Towards Innovation University

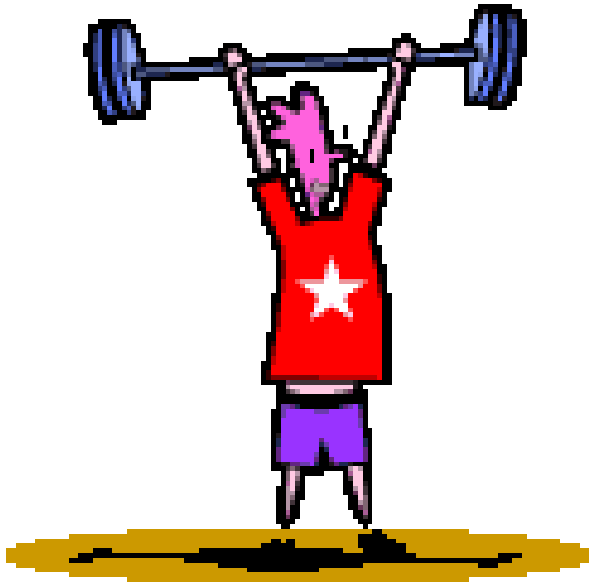
How to balance daily support and preparation for future needs of ICT supported teaching and learning

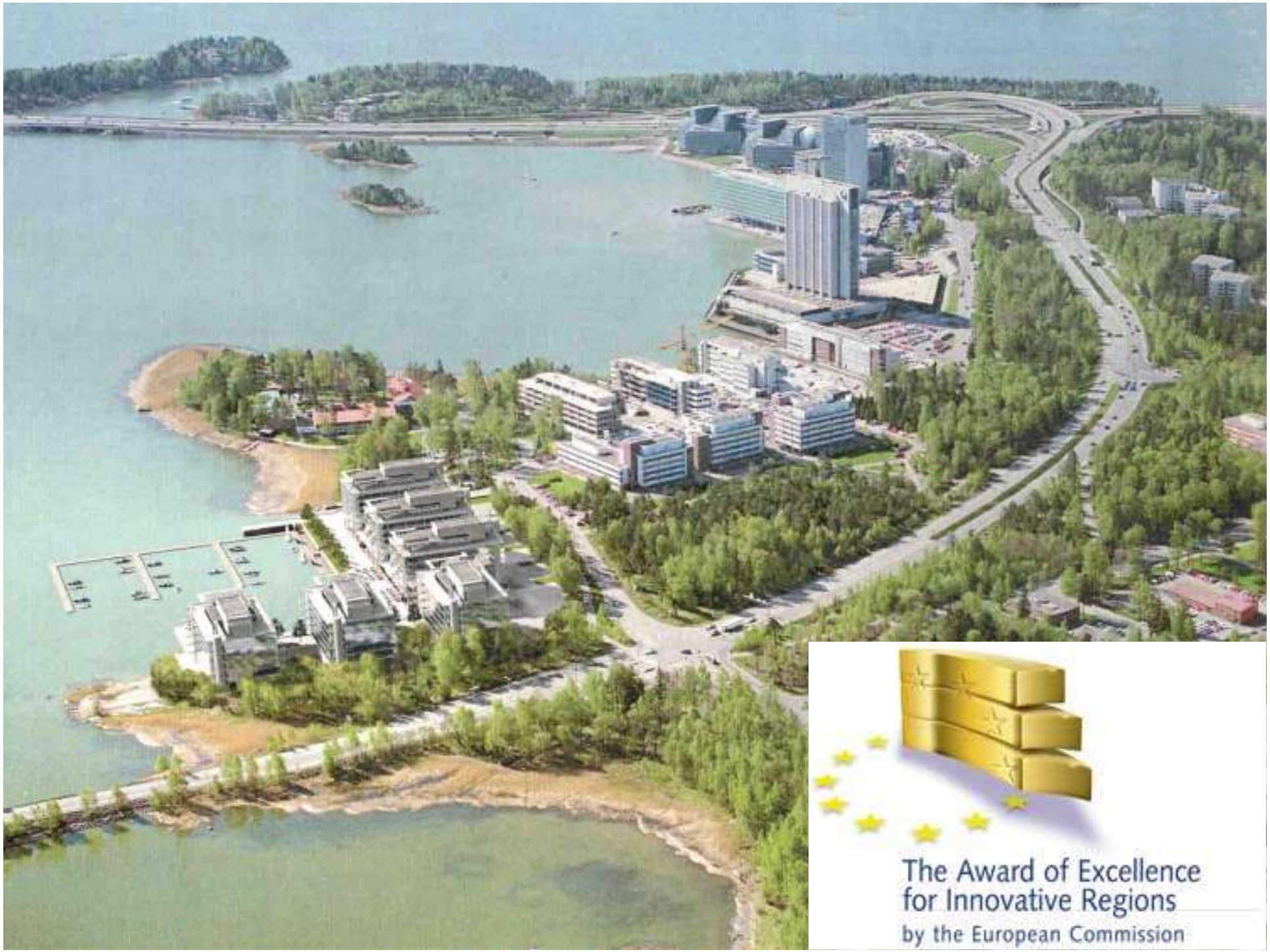
Anna-Kaarina Kairamo
Helsinki University of Technology
Lifelong Learning Institute Dipoli
(TKK Dipoli)

3.4.2008

“It is not the strongest of the species that survive, nor the most intelligent, but the ones most responsive to change.”

Charles Darwin




The Award of Excellence
for Innovative Regions
by the European Commission

Helsinki University of Technology

- Founded 1848, university status 1908, research university
- 4 faculties (from 1.1.2008)
- Over 12 000 students studying to become engineers, architects and landscape architects. 3000 postgraduates
- In 2007, the university awarded 1,034 Master's degrees and 162 Doctorates
- Graduates from TKK account for 42% of all technology graduates in Finland, and 60% of Doctors in technology
- 1 300 foreign students
- The annual budget is €245 million, of which 42% is external funding.
- 3 300 staff, of whom 250 are professors

- TKK Dipoli separate institute of TKK

Content

- TKK landscape
- About Innovation University
- Support services at TKK
- Balancing current service and preparation for future needs
- About change in HE

Landscape of support for using ICT for teaching and learning

Each university has its own history

- … and the history is strong!

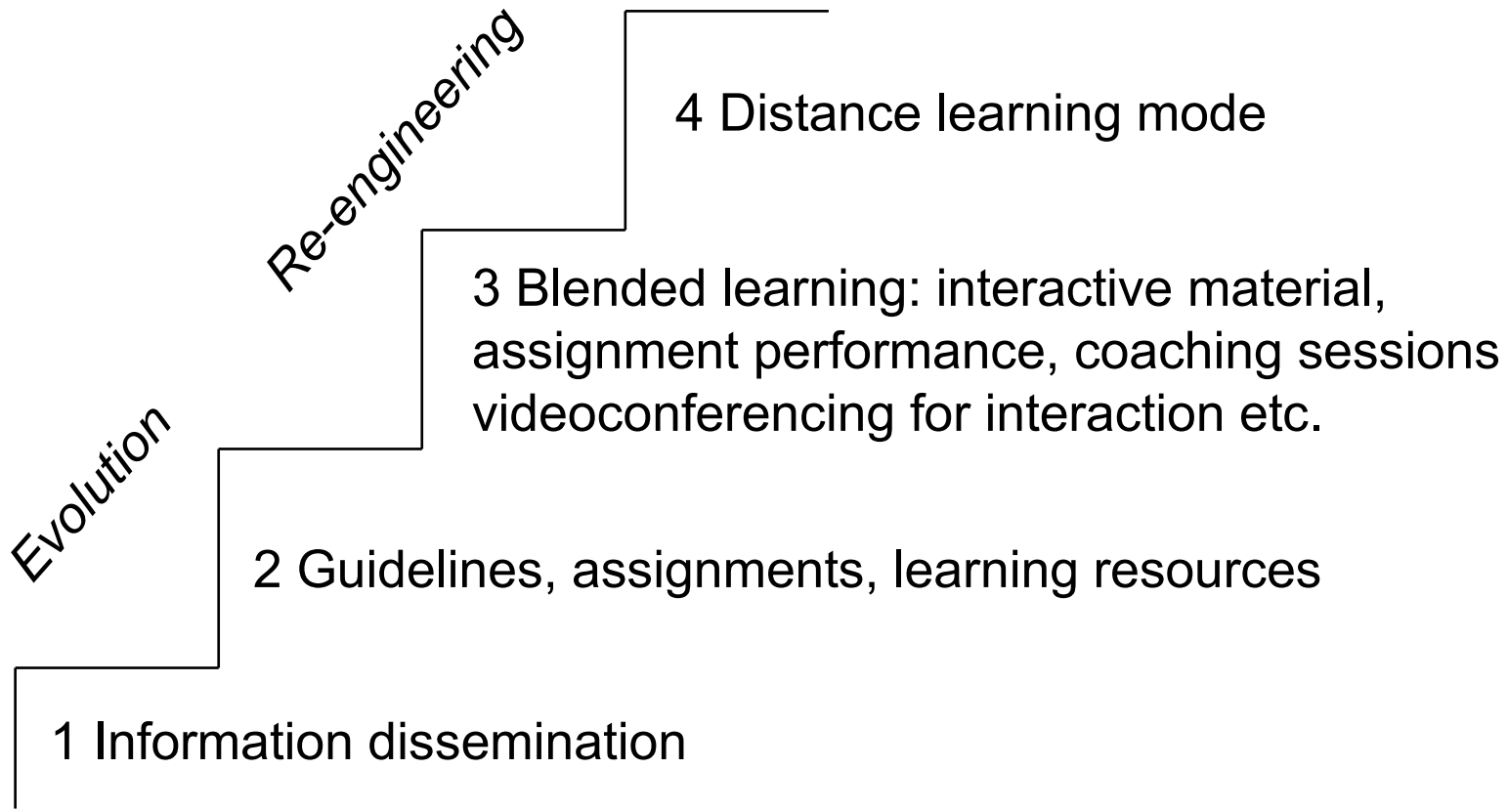
- Culture: planned problem solving process

- AV centre 1985 - 2000
- Video conferencing centre 1987 – 2001
- Learning technology centre officially closed 2001

- Teaching and learning development from2000
  → Starting bottom up
- eTKK project from 2004

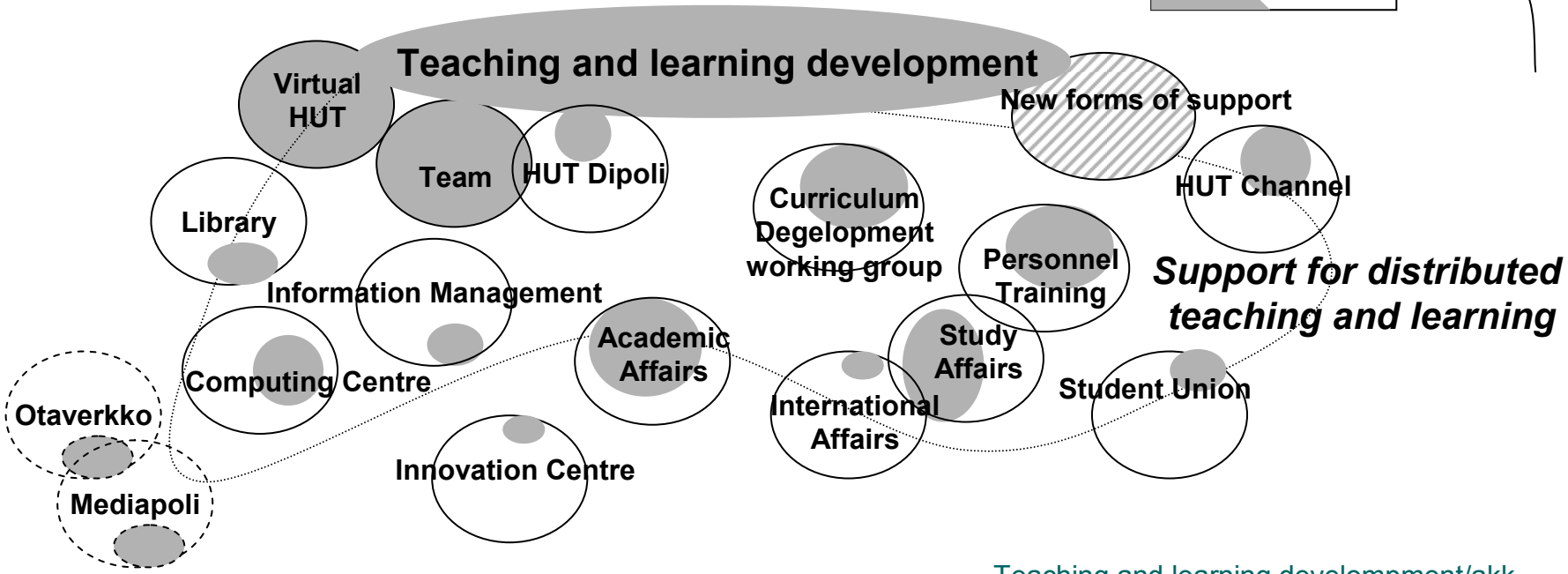
- Finnish Virtual University service centre from 2001

Discussion paper on ICT in TKK Education 2000



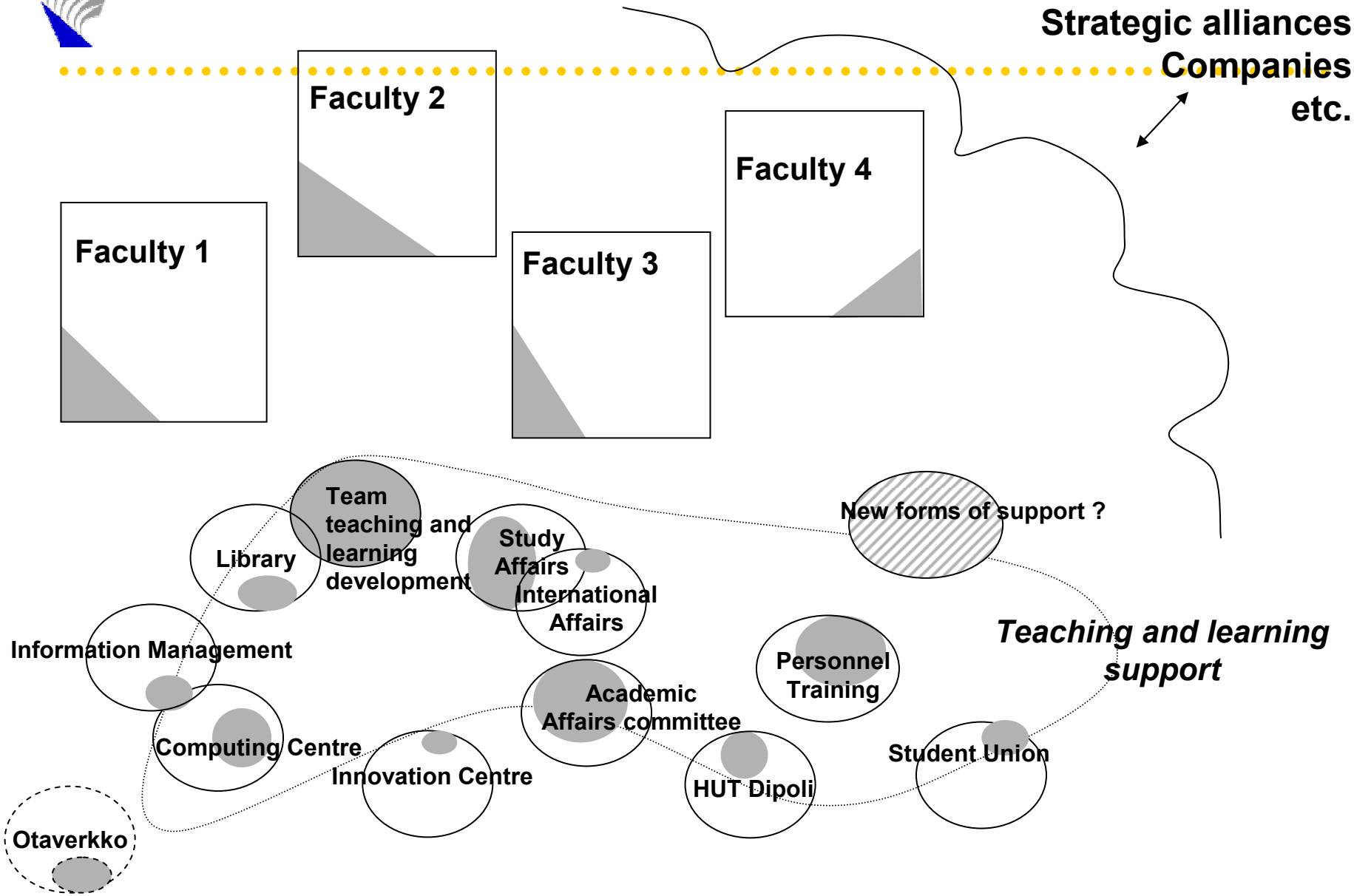
2000

Companies
Finnish Virtual University
Strategic alliances
etc.



1.1.2008

Innovation University



About Innovation University

University reform

- The Finnish HE system consists of 20+ universities and 30+ polytechnics.
- The Ministry of Education has taken strategic actions to enhance the HE system in Finland. Minister of Education: ” The biggest reform since the foundation of the universities”.
- The goal is to reach higher international level in research, education and interaction with the society. The average level should be higher and there should be some top performers.
- Tools for reaching the goal are:
  - HE institutions fusions and alliances
  - new types of legal persons tailored for universities
  - financial and administrative autonomy with better possibilities for fundraising
  - advanced governance models
  - a more strategic steering system for the state grants of universities

The ”Innovation University” concept

- Three universities are merged into a single new
  - **Helsinki School of Economics (HSE)**
  - **Helsinki University of Technology (TKK)**
  - **University of Art and Design Helsinki (TAIK)**
    - three autonomous schools are formed on the brands of the previous universities
- Vision: a world class university by 2020 in fields of technology, design and business; ”bringing bright people together”
- New structure and management system (private foundation), better resources, more autonomy, highly international
- The first academic year will start 1.8.2009

The other two

- **Helsinki School of Economics (HSE)**
  - Established in 1911, the largest business school in Finland.
  - 4 500 students and over 400 researchers, teachers and service staff
- **University of Art and Design Helsinki (TAIK)**
  - Established in 1871, the largest art and design university in the Nordic countries
  - specialising in design, audiovisual communication, art education and art.
  - 1 900 students, 450 staff.

Preparation

- 2008: 2 million € for preparation (2007-2008)
- State gives 500 million € for foundation, 200 million € comes from backers (companies, industrial associations…)
- 2009: 16 milllion € for initiatives that serve the basic work and combines systerm
- The state grant for the operating costs will increase up to 100 million annually by 2012 (+60 % compared to 2007); the money will be open for competition gradually from 2015 to 2020
- Integrating structures and operations are under construction (Design, Media and Service factories; IDBM 2.0, joint research programs,…)
- Ideas for new cross-disciplinary research topics and courses were collected bottom-up. Some 90 ideas are in the evaluation process.

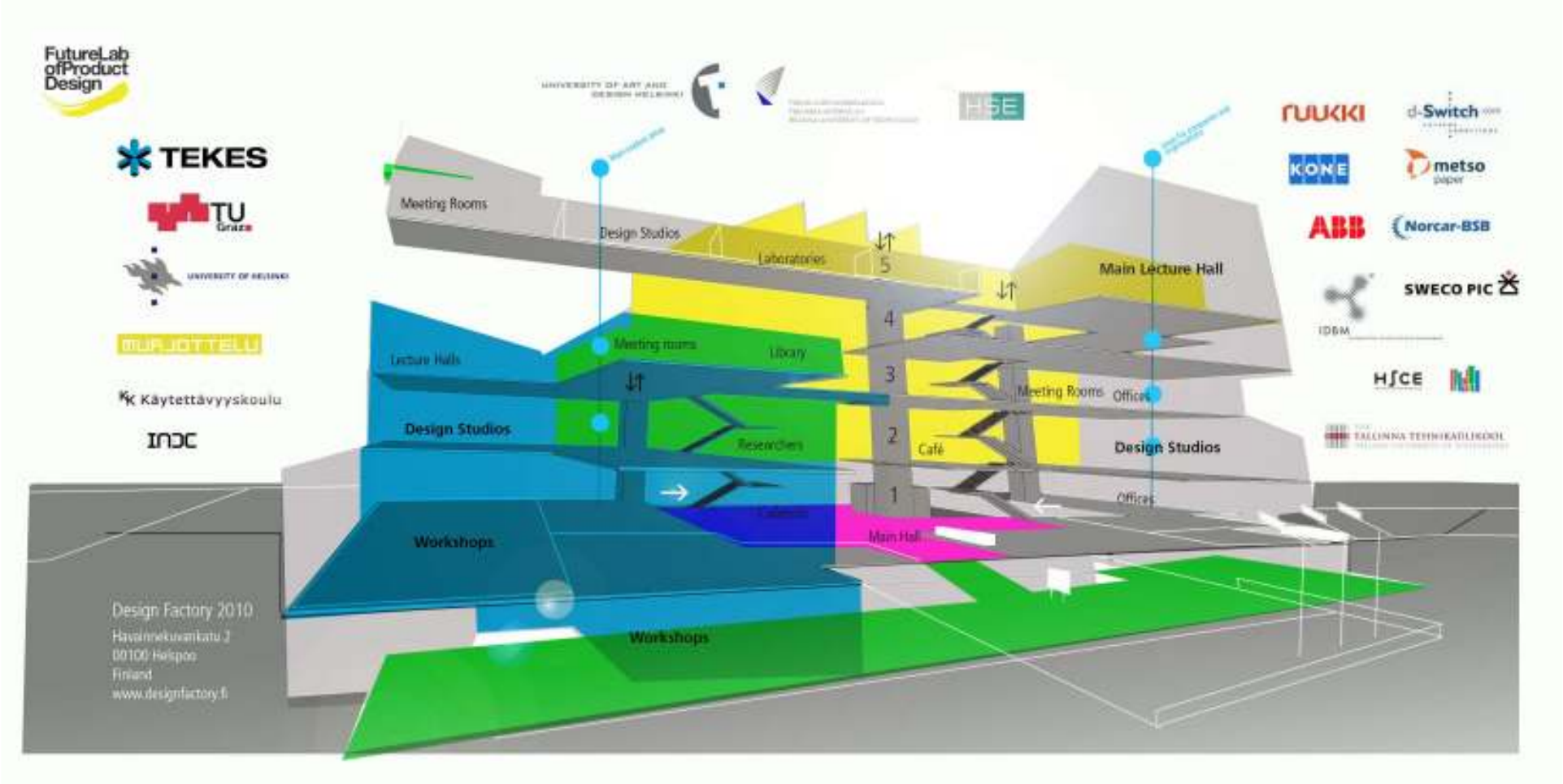
Added values of the merger

- Three industry/society-relevant disciplines in a single university; a one-stop-shop for the students, better interaction for the staff
- International and well-connected to global innovation networks via staff members
- Joint platforms and integrating structures for teaching and research, easy access to various pieces of knowledge
- Agile structure and new management system
- Competitive resources enable higher quality standards
- New paradigm for teaching and learning: learning-oriented teaching and studying, innovative learning environments (e.g.”factories”), integrating master programs (like IDBM) and enriching team-work
- More impact to global challenges via thematic research and teaching
- Enhanced models for lifelong learning and academia-society interaction; more IPR products and start-ups

Design Factory, Media Factory, Service Factory

- They are New Expertise Workshops and are based on areas in which the three universities already cooperate.
- The workshops are learning, teaching, research, and cooperation environments in which the academic teams and projects as well as companies or communities work together.
- The workshops support international principles, open innovation, and new ways of learning and teaching as well as an interdisciplinary attitude.
- The objective that the research information will be seamlessly transferred into teaching.

A concept for the ”Design Factory”



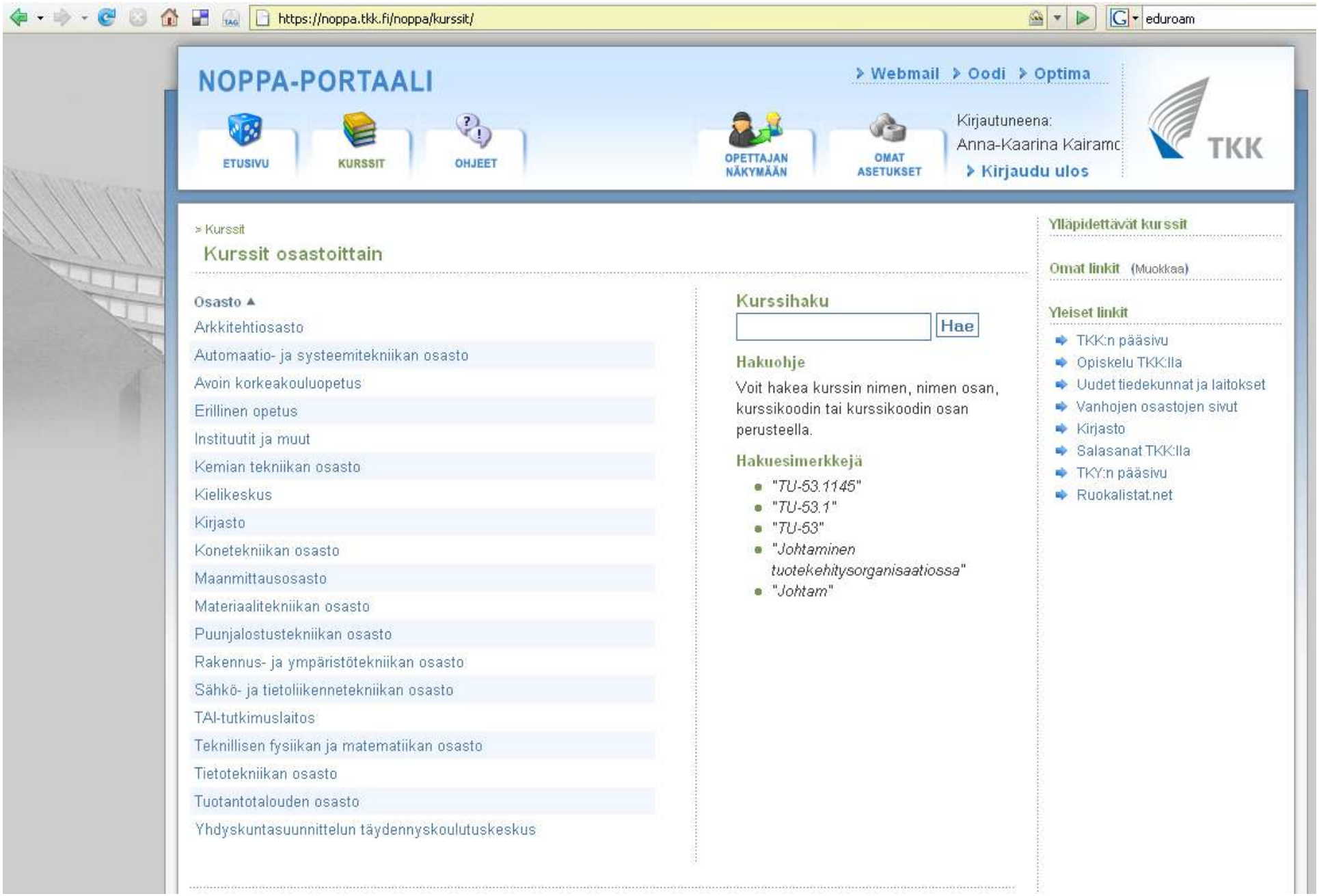
What is your landscape after 5 years, year 2013?

What are the major changes affecting your daily work?

Support services in Innovation University

TKK physical infrastructure

- Centralised services:
  - Noppa portal, Optima, Oodi, wiki system
  - Library systems
  - Content production software….
- Centralised services (faculties)
  - Web conferencing (TKK Dipoli)
- Desentralised services (up to each unit)
  - Video conferencing
  - Content production ….
- National services:
  - CSC: network, videoconferencing, HAKA identity federation
  - Finnish Virtual University: trainings, learning materials, virtual mobility (JOOPAS)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NOPPA-PORTAALI
Webmail
Oodi
Optima
ETUSIVU
KURSSIT
OHJEET
OPETTAJAN NÄKYMÄÄN
OMAT ASETUKSET
Kirjautuneena:
Anna-Kaarina Kairamo
Kirjaudu ulos
TKK
» Kurssit
Kurssit osastoittain
Osasto ▲
Arkkitehtiosasto
Automaatio- ja systeemitekniikan osasto
Avoin korkeakouluopetus
Erillinen opetus
Instituutit ja muut
Kemian tekniikan osasto
Kielikeskus
Kirjasto
Konetekniikan osasto
Maanmittausosasto
Materiaalitekniikan osasto
Puunjalostustekniikan osasto
Rakennus- ja ympäristötekniikan osasto
Sähkö- ja tietoliikennetekniikan osasto
TAI-tutkimuslaitos
Teknillisen fysiikan ja matematiikan osasto
Tietotekniikan osasto
Tuotantotalouden osasto
Yhdyskuntasuunnittelun täydennyskoulutuskeskus
Kurssihaku
Hae
Hakuohje
Voit hakea kurssin nimen, nimen osan, kurssikoodin tai kurssikoodin osan perusteella.
Hakuesimerkkejä
"TU-53.1145"
"TU-53.1"
"TU-53"
"Johtaminen tuotekehitysorganisaatiossa"
"Johtam"
Ylläpidettävät kurssit
Omat linkit (Muokkaa)
Yleiset linkit
TKK:n pääsivu
Opiskelu TKK:lla
Uudet tiedekunnat ja laitokset
Vanhojen osastojen sivut
Kirjasto
Salasanat TKK:lla
TKY:n pääsivu
Ruokalistat.net

Human support for use of ICT in education

- Technology infrastructure support
  - IT service centre
  - Room facilities: technical services
- Educational technology support
  - Trainings: TieVie (national), locals together with the 2 others
  - Use of centralised services: Information Management Unit, Teaching and learning Development, eTKK
- Instructional design
  - From pedagogical point of view: Teaching and Learning Development
  - Use of existing technology embedded
- Subject expertice
  - Champions
- Networked development
  - Finnish Virtual University

2006: TieVie framework for Teacher Training

"OPE.FI IV level":
Networking and other new forms of work in knowledge society
Quality issues, organisational issues
ICT supported university→ ICT integrated to the study process

OPE.FI III level:
Teachers master a specialised knowledge of ICTcontent specific and professional applications, institutional information management, an ability to assist, support and train colleagues, develop the school community, act a part of an expert network.

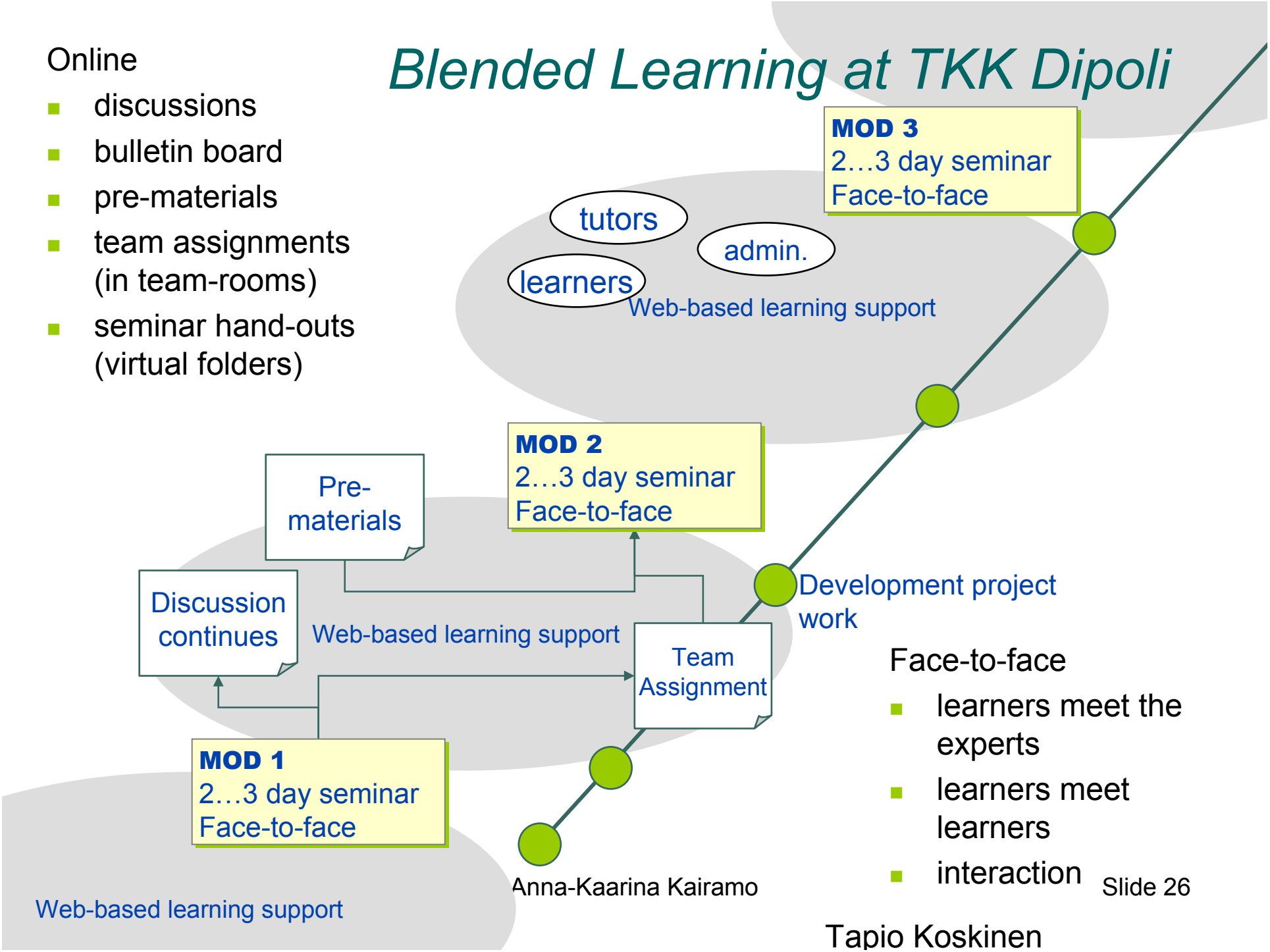
OPE.FI II level:
Teachers master the skills using ICT in educational purposes
→ learning resources for local training

OPE.FI I level :
Embedded ICT skills

Blended Learning at TKK Dipoli

Online

- discussions
- bulletin board
- pre-materials
- team assignments (in team-rooms)
- seminar hand-outs (virtual folders)



Face-to-face

- learners meet the experts
- learners meet learners
- interaction

Tapio Koskinen

Organisation of the preparation IU

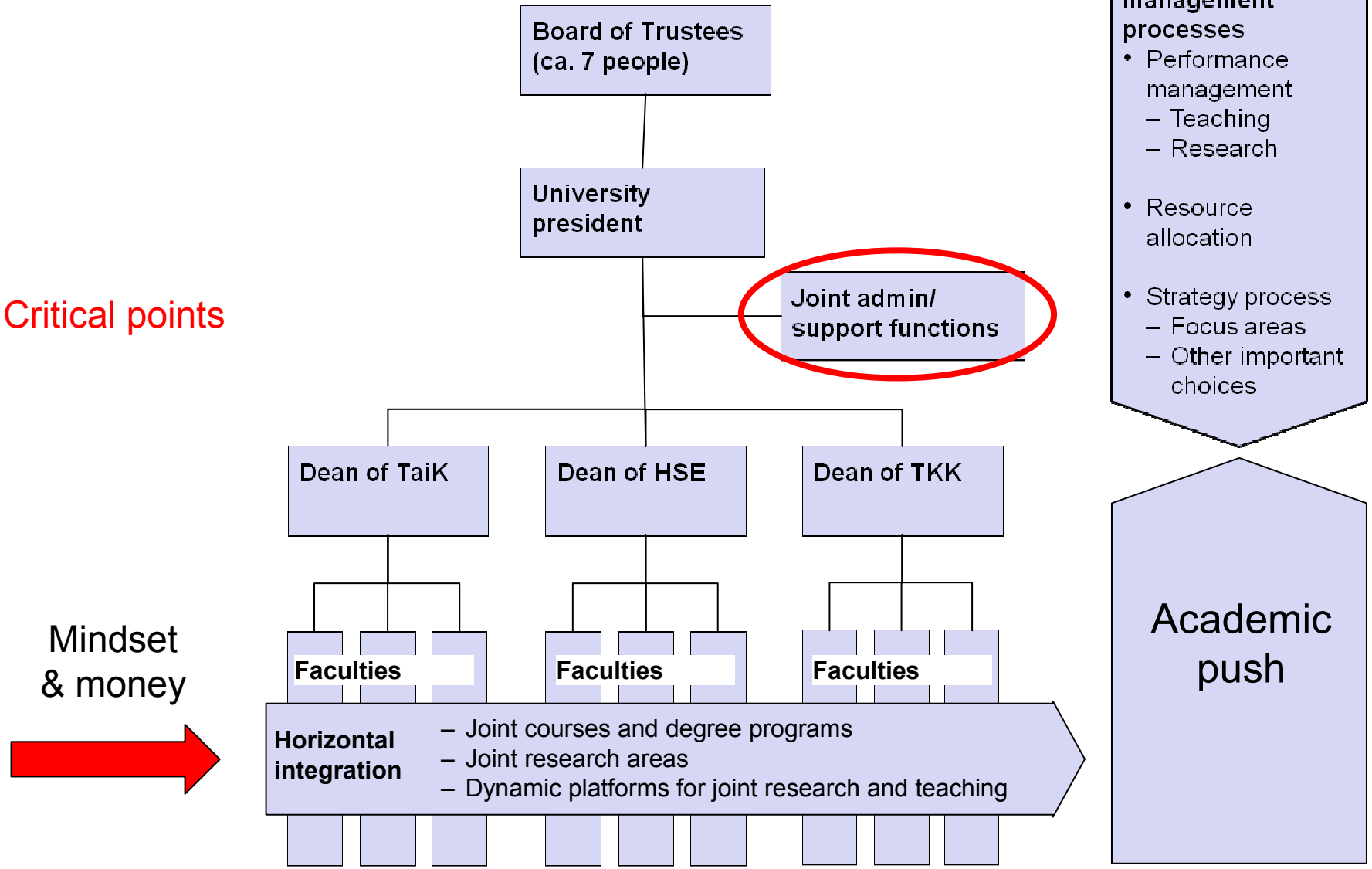
Steering group

Preparation committee

- **Theme groups**
  - Teaching
  - Research
  - Interaction with society
  - Finances
  - Personnel
  - Student services
  - Information services
  - Entrepreneurship

- Communications
- International affairs
- Further education
- Library and information services
- Academic traditions
- Innovation institute
- Property management

Management and organisation(draft)



Infrastructure and support services?

- Information management, library
- IT service centres, campus libraries

- High quality systems and critical systems will survive
  - Oodi
  - Noppa
  - Optima

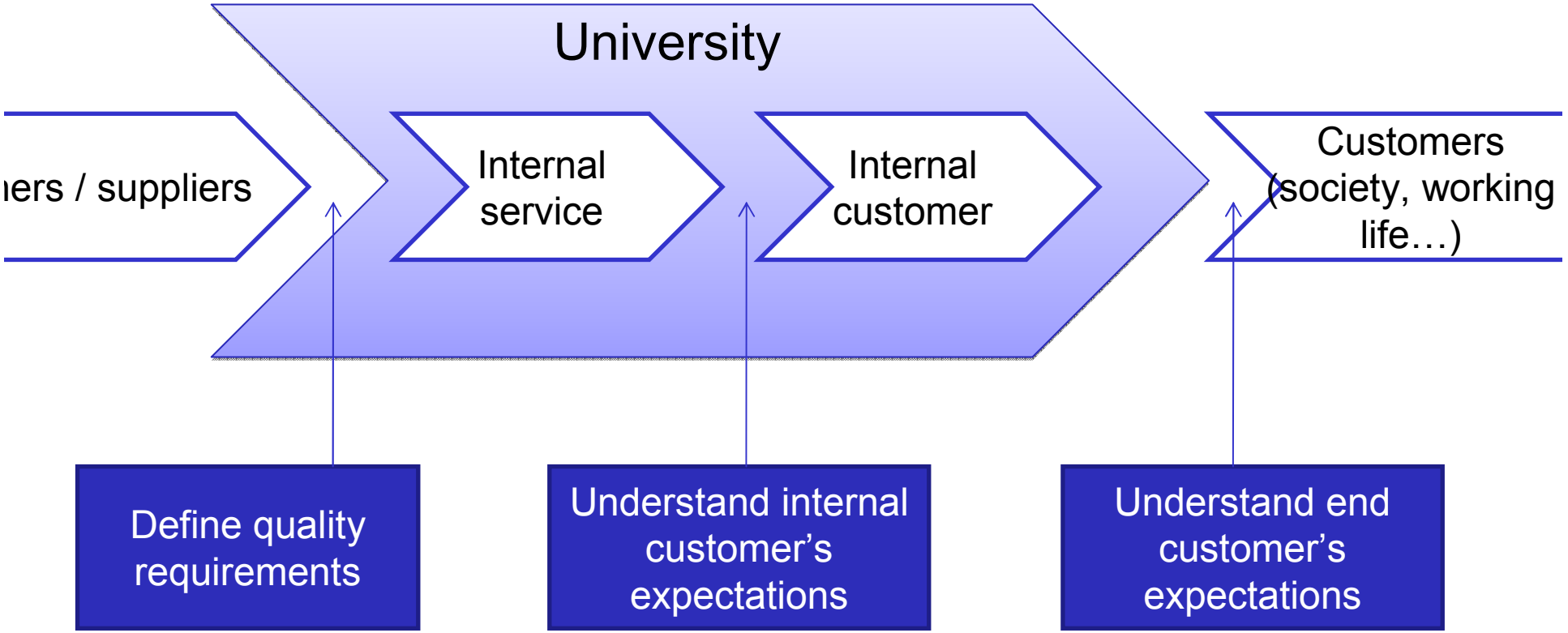
- Each university has its own strengths:
  - UIAH: multimedia production
  - HSE: small scale simple production processes
  - TKK: high level pedagogical support

- Future is still open!

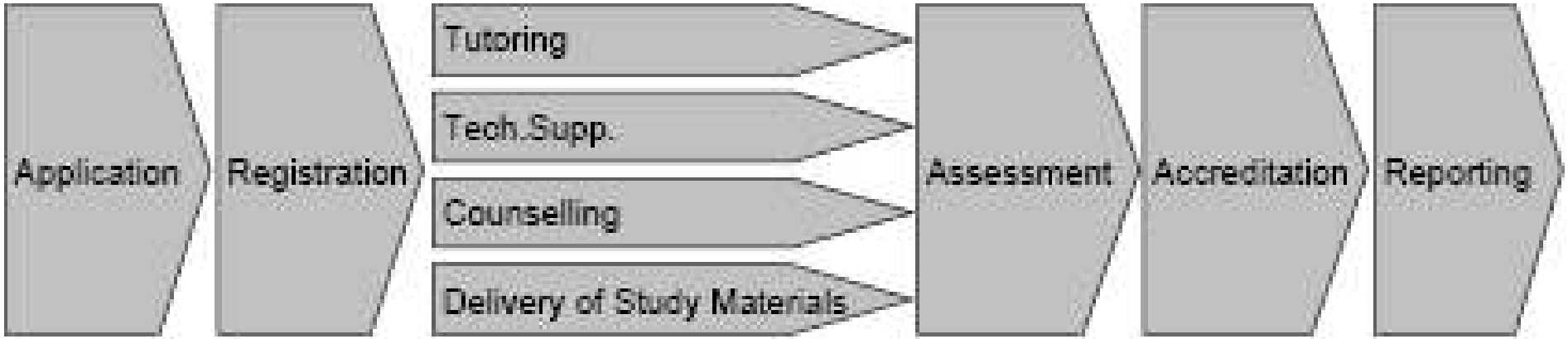
About current service and future needs

The service process

Adapted from: Edvardsson-Olsson (1996).
Key Concepts for New Service Development



We support today mainly...



Auvinen, Koskinen (2004). mEUNU Business Plan

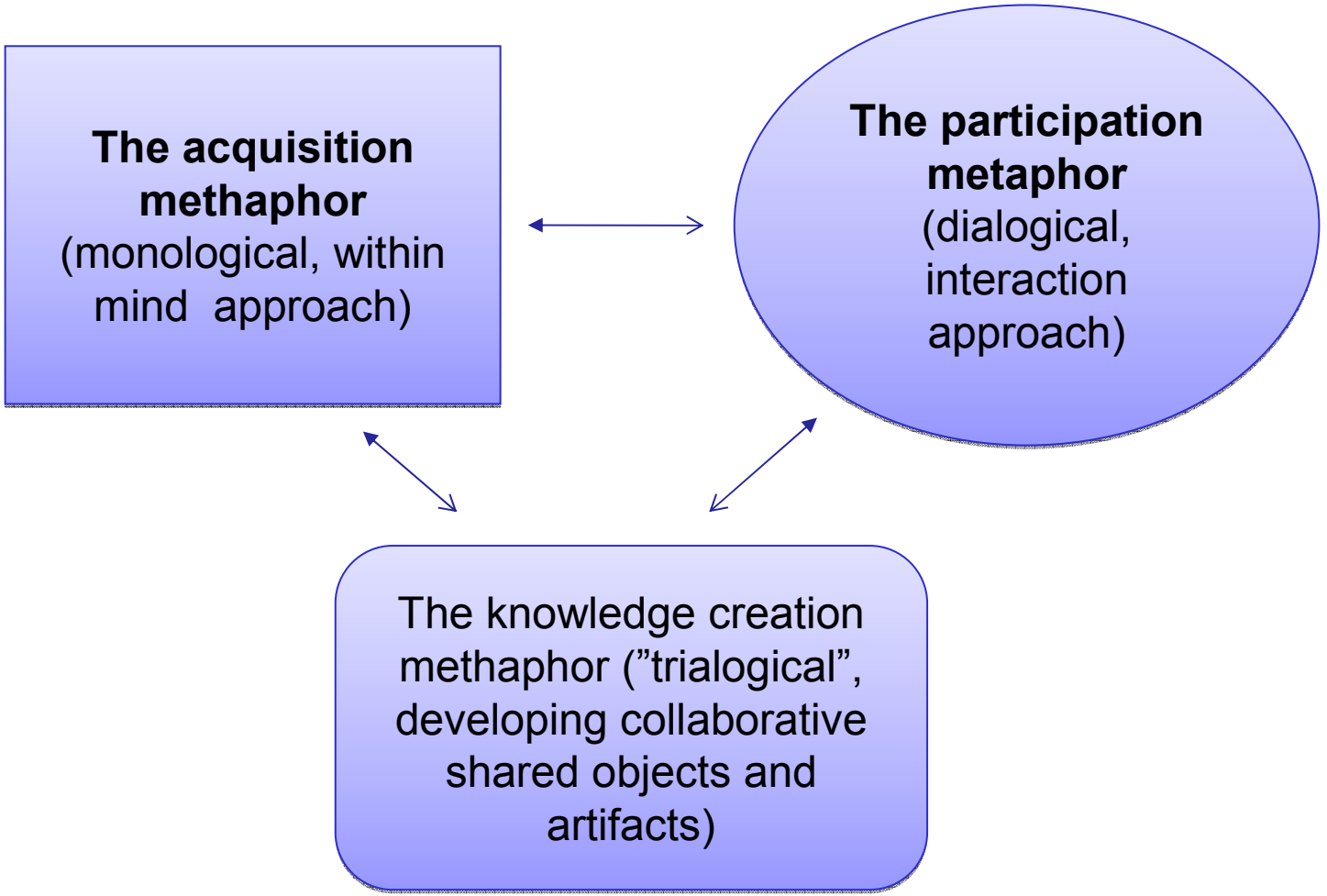
HORIZONS Seven metatrends

From The Horizon Report 2008 Edition,
by The New Media Consortium and Educause Learning Initiative

- evolving approaches to communication between humans and machines
- collective sharing and generation of knowledge
- computing in three dimensions
- connecting people via the network
- games as pedagogical platforms
- shifting of content production to users
- evolution of a ubiquitous platform

(horizon.nmc.org/wiki)

Three metaphors of learning



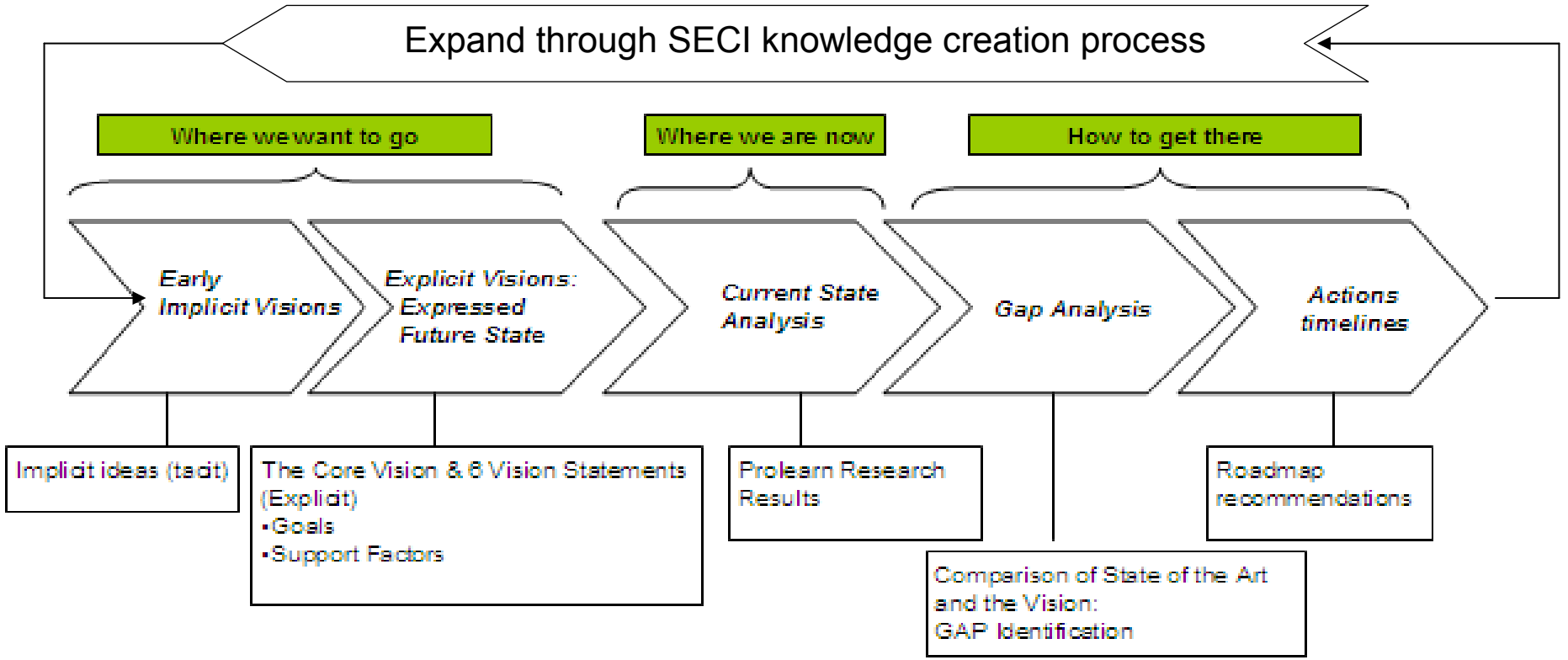
Paavola-Hakkarainen (2005). The Knowledge Creation Metaphor – An Emergent Epistemological Approach.to Learning. Science & Education (2005) 14: 535–557

Characteristics of the three metaphors

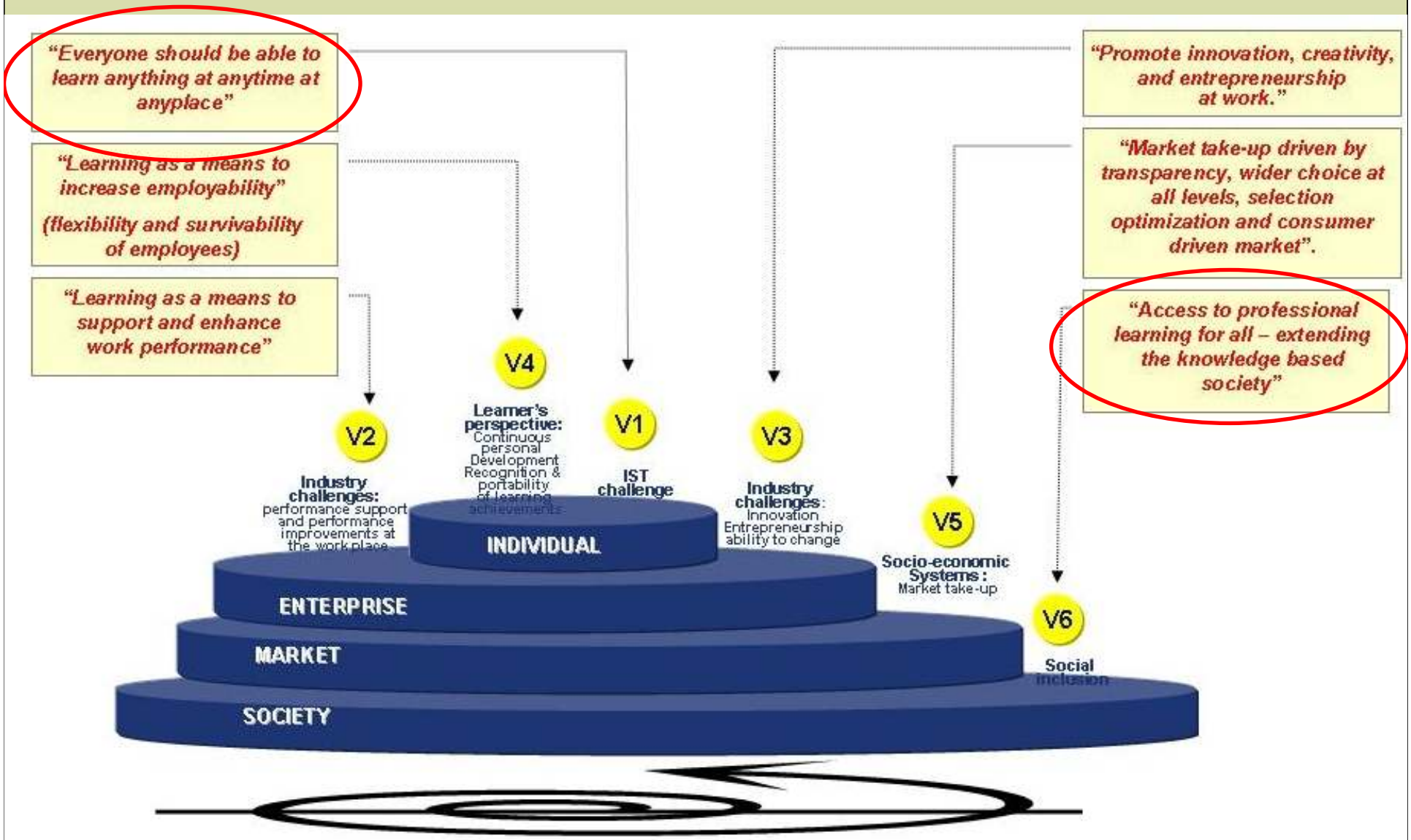
Knowledge acquisition	Participation	Knowledge creation
A process of adopting or constructing subject-matter knowledge and mental Representations	A process of participating in social communities	A process of creating and developing collaboratively new material and conceptual Artifacts Conscious knowledge advancement, discovery, and innovation
Individuals the 'inward' movement of knowledge	Groups, communities, networks, and cultures	Individuals and groups creating mediating objects and artifacts within cultural settings

Sources: Sfard 1998, Paavola-Hakkarainen 2005

Prolearn Network of Excellence: Roadmap stages



The 6 Prolearn Visions



From ProLearn roadmapping gap analysis

Relevance gaps – goal oriented/strategic

- **Old-fashioned view of training as an expense** and as an activity that is **only weakly linked to the actual business processes**. The company's management is not focused on this topic, since the ROI impact has not been proven.

- **Current learning models and methodologies** are following a static and pre-defined representation of knowledge and put a heavy emphasis on content and technology. In the future, learner driven implementations of learning models need to be the norm rather than the exception.

- **Traditional educational institutions prevail** and new appropriate business models for learning services that support both formal and informal learning are still missing, which is a major drawback nowadays. In the ***business area*** work performance is strongly linking business needs, competency needs and learning to support knowledge workers. **We still have to bridge the gap between a top down view and a bottom up view**

From ProLearn roadmapping gap analysis

Efficiency gaps – improving processes

- **Localization of e-learning courses,** like personalization of those resources, requires:
  - fast, effective, low-cost ways to incorporate new content, new methods, tuned to the specific needs of the knowledge workers and their employers or prospective employers.

From ProLearn roadmapping gap analysis

Efficiency gaps – improving processes

- In the ***technical field***, the challenges consists mostly of:
  - making available a greater **range of services**
  - accessible to all at **any time** and in **any location**,
  - at a **price level** acceptable to each market segment and
  - at a cost which is sustainable by the producer.

- Current research, at the same time, will provide the basis for launching and extending the outreach of high-end customized services, such as competency management. **Open content exchanges and distribution channels are crucial for integrative learning based on bottom-up approaches.** The current information retrieval and recommendations services are not efficient yet and this leads to an information overload.

From ProLearn roadmapping gap analysis

Efficiency gaps – improving processes

- The main challenges in **standardization will be in the area of competencies, skills, and knowledge. Mobile devices and "digital convergence"** will make mobile work possible for the majority of knowledge workers. This will further blur the line between work and leisure. Access to broadband will become commonly available, even in the new member states and rural areas.

- From the ***Socio-cultural perspectives*** the good news for the knowledge worker will come in the form of systems that **recognize learning achievements resulting from informal learning**, as well as from non-formal and formal types of learning. The achievements and competences will be documented in the learner's e-portfolio in a format that can easily be understood by potential employers/clients/peers/etc, thanks to standardized representations.

- From a ***technical point of view*** we have to **bring competency management technologies into place that can be used also by individual knowledge workers.** Projects at EU level address this issue, so that we can expect that results come up in the next two to three years. The **interoperability of knowledge management technologies, learning management and web 2.0 technology** is of critical importance for that.

How do you maintain **high quality support** for your custormers' everyday needs?

How do you prepare for the **future needs**?

Reflecting values for general service values

- **Service orientation**
  - Think your customers but also your customers customers
- **Excellence**
  - Including foresight of the future needs
- **Responsibility and professionalism**
- **Respect**
- **Openness**
  - And visibility
- **Sustainability**:
  - effective and efficient use of resources (time, money, people, space, infrastructure, and power)

Students? Students! Students!

- Students who are the test bed of the new Bologna structure will graduate from Innovation University
- For their life the well working services are crucial
- The impact of the decisions made today on the curriculum will be fully realised in labour market after 10 years
- The decisions made now related to services will affect the everyday life of students and staff as soon as they are fully implemented

About change in higher education

Nature of change

Technical aspect

(rational: project thinking, analysis, strategy, planning, actions…)

Human aspect

(emotions, sosio-cultural aspects….)

Social practices model for change

Source: Towler, Saunders, Knight.(2001).Change Thinking, Change Practices

- Successful change involves inputs from both ‘top’ and ‘bottom’. The exertion of brute power from the top of universities (or government agencies) to achieve intended outcomes will fail.
- Environmental conditions are important, change requires a nuanced understanding of the history and context of locations in which change is desired.
- The location of power and control over change is different in different locations. Best place for power and control over change is distributed between the ‘top’, ‘middle’ and the ‘bottom’ in changing proportions
- Agency on the ground is just as important as control from the top, fine-grained knowledge of the ground is necessary.

Minimal preconditions for a successful change initiative

Source: Gus Pennington (2003). Guidelines for Promoting & Facilitating Change. LTSN

- the proposed changes must be seen as relevant to the group(s) affected
- there must be sufficient confidence that the changes once established will result in major benefits for all the stakeholders
- the character of the changes and their implications must be understood by all participants
- the underlying values and justifications for the new situation must fit with those of the main participants
- the change must be feasible in terms of the resources available (time, people, expertise, materials, space, equipment, set-up and on-going costs).

Nature of change

Michael Fullan (2001). The new meaning of educational change. Teachers College Press.

- Do not assume that your version of what change should be is the one that should or could be implemented.
- Assume that any significant innovation, if it is to result in change, requires individual implementers to work out their own meaning.
- Assume that conflict and disagreement are not only inevitable but fundamental to successful change.
- Assume that people need pressure to change.
- Assume that effective change takes time.
- Do not assume that the reason for lack of implementation is outright rejection of the values embodied in the change, or hard core resistance to all change.
- Do not expect all or even most people or groups to change.
- **Assume that you will need a plan that is based on the above assumptions** and that addresses the factors known to affect implementation.
- Assume that no amount of knowledge will ever make it totally clear what action should be taken.
- Assume that changing the culture of institutions is the real agenda, not implementing single innovations.

Also: http://www.nsdc.org/library/publications/principal/lp11-05fullan.cfm

How to balance daily support and preparation for future needs of ICT supported teaching and learning?

Think globally, act locally.

Build sustainable high quality services.
Enable ”sandboxes” for new ideas and experiments!
Be prepared: anticipate future needs
Be prepared: everything can change!

Distributed personalized learning environments

http://zope.cetis.ac.uk/members/scott/blogview?entry=20050125170206

Thank you!

anna-kaarina.kairamo@tkk.fi

http://www.tkk.fi/en/

http://www.innovaatioyliopisto.info/en/