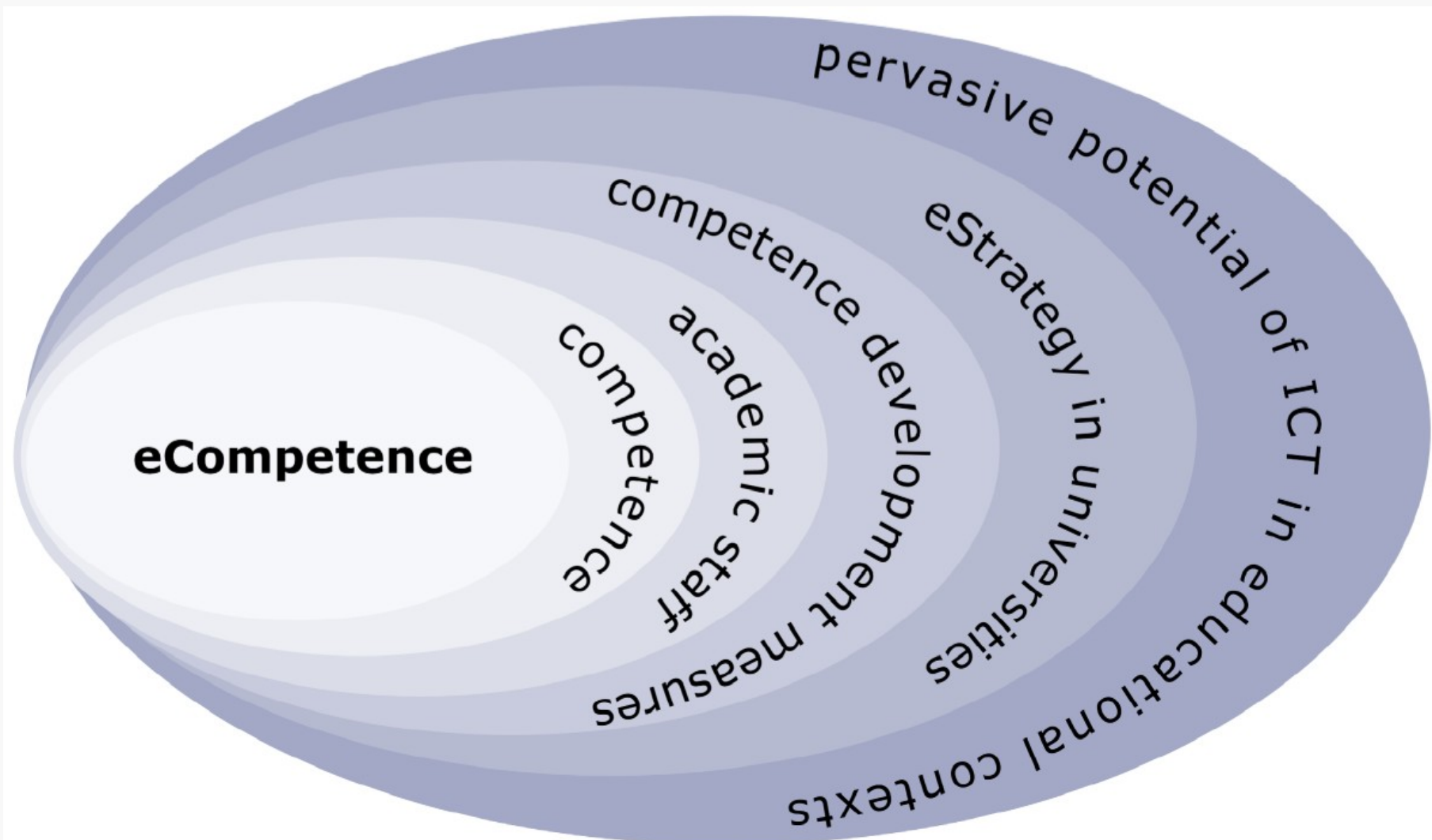
Financial constraints, restructure of internal organisation, set up of services, entrepreneurial elements + market-driven factors -> commercialisation of education (Enders 2004).

### IMPACT OF CHANGES ON UNIVERSITIES

Necessity to **re-think role + organisation** of universities (Nowotny 2001).



## PART 1: LAYERS IN eCOMPETENCE RESEARCH IN HIGHER EDUCATION



## PART 1: THE ROLE OF ICT IN EDUCATION INNOVATION

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### ICT POTENTIAL IN UNIVERSITIES

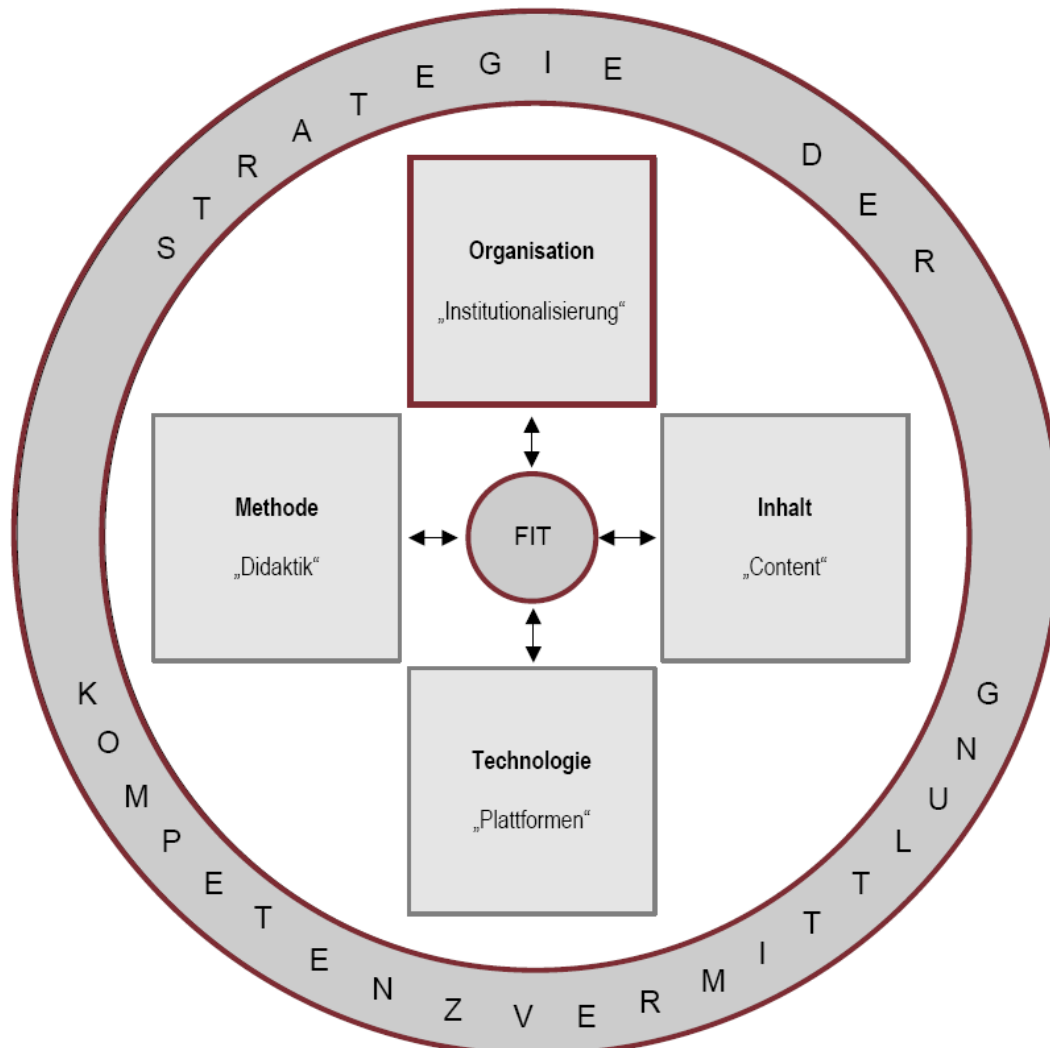
1. ICT have potential to enhance ***production + transmission of knowledge***.
2. ICT can be efficiently applied to ***enhance teaching + learning*** activities.

### QUESTION

***How*** can potential of ICT be adequately used in higher education?

## PART 1: CURRENT FOCUS IN eLEARNING INTEGRATION DISCOURSE

**Source: Jan vom Brocke 2005**



[vom Brocke 2005]

## PART 1: THE SEARCH FOR STRATEGIC CHANGE MODELS

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### IMPLEMENTATION CHALLENGE

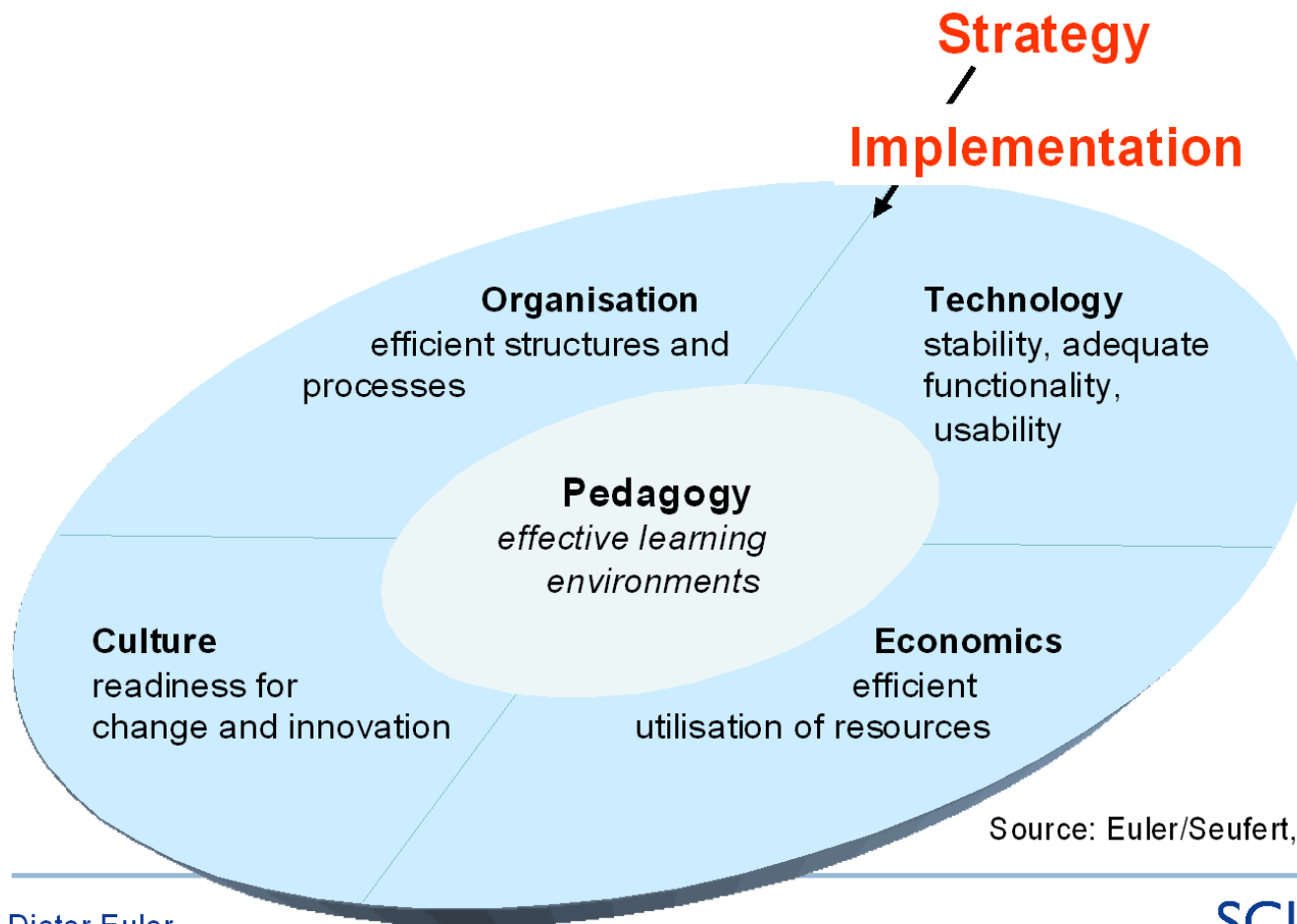
Project - based eLearning has not generated sufficient ***impact*** to implement ICT.  
***Sustainable integration of ICT*** in universities as strategic challenge.

### eSTRATEGY AS DESIDERATUM

Need for an ***institutional strategy*** in focus of current eLearning discussion.  
Desideratum is ***eStrategy*** which guides and frames ICT integration in university.

## PART 1: ICT CHANGE MANAGEMENT MODEL - SCIL

Model of Swiss Centre for Innovations in Learning (SCIL), University of St. Gallen



Source: Euler/Seufert, 2003, 6ff.

## PART 1: eCOMPETENCE WITHIN STRATEGIC CHANGE MODELS

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### THE HUMAN FACTOR

eCompetence research represents **one aspect** within wider eStrategy. Its main interest is on the role of the human factor in technological innovation.

### FOCUS ON ACADEMIC STAFF

Academic staff plays a key role in education innovation. They are 'process owners', 'gatekeepers' of research and teaching within university (Kerres, 2005).

### NEED FOR COMPETENCE DEVELOPMENT

Staff members need to **be aware of** and to **understand** the innovative potential of technology that is available for their research and teaching (Salmon 2004).



They need to **develop new competences** to cope with the technological challenges in their workplace.

## PART 1: eCOMPETENCE DEVELOPMENT MEASURES FOR ACADEMIC STAFF

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### eCOMPETENCE DEVELOPMENT

eCompetence is, at its core, dealing with the ***development of personal competences*** in the creative use of ICT.

### APPROPRIATE MEASURES

Universities need to set up ***appropriate measures*** to develop the eCompetence of its academic staff.

### CONCLUSION

Academic staff as target group for eCompetence development measures.

## PART 2: PROJECT SCOPE

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### TITLE

EU[eComp]Int: European eCompetence Initiative for Academic Staff

### Scope

- project **life time** is 26 months: 01.04.2004 - 31.05.2006
- total **budget**: 491.000 EUR
- **23** involved HE institutions



## PART 2: CONSORTIUM MEMBERS

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### A. PROJECT COORDINATOR

University of Dortmund - Center for Research on Higher Education and Faculty Development, Germany

### B. WORKGROUP COORDINATORS

University of Aalborg - Department for Learning, Denmark

IFF Institute for Interdisciplinary Studies of Austrian Universities, Austria

Open University of the Netherlands - Educational Technology Expertise Centre, Netherlands

National University of Ireland - Centre for Excellence in Learning and Teaching, Ireland

### C. CONSORTIUM PARTNERS EU/ EEA

Universidad Nacional a Educación a Distancia UNED (CSI), Spain

Bologna Research Institute Scienler, Italy

Université Technologique de Compiègne - Laboratoire d'Ingénierie Pédagogique, France

University of Helsinki - Lifelong Learning Institute Dipoli at the Helsinki University of Technology, Finland

Universidad Autónoma de Barcelona - l'Oficina Autònoma Interactiva Docent, Spain

University of Joensuu - Department of Computer Science, Finland

University of Athens - Department of Informatics and Telecommunications/ Network Operation Centre, Greece

University of Twente - Faculty Behavioral Sciences, Netherlands

University of Leuven - eLink, Belgium

University of Rome La Sapienza - European Ph.D on Social Representation and Communication

Agricultural University of Athens - Laboratory of Agribusiness Management, Greece

University of Roma Tor Vergata - MIFAV and ISIM (Interface and Multimodal Interactive System) Lab, Italy

Altran R&D Department, Spain

### B.3. PROFILES OF NON EU/ EEA CONSORTIUM MEMBERS

University of St. Gallen - SCIL - Swiss Center for Innovations in Learning, Swiss

University of Pretoria - TLEI Telematic Learning and Education Innovation, South Africa

Isik University - Informatics Research and Development Center, Turkey

Riga Technical University - Distance Education Study Centre, Latvia

Liepaja Academy of Pedagogy, Latvia

## PART 2: PROJECT CONSORTIUM - PEOPLE

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## **PART 3: MAIN RESEARCH QUESTIONS IN PROJECT**

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### **1. WHAT IS eCOMPETENCE?**

Conceptual clarification of eCompetence term and its main theoretical implications.

### **2. WHICH MEASURES FOR eCOMPETENCE DEVELOPMENT ARE TAKEN WITHIN UNIVERSITIES?**

Survey of empirical data within the universities which participate in project.

## PART 3: NINE CONCEPTS OF COMPETENCE

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*Franz E. Weinert*

### **WEINERT – NINE DIFFERENT COMPETENCE DEFINITIONS:**

general cognitive ability; specialized cognitive skills; the competence - performance model; the modified competence-performance model; objective and subjective self-concepts; motivated action tendencies; action competence; the model of key competencies; and meta-competencies.

These approaches are ***mutually exclusive***. Any attempt to integrate different competence approaches leads to a '***hyper-definition***', which lacks precision (Weinert 1999, p. 6; p. 15).

## PART 3: THE CONCEPT OF ACTION COMPETENCE

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### CONCEPT OF ACTION COMPETENCE IN EDUCATIONAL RESEARCH

The action competence concept is commonly used and adequate for ***studies in educational contexts***.

It is a ***holistic*** approach.

It combines ***cognitive*** and ***motivational*** components into a coherent ***dispositional system***.

## PART 3: A SPECIFIC ACTION COMPETENCE DEFINITION

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Competence is not limited to the acquisition of skills. Competences are expressed in an act of **performance** and are always related to a specific social **context**.

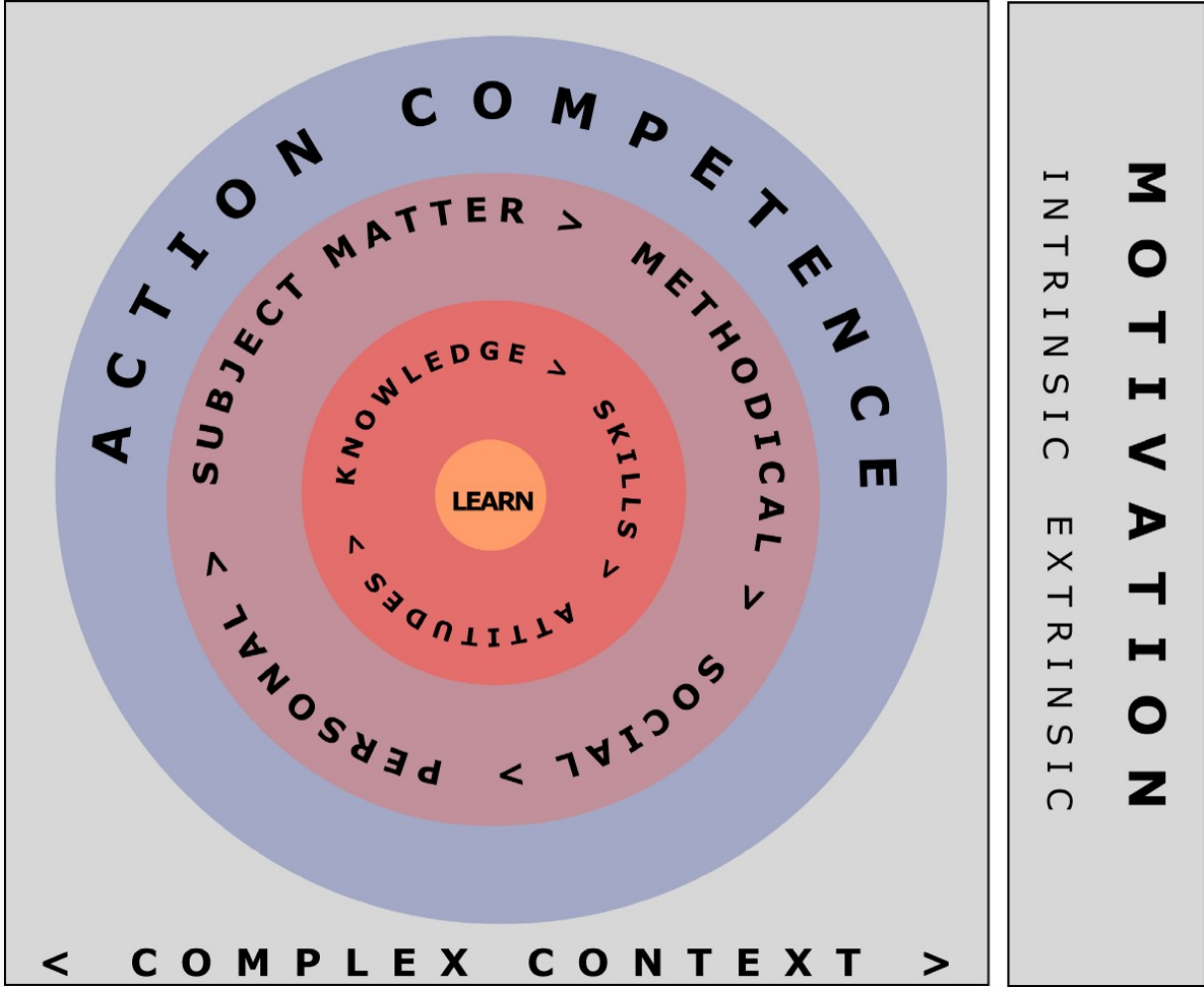


*Maria van der Blij*

With a focus on performance, competence can be defined as

***"... the ability to act within a given context in a responsible and adequate way, while integrating complex knowledge, skills and attitudes (Van der Blij, 2002)".***

# PART 3: GRAPHICAL MODEL FOR ACTION COMPETENCE



### KEY COMPONENTS

- learning -> process
- KSA -> dispositions
- 4 key competences -> areas
- action competence -> performance
- context -> complex, unstable
- motivation -> intrinsic/ extrinsic

## PART 4: FROM COMPETENCE TO eCOMPETENCE

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### eCOMPETENCE - WORK DEFINITION

***THE ABILITY TO USE ICT IN TEACHING AND LEARNING IN A MEANINGFUL WAY***

The definition of e-Competence distinguishes between ***INDIVIDUAL*** and ***ORGANISATIONAL*** eCompetence. Both, however, describe the ability to successfully use e-Learning technologies in routine educational practice.



## **PART 4: FROM COMPETENCE TO eCOMPETENCE**

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***INDIVIDUAL eCOMPETENCE*** of a teacher describes his/ her ability in using ICT in teaching and course delivery.

***ORGANISATIONAL eCOMPETENCE*** describes the structures, processes and policies in place that embed ICT use.

### ***INDIVIDUAL eCOMPETENCE***

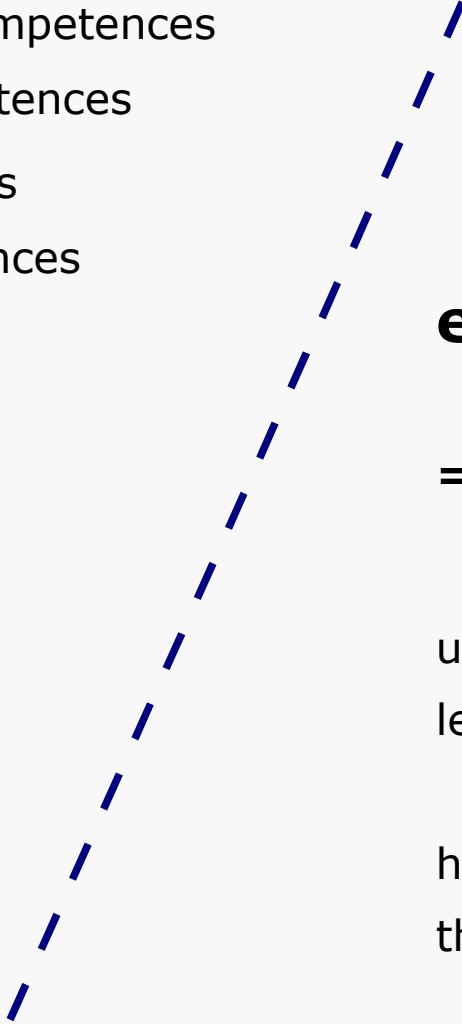
- to use ICT
- in teaching and learning scenarios

## PART 4: CHART INDIVIDUAL eCOMPETENCE

- subject-matter competences
- methodical competences
- social competences
- personal competences



**LECTURER**



### **eContext**

=

use of ICT in teaching and learning scenarios

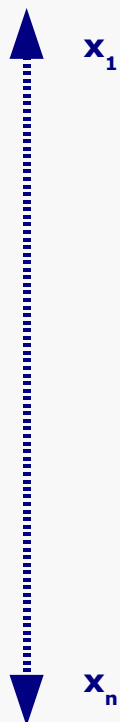
how to detail and specify the eContext?

## PART 4: APPROACH TAKEN FROM RESEARCH ON STAFF DEVELOPMENT

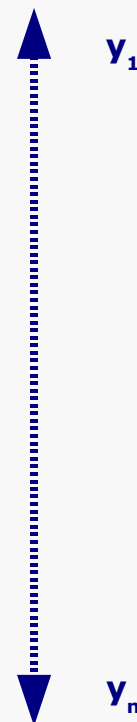
### TEACHING AND LEARNING SCENARIOS AS REFERENCE POINT

#### models of learning in case studies + ICT options

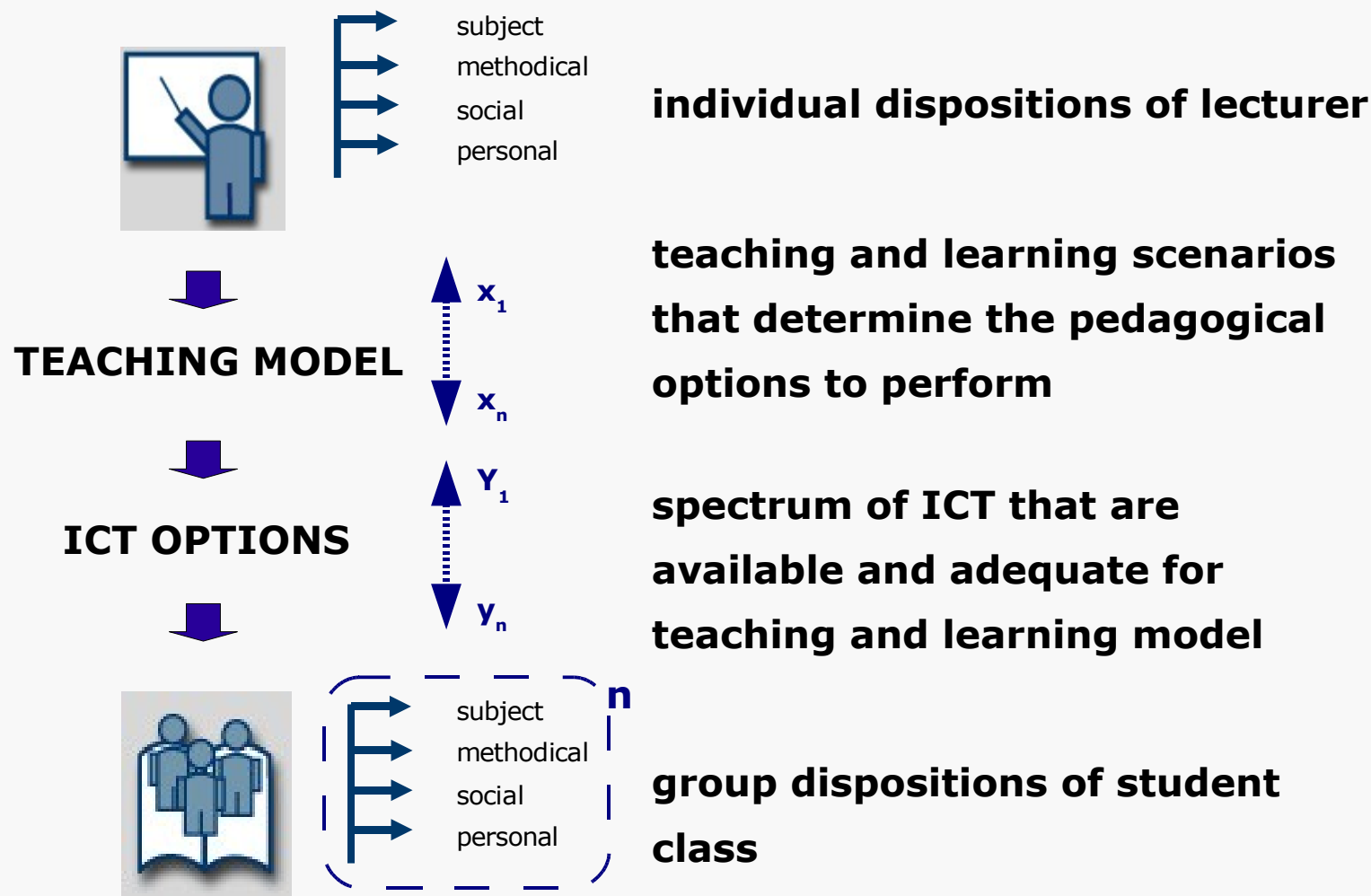
spontaneous learning  
 practise-oriented learning  
 exercise-based learning  
 experience-based learning  
 problem-based learning  
 explorative learning  
 performance-oriented learning  
 case-oriented learning  
 project-oriented learning  
 research-based learning



ICT options = spectrum of  
 electronic variables from pdf  
 to virtual classroom



## PART 4: SYNERGY MODEL FOR INDIVIDUAL eCOMPETENCE



## **PART 5: MEASURES FOR eCOMPETENCE DEVELOPMENT**

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### **QUESTION**

**By which measures do universities foster and encourage eCompetence of its academic staff members?**

## PART 5: RATE YOUR LEARNING STYLE

**Scales: When you learn new things related to ICT, how do you learn?**

**formal/ in training** <-----> **informal/ close to or on the job**

**temporary/ as single event** <-----> **continuous/ as process**

**guided/ with an expert** <-----> **self-directed/ own your own**

**collective/ in groups** <-----> **individual/ self-informed**

**ICT - specific/ as added, context-independent knowledge** <-----> **domain-specific/ applied in your work-context**

## **PART 5: MEASURES FOR eCOMPETENCE DEVELOPMENT**

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### **EFFECTIVE eCOMPETENCE PRACTICE SURVEY**

- 23 partner institutions in the project
- different cultural, professional and organisational backgrounds
- 33 effective practice descriptions to date

### **DEFINITION OF PRACTICE**

- Practice as organised way in which an individual/ a groups carries out a particular activity
- It is a continuous activity
- Largely composed on tacit knowledge, and heavily context-dependent.

### **EFFECTIVE eCOMPETENCE PRACTICE**

- Use of ICT in universities with particular focus on staff development measures

## **PART 5: QUALITATIVE RESEARCH INSTRUMENTS**

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### **QUESTIONNAIRE ON EFFECTIVE eCOMPETENCE PRACTICE**

#### ***Overview of Questions posed:***

Background/ challenge that led to implementing eComp practice/solution

eComp practice that addressed the challenge

Benefits of the effective practice

Shortcomings of the effective practice

Related future plans

Estimation of costs

Indication of replicability of practice on another campus

Indication of efficiency of practice related to needs

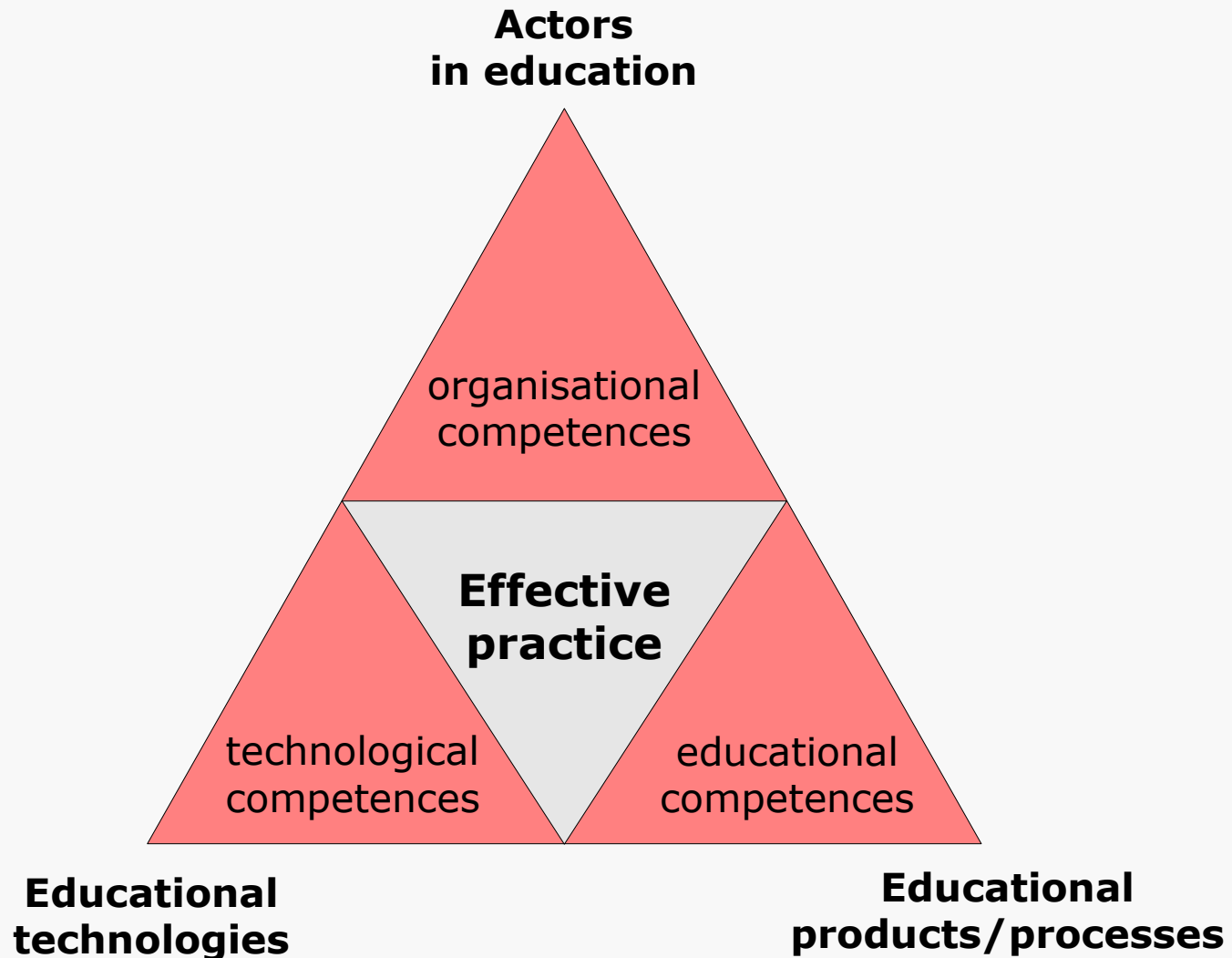


## PART 5: RESEARCH – EFFECTIVE eCOMPETENCE PRACTICE DATABASE

EU [eComp]Int THE EUROPEAN eCOMPETENCE INITIATIVE		
-- SURVEY AREA --		
EFFECTIVE PRACTICES DATABASE		
<a href="#">Training the Trainers - Government Funding Scheme</a>	Iain Mac Labhrainn CELT NUI, Galway	iain.maclaren@nuigalway.ie
<a href="#">e-class: asynchronous learning solution</a>	Dr George Chryssochoidis, Agricultural University of Athens, Laboratory of Agribusiness Management 75 Iera Odos GR-11855 Tel. +30-210 5294766. Email: chryssochoidis@aua.gr Mr Thanassis Makrandreou, Chief Technician, Laboratory of Informatics, 75 Iera Odos GR-11855 Tel. +30-210 5294202. Email: thanos@aua.gr	kehagia@aua.gr
<a href="#">Integrating Campus Systems</a>	Irene le Roux, Deputy Director, Telematic Learning and Education Innovation Dolf Jordaan, Project Manager, Telematic Learning and Education Innovation	irene.leroux@up.ac.za dolf.jordaan@up.ac.za
<a href="#">Training for academic staff in the use of WebCT and the facilitation of e-learning.</a>	Mrs Jill Fresen Project Manager Department of Telematic Learning and Education Innovation University of Pretoria Pretoria South Africa	jill.fresen@up.ac.za
<a href="#">Innovatic: A project designed to integrate ICT tools in the teaching practice of Education Faculty teachers at UAB (Autonomous University of Barcelona)</a>	Dra. Marina Tomàs Innovatic Project Coordinator Autonomous University of Barcelona (UAB) Faculty of Education Edific G-6 08193- Cerdanyola del Vallès (Spain) tel. +34 93 581 3197	marina.tomas@uab.es
<a href="#">Web Support: Faculty wide roll out</a>	Dr Dolf Steyn, Chief education consultant, TLEI, University of Pretoria	dolf.steyn@up.ac.za
<a href="#">Applying CRM Techniques in a eLearning solutions</a>	Altran SDB, Miguel Arjona, Technical Director, +34 91 744 05 17	marjona@altransdb.com
<a href="#">Using e-content to enhance learning in traditional classroom based teaching</a>	Maria Grigoriadou, Associate Professor, head of the "Educational and Language Technology" group, Department of Informatics and Telecommunications, University of Athens, Greece, Panepistimiopolis, GR-15784 Athens, Greece, Phone: +301 7275205; Fax: +301 7275214, gregor@di.uoa.gr	gregor@di.uoa.gr
<a href="#">Personalised learning environments accommodating learners' individual differences</a>	Dr. Kyparisia Papanikolaou, Research Assistant, member of the "Educational and Language Technology" group, Department of Informatics and Telecommunications, University of Athens, Greece, Panepistimiopolis, GR-15784 Athens, Greece, Phone: +301 7275205; Fax: +301 7275214, spap@di.uoa.gr, Home page: http://hermes.di.uoa.gr/lab/CVs/Papanikolaou.html	spap@di.uoa.gr
<a href="#">Evaluation of group works in eLearning</a>	Esko Marjomaa University of Joensuu Department of Computer Science P.O. Box 111 FIN-80101 Joensuu, Finland tel. +358 13 251 7957 fax +358 13 251 7955	esko.marjomaa@joensuu.fi
<a href="#">E-learning environment, Master and short courses</a>	Carlo Giovannella, MIFAV e ISIM Lab University of Tor Vergata, via della ricerca Scientifica 1, 00133 Rome, +39-06 72594524/4775	info@mifav.uniroma2.it
<a href="#">The e-class platform: a web-based open and cost-effective e-learning service.</a>	Costas Tsibanis, Univ. of Athens & Gunet, Technical Manager, Network Operation Center, University of Athens Panepistimiopolis Ilission 15784 Athens, Greece tel.: +30 210 7275631 k.tsibanis@noc.uoa.gr Lazaros Merakos Profesor Department of Informatics and Telecommunications University of Athens Panepistimiopolis Ilission 15784 Athens, Greece tel.: +30 210 7275323 merakos@di.uoa.gr	balaoura@noc.uoa.gr

## PART 5: COMPETENCE AREAS AND TYPES IN EFFECTIVE PRACTICES

Pfeffer, de Vries 2006



## PART 5: LEVELS AND PATTERNS OF eCOMPETENCE IN PRACTICES

Pfeffer, de Vries 2006

Pattern Level	Organisational	Technical	Educational
ADVANCED	New workflows, -loads New reward systems New business models	Self-developed tools Open archives	New applications Customized education Publication of content
INTER-MEDIATE	Educational support strategies, joint understanding Address subunits	Selection, integration Comprehensive environments CMS	Integrated programs Blended learning Shared content
BASIC	Provide infrastructure Individual teacher	Use, what is near you Basic IT skills Standard LMS	Fragmented programs ICT as supplement Standard course

## PART 5: EFFECTIVE PRACTICE CONCLUSIONS ON COMPETENCE

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Pfeffer, de Vries 2006

### PATTERNS WITHIN THE PRACTICES

- Organisational, technical, educational competences and capacities differ in each specific university
- We have found similar problems, but no 'one size fits all' solution
- effective practices are context-dependent

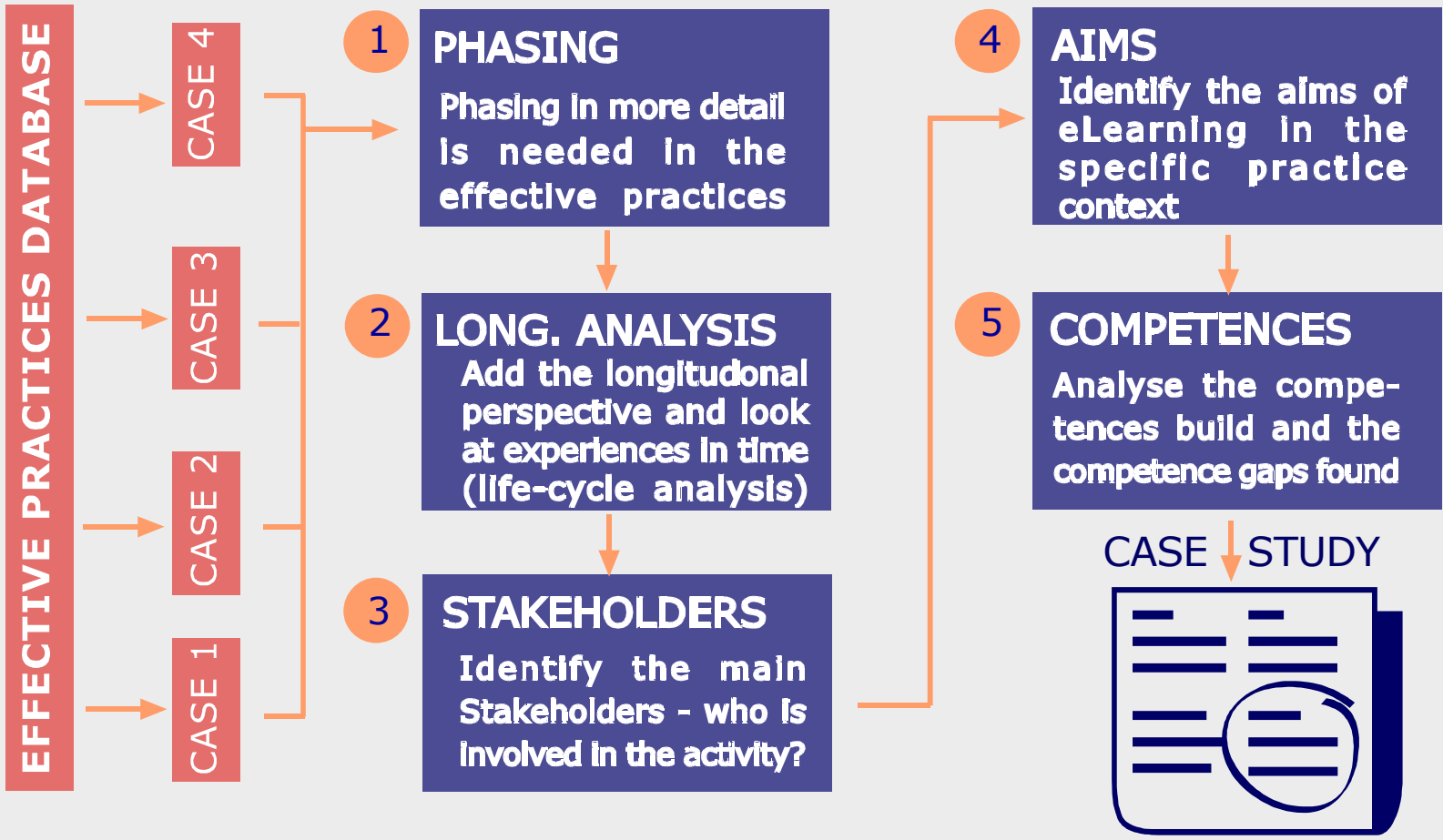
The main institutional challenge for universities is capacity building for staff members, and organisational ability to cope with ICT -driven change

### CASE STUDIES

With selected universities, whose effective eCompetence practice includes **critical success factors** and who are **embedded** into a wider institutional **ICT strategy**.

**PART 5: RESEARCH – eCOMPETENCE CASE STUDY MODEL**

**eCOMPETENCE ANALYSIS: 5 STEP MODEL FOR CASE STUDIES**



## **PART 5: CASE STUDIES AND LINKED EFFECTIVE PRACTICES**

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### **FOUR INSTITUTIONS CHOSEN FOR THE CASE STUDIES**

- The AVNet-eLINK Unit, K.U Leuven, Belgium
- The TLEI - Department of Telematic Learning and Education Innovation, University of Pretoria, South Africa
- The Department of Informatics and Telecommunications, University of Athens, Greece
- The Teaching and Learning Development Unit, Dipoli Helsinki University of Technology, Finland

### **RESPECTIVE EFFECTIVE PRACTICES IN THE PROJECT DATABASE**

- e-Competence in K.U.Leuven, University of Leuven (1)
- Training for academic staff in the use of WebCT and the facilitation of e-learning/ Web Support: Faculty wide roll out/ Integrating Campus Systems, University of Pretoria (2/3/4)
- The e-class platform: a web-based open and cost-effective e-learning service/ Using e-content to enhance learning in traditional classroom based teaching, University of Athens (5/6)
- "TieVie" - a national training programme for ICT skills (for universities staff in Finland), Helsinki University (7)

## PART 5: MAIN CHARACTERISTICS OF CASES

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### FOUR CASES REPRESENT DIFFERENT APPROACHES ON eCOMPETENCE

Full-scale **institutional approach** within a specific university:  
eCompetence development strategy of K.U. Leuven and the University of Pretoria.

**Network strategy** on eCompetence development taking place between Finnish universities: TieVie, Helsinki University of Technology.

**Mixed strategic approach** that combines various elements and levels to foster eCompetence development: University of Athens.

## PART 6: DISCUSSION

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### **eCompetence Book (Creative Commons)**

*The Challenge of eCompetence in Academic Staff Development*

### **eCompetence Website and Newsletter**

#### **Ph.D. Thesis**

supported by

Hans **Böckler**  
Stiftung 

*New Competences for Academic Staff – An International Investigation on eCompetence in Higher Education*

#### **Contact**

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Mail: [dirk.schneckenberg@uni-dortmund.de](mailto:dirk.schneckenberg@uni-dortmund.de)

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