

Building the European HEA: Building quality in information systems

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European Challenges for Universities

Joint 2004 interim report : the European council and Commission outlined the urgent reforms required within Europe Higher Education system to reach the objectives set in the Lisbon/Barcelona strategy. They decided

- **to assess every 2 years the progress toward reaching the objectives** of “education and training 2010”
- To confirm **the leading role conferred to Higher Education and innovation** in building a Europe of knowledge
- **Governments have to adapt their Educational system** to meet these challenges and to re-enforce cooperation and mutualisation between EU Universities

The Bologna Process : an internal challenge for Universities

- the 3/5/8 years structure for University curricula adopted through Europe .
- 33 countries/40 who signed the Bologna Chart apply this reform in University education(2005)
- Adoption of the European credit transfer (ECTS) and of the European Diploma supplement (EDS) to describe the content of degrees, diploma, courses
- Growing demand for European student's mobility, physical & virtual
- Growing demand for mutual recognition of diploma

Major external challenges for European Universities

European Universities have to :

- respond to the context of international competition in higher education
- to the emergence of an international “education market” including e-learning
- face growing demand for international student, researchers and staff mobility
- address the demand for “life long education”
- Address the demand for quality on line services = eAdministration
- face the impact of information and communication technologies on their own information systems

While preserving their cultural and linguistic identities

Using ICT to design & deliver quality Information services in Higher Education

Key issues for Universities:

- Use ICT to renew their relationship with their “users” as well as reach new users world wide
- Deliver efficient & personalised services that reach out to users in complement to (or in substitution of) traditional services
- Exchange information & data between Universities,
 - systems can communicate, compatible data can be exchanged,
 - information provided is understood (not just translated, but “decoded”).
- This implies:
 - standardisation (at all levels : system, data, metadata, queries,)
 - “contextual information” & glossaries provide the “decoding”

Objective: Widely available, trusted access to University information across Europe, providing quality information through interoperable information services and portals.

To improve the quality of their information system

- **higher Education institutions have to**
 - Describe their curricula in a coherent way based upon the 3/5/8 model, the ECTS & EDS
 - make their information systems compliant & efficient
 - Improve the information of students, employers, about study programs and course content, evaluation methods and criterias,
 - Improve the efficiency of their educational systems
 - raise their international profile , develop international cooperation
- Making this happen means
 - More effective/coherent data production workflow
 - Quality checked information delivered to users,
 - exchanged through interoperable systems .
- In this context : **Standardisation of curricula description : a major issue** not fully addressed yet Europe wide.

Steps forwards: standardisation of information systems

- Focus on the quality of information produced
- focus on developing interoperable, secure and compatible information services for actual or potential students, staff...
- operate flexible, standardised, interoperable ICT architectures, supporting eAccessibility, open standards and adaptability to legacy information system as well as to future technologies.
- produce technology independent information, content and data
- Identify & overcome cultural barriers,

Context & constraints

- Mature technology : necessary technical means are available (Open source or market place),
- regulatory and administrative agreements between authorities needed.
- agreed requirements for interoperability at all level
- « standardised » data model to describe curricula and course content

Cooperation at the EU level is necessary : a slow process

Why « Standardise » University course catalogs & curricula

- A common educational framework after Bologna:
 - the 3/5/8 common structure for higher education in Europe
 - The ECTS/EDS reform and label
- Universities need to agree on a “standardised » way to describe their course catalogue
 - To describe their teaching offer in conformity with the EU requirements
 - To make their information more « visible » EU wide
 - To share data, to enable interoperability of University portals
 - To liaise with organised networks (e.g. ERIC/NARIC) setting up a “European University portal”
- **More visible European Universities, greater student mobility**
- No « standard » yet fully adopted to describe curricula

eLearning relevant standards

Learning Domain Services

- Activity Management
- Assessment
- Competency
- Course Validation
- Curriculum
- Grading
- Learning Flow
- Marking
- Quality Assurance
- Reporting
- Resource List
- Sequencing
- Tracking
- ePortfolio

http://www.elframework.org/learning_domain_services

Actual context within the French Universities: an « organised chaos » *(in France only ?)*

- Non communicating legacy application ,
- Few structured « information systems »
- No structured model even in one University for curricula description
- No coherent workflow for creating and publishing information
- No common data format between the Universities nor for the 4 local Universities-

Opportunities :

- the 3/5/8 and ECTS/EDS reform has changed the rules and requires a completely new presentation for curricula
- CDM-FR profile has just been published (2004-2005)
- portal technologies, web services, are now fully mature
- Regional portals are in project (some financing available)
- Growing demand/availability of « eUniversity services », of student electronic workplace
- Market pressure : If Universities do not agree on a common « standard » the market will do it for them

Work toward quality information systems

It requires :

- commonly-agreed data model, data structure & metadata
- common (standardised) XML schema with WML binding
- common multilingual glossary
- Common thesaurus
- multilingual and users' friendly search engine.
- efficient data production workflow supporting the organisational diversity of universities and different granularity of curricula & course description
- the development & deployment of added value services to users
- synchronous data exchanges between the University portals and the regional/national/European portals.

CDM>

course description meta-data

**ECTS compliant Information on Course
Catalogue with HTML- and XML-bindings**

</CDM>

http://cdm.utdanning.no/cdm/cdm-2.0.1/CDM_Course_Description_Metadata.html

The CDM specification

- Developed in 2001 by USIT's XML group at the University of Oslo for the Norwegian eStandard project, Norway Opening Universities (OUN) a national initiative for change and innovation in Norwegian higher education,
- OUN has developed and deployed a set of metadata and an XML schema “CDM, adopted by all Norwegian Universities
- The CDM specification: a set of metadata and data structure to describe and publish HEIs curricula, course catalogues and all relevant information for students
- <http://norgesuniversitetet.no/seksjoner/english> & <http://Utdanning.no>

CDM

- description of educational curricula & course units at all levels.
- specifies the structure and semantics of the key concepts used in course descriptions.
- metadata specified as an XML Schema, with guidelines & examples for the generation of course descriptions as XML documents.

CDM: a comprehensive approach

CDM metadata are divided into four parts:

- Part One: Information on the Institution
- Part Two: Information on degrees, study programmes, course content
- Part Three: General information for students (student facilities, cost of living, registration, tuitions, calendars, regulations, practical information for mobile students..)
- Part four: information on all the relevant contacts

Localisation : CDM metadata can be translated in all European Languages

Application profiles can be designed locally or nationally

CDM operational objectives

- Facilitate description and exchange of information about curricula in Europe & at International level
- Facilitate a standardisation of course unit descriptions based upon ECTS/EDS requirements
- Facilitate the establishment of national and international course catalogues
- Facilitate the interoperability of University portals for curricula information services for students
- Facilitate students' mobility Europe wide
- Make the European Universities curricula more visible in the global educational market

CDM : building up a quality information system for students

- supports ECTS & EDS requirements
- supports interoperability at system and data level.
- supports local or national application profiles;
- describes all level of granularity of the educational offer , pedagogical objectives, registration procedure, organisation and contact details...
- supports multiple organisational models, and the whole range of course & curricula models
- takes on board national/local specificities through specific “application profiles”.
- is fully compatible with other elearning specifications such as LOM , IMS-LIP..
- is technologically “neutral” : does not requires a specific data base management system or a specific information system

a wider take up by European Universities ?

- CDM is gaining some momentum in Europe
- In UK through the eFramework initiative, the XCRI[2]project, assess the suitability for UK need of the Norwegian CDM XML schema & works on an application profile linking with Dublin Core.
- In France :CDM-fr is being deployed
- What is needed now is a wider take up by European Universities, working on national / local application profiles,
 - to test and enrich the proposed specification.
 - to advance understanding of curriculum metadata requirements and possibilities
- http://www.elframework.org/learning_domain_services/curriculum

A French national profile CDM-FR

- A national working group lead by the French Ministry of Education (2004-2005), linking with the Norwegian partner
- A candidate “profile ” tested in 4 Regional University networks (Lille, Rennes, Strasbourg, Montpellier)
- Publication of the profile and support documents on the ministry site & on www.educnet.fr
- The proposed format addresses the following National objectives:
 - Facilitate the interoperability of French University portals for curricula information
 - Make the French Universities more visible at International level
- CDM-FR is progressively deployed by French Universities (<http://formations.univ-lille1.fr/cdm/>)

Based on standards a regional portal for Universities-1

A regional portal providing:

- One access point to University information services for national and international students
- A federated view (through content syndication) to curriculum & course description from the 4 regional Universities
- Deployment of interoperable University portals, with common specifications for:
 - Users' interface
 - data description (coherent, homogeneous), based upon CDM-fr
 - Metadata & vocabularies
 - data structure and format,
 - Compatible system architecture
 - communication protocols , data exchange flow
- A common Content management system with workflow capacities

A regional portal for Universities-2

- **To make this happen each University must**
 - Implement CDM-FR for course description (plan data migration)
 - deploy a common content management system(CMS)
 - Revise its internal data production workflow
 - Adopt Common definition of users' needs (professionals & end-users)
 - Adopt common terminology
 - Train its staff
- **It requires:**
 - Cooperation of all actors for the project phase
 - Strong « political support »
 - some financing
 - analysis of organisational impact
 - Strong change management

Relevant links

CDM - Course Description Metadata: <http://cdm.nou.no/>

Norway Opening Universities (NOU): <http://norgesuniversitetet.no/>

ECTS - European Credit Transfer System:

http://europa.eu.int/comm/education/programmes/socrates/ects_en.html

ECTS users' guide:

http://europa.eu.int/comm/education/programmes/socrates/usersg_en.html

Bibliography

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