Learning pyramids

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FIG Working Week, Cairo, 2005. 3

-2630

4

-2550

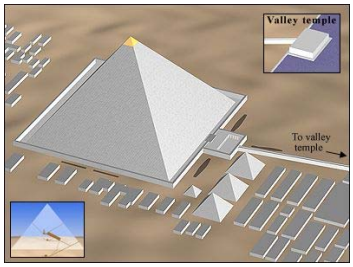
5

-2250

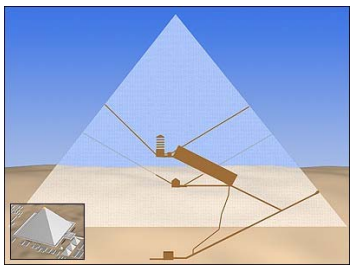
6

Giza pyramids

Pyramid 3D



Pyramid model



Pyramids

- **DIKW**
- **Business**
- **Staff**
- **eLearning**
- **Bologna**

Working Group 2.1 – Virtual Academy

Policy issues

- The movement from discrete computer assisted learning (CAL) tools towards an integrated virtual learning environment.
- Technical, political, legal, organisational and cultural problems.
- Copyright and accreditational problems
- The role of the lecturer and human communication in general.

Chair

- Prof. Esben Munk Sørensen (Denmark), e-mail: ems@i4.auc.dk

Working Group 2.4 – Knowledge in SIM

A Joint Working Group with Commission 3

Policy issues

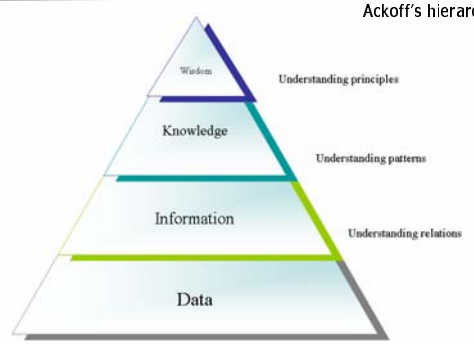
- **To integrate the resources of the Commissions 2&3 using the experiences of professionals in knowledge transfer and the know-how of spatial information management (SIM)**
- **To analyse present status and trends of Information/Knowledge Management**
- **To outline the implementation of the results of Information/Knowledge Management in the Spatial Word**
- **To define the necessary elements and routes of professional development in the rapidly changing area of SIM**

Chair

- **Prof. Bela Markus (Hungary), e-mail: mb@geo.info.hu**

DIKW

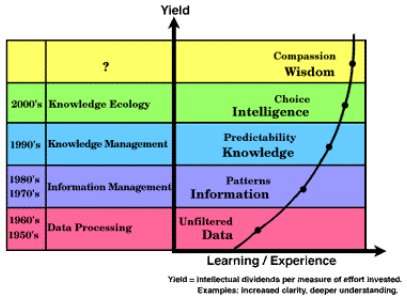
Ackoff's hierarchy



KM

- Data are simply pieces of information with no context.
- Data that can be viewed in context becomes information.
- Information that is analysed and can be applied is knowledge.
- When this knowledge is distilled, organized, stored and redeployed according to specific user needs, then a corporation is employing Knowledge Management.

Data - wisdom



http://otec.uoregon.edu/data-wisdom.htm

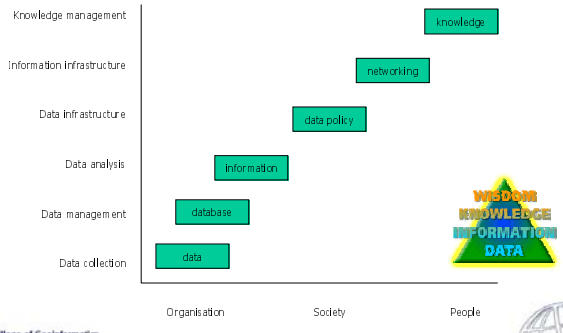
KM

In Hungary educational institutions have multiple reasons for loss of essential knowledge: experienced teachers and tutors retire or change jobs.

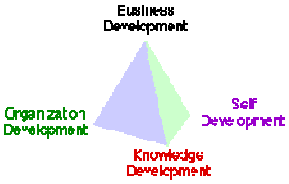
By providing access to the global knowledge base, the consortium members become more effective and competent.

Source: a distributed global gateway, OneWorld, March 2000.

Knowledge infrastructure



Business pyramid



http://www.mithya.com/home.html

Staff

Tasks

to answer

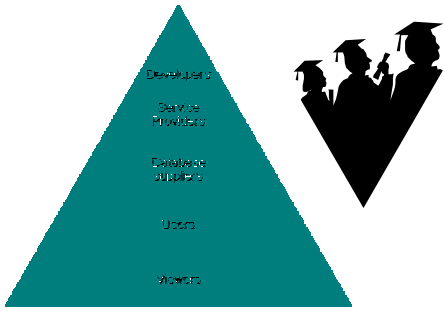
w hy?
w hat?
w hen?
by w hom?
how ?
w here?
w ho shall learn?

Why ?

Human resources produce more profit than any other investment

Motivation

What? Fit for use



Who ? - Target

whole ***STAFF***

potential ***USERS***

When ?

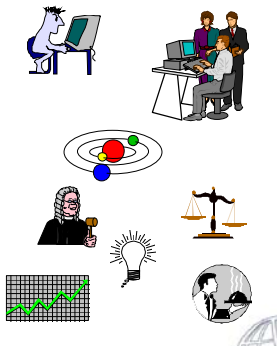
HALF-LIFE PERIOD OF KNOWLEDGE IN INFORMATION TECHNOLOGY IS 18 MONTH

„...more or less constant training of staff"

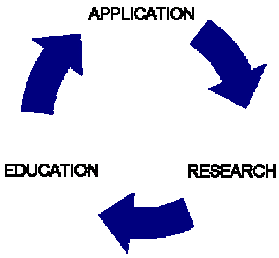
LIFE-LONG LEARNING

By Whom ?

- **SELF-LEARNING**
  - TUTORIALS
  - CBT
  - RESEARCH
- **INTERNAL**
  - CORPORATE CULTURE
  - WORKSHOPS
  - EXCHANGE
- **EXTERNAL**
  - COMPANIES
  - ACADEMIC



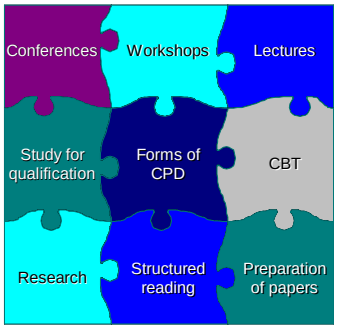
By Whom ?



Workshops,
Seminars
Conferences
Internet, Intranet
Virtual meetings
Videoconferences

How? - CPD models

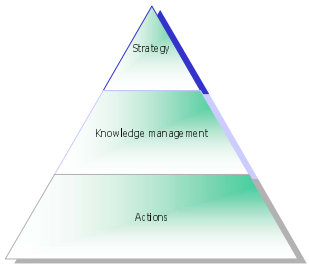
Source: CPD, FIG Publication, no 16, 1996



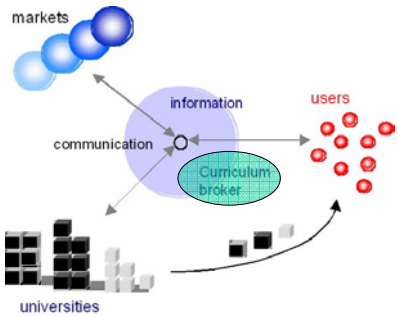
4C

Communication	Co-operation
Competition	Co-ordination

eLearning



Global market



ESRI Virtual Campus

Projects – from ODL to eLearning

- OLLO
- DLG
- NKP
- PRONET
- UNIPHORM
- SDiLA
- LIME
- PANEL-GI
- EMGISc
- **NetCampus**
- **COST G9**
- **NODE**

The Three Generations of Distance Education:
From Centralised to Decentralised Institutional Infrastructures

19th century ongoing	Early 1970'es ongoing	Late 1990'es
1st Generation	2nd Generation	3rd Generation
Correspondence Single-mode	*Industrial Single-mode*	*Networked Dual-mode*
No study centres	Re-active student support and facility centres	Pro-active development and support centres

Adapted from Paul Barnan's initial design of the Internet (*Source: "Where Wizards Stay Up Late"*)

Lesson learned #1 – Learning resources > Active Learning > Knowledge, skills

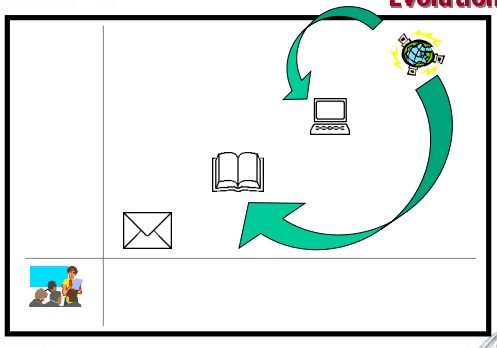
Metadata
- exist
- fitness for use
- available
- accessible
- format

Metadata - levels

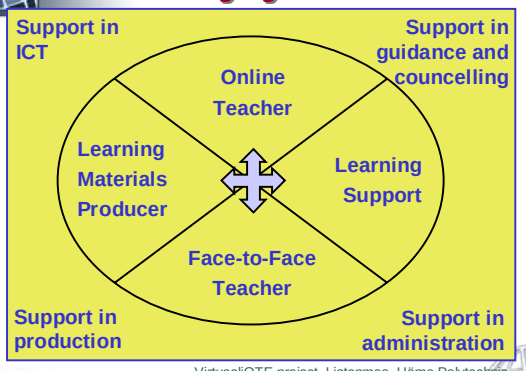
There are three main levels of metadata.

- **Collection level metadata provides the user with a quick look at the learning resource. The user will be able to gain an overview of the contents and scope of the data set.**
- **Data set level metadata provides a fuller picture of what a learning resource will contain, describing the pedagogical attributes, the lineage (history) of the data set etc.**
- **Feature level descriptions provide very detailed descriptions (eg. literature, scenarios, review questions).**

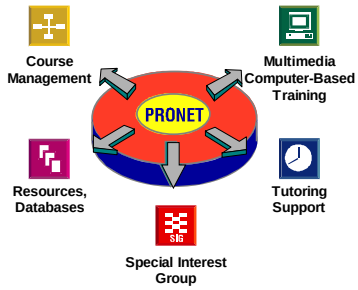
Lesson learned #2 - How to deliver? - Evolution



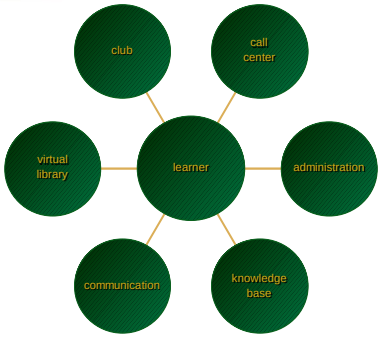
Changing roles of a teacher



Lesson learned #3 - How ? Support vs. Content

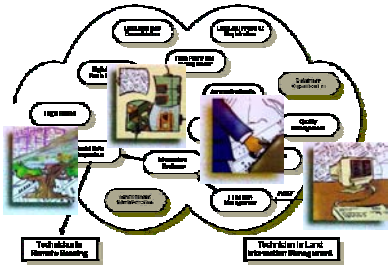


Learner centered environment



Lesson learned #4 - How to develop? - Knowledge pool

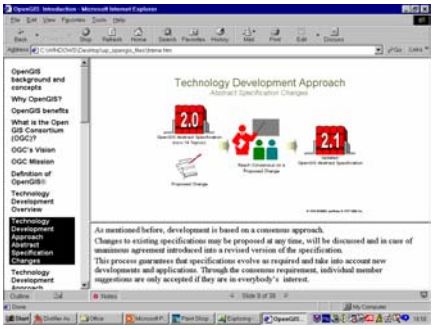
File > Data base
Textbook > Pool of learning units



Topology?

- Spaghetti?
- Topological metadata base – under development
- Learning path
  - Overview
  - Detailed
  - Full

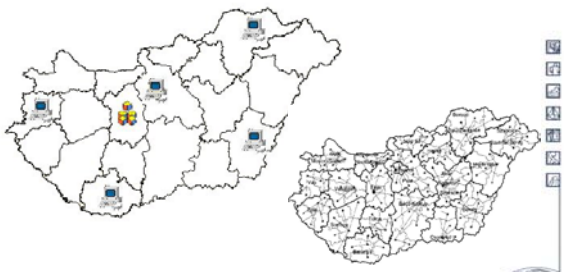
Lesson learned #5 - RAD ... PPT - HTML



Lesson learned #6 - How to organize? Knowledge map

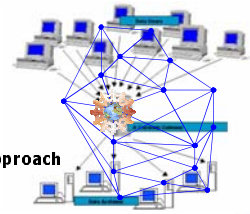
Lesson learned #7 - Learning asisstant

Distributed course delivery

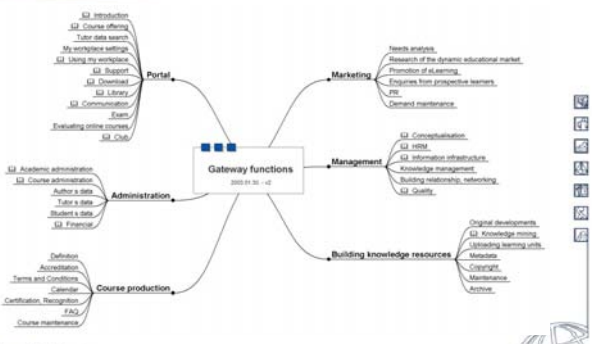


Gateway - organizational functions

- Marketing - Strategic needs analysis
- Authoring learning objects (metadata)
- Gathering - Knowledge mining
- KB (Content) management
- Interoperatibility
- KB analysis, evaluation
- Sharing knowledge units
- Accreditation, recognition
- Support PoLs / students
- Knowledge management
- Collaboration, Bottom-up approach
- Platform independency



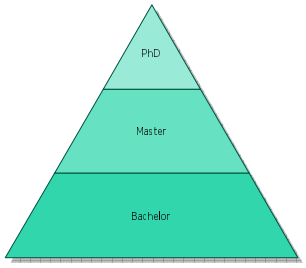
Gateway functions



Looking back - ODL Trends

- 1994 – paper based DE
- 1996 – digital materials (floppy)
- 1998 – multimedia (CD)
- 2000 – Knowledge pool - Internet
- 2002 – Educational portal - services
- 2004 – Knowledge management
- 2006 - mLearning

Bologna



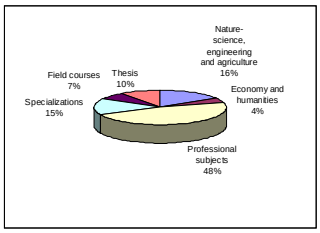
Bologna objectives

- adoption of a system of easily readable and comparable degrees;
- adoption of a system essentially based on two main cycles, undergraduate (bachelor - BSc) and graduate (master – MSc);
- establishment of a system of credits – such as in the European Credit Transfer System (ECTS) - as a proper means to promoting the most widespread student mobility;
- promotion of mobility by overcoming obstacles to the effective exercise of free movement;
- promotion of European co-operation in quality assurance with a view to developing comparable criteria and methodologies; and
- promotion of the necessary European dimensions in higher education.

GEO - branches

BSc (6 semesters - full time, 8 semesters – part time)

- **Land surveying : 1972 –**
  - Geoinformatics : 2001 -
- **Land consolidation : 1975 –**



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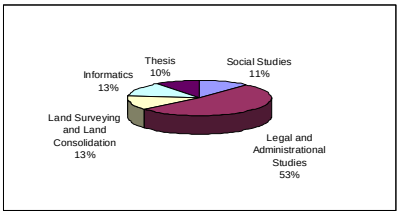
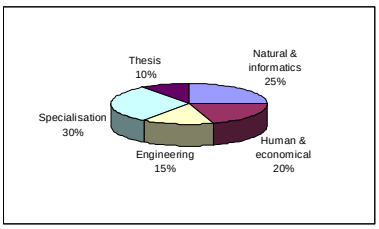


GEO - changes

BSc in Lands (180 credits)

- **Geomatics**
- **Land Consolidation**
- **Land Administration**



GEO - changes

BSc in Lands (180 credits)

- **Geomatics**
- **Land Consolidation**
- **Land Administration**

MSc specialisations (120 credits)

- **Geoinformatics**
- **Land Development**
  - Sustainable, Environment specific
- **Land Management**
  - Economics

IT Trends

- Analog > Digital
- Manual > Automatic
- Local > Global
- Data > Information
- General > Customized
- Product > Service

Recommendations

- **Metadatabase – extension of FIG Educational database**
- **Workshops**
  - Knowledge Management
  - Curriculum development and quality management
  - CPD experiences
  - eLearning – methods and platforms
- **Joint (MSc) courses**
- **Networking structure**
- **International Summer Schools**
- **Joint projects**
  - EEGECS
  - COST G9
  - MELA