

The Euro-Asian Knowledge Village (EAKV)

General architecture (composition)

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Introduction

This report presents:

- 1) the principal parameters that have been taken into account for the specification and design of the EAKV portal
- 2) the general content architecture and the principal components (web information systems) composing the EAKV portal
- 3) the general technological solutions adopted for the implementation and development of the EAKV portal prototype.

The technical presentation of the EAKV portal prototype is the the object of a separate report¹.

¹ Cf. the technical report “The Euro-Asian Knowledge Village; Technical presentation of the existing prototype”

1) The principal parameters relevant for the specification and development of the EAKV prototype

The overall specification of the logical architecture of the Euro-Asian Knowledge Village (EAKV) portal is based on:

1. The report presenting the state of the art of rural education in Vietnam;
2. A comparative analysis of already existing web sites in rural education;
3. Internal meetings within NACESTID (Vietnamese partner of this project) and Vietnamese authorities in education and research;
4. Internal meetings within the partners of the EAKV project.

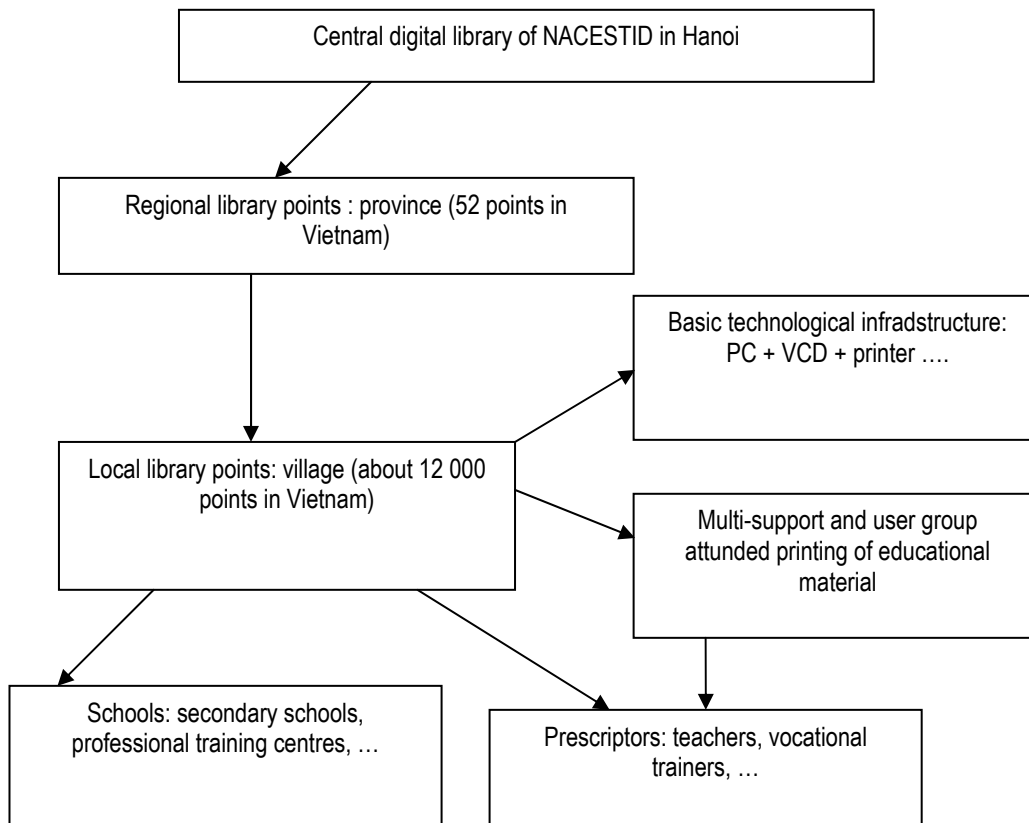
The principal parameters that have been taken into account for the specification and design of the EAKV as well as for the implementation of a prototype of this portal are the following four ones:

- 1) The specificities of the educational network in Vietnam;
- 2) Challenges for the actually existing educational system in Vietnam ;
- 3) The specificities of the chosen pilot domain and the principal user groups of the EAKV portal;
- 4) Already existing projects and programmes in rural education on the web.

These four parameters will be briefly explained in this chapter.

1.1) The educational network in Vietnam – a general overview

One of the central, nationwide architectures and information flows of the educational system in Vietnam looks like, basically, as follows :



(figure 1: view on the educational network in Vietnam)

Explanation: NACESTID constitutes the “central node” in this architecture: “central” –

1. in a technological sense (NACESTID is the information and Internet provider and controls the Vista network in Vietnam)
2. in the sense of content provision (NACESTID centralises the content – scientific, pedagogical, cultural, ... - that is diffused over the Vista network)

The regional nodes (corresponding to the 52 main localities of the provinces in Vietnam) are specialised content nodes. For example, a province in the northern mountains of Vietnam only disposes of information (content, knowledge) which is relevant for the populations leaving there. The local nodes correspond to the 12 000 villages in Vietnam and “behave”, in the framework of this educational network, more or less like the regional nodes.

Consequences for the design of the EAKV:

The EAKV should be essentially the electronic (digital) version of a central educational library and of specialised ones corresponding to the needs and objectives of regional and/or local educational nodes. This “electronic version” is a portal web site containing:

1. the educational resources;
2. means for producing and delivering (new, updated, ...) educational resources;
3. means for realizing and maintaining specialised portals (“specialised” within the global EAKV portal).

1.2) Challenges for the actually existing educational system in Vietnam

The principal identified “bottlenecks” in this educational network are the following ones²:

1. Structural lack of didactic materials (textbooks, bi-lingual scripts, video tapes, updated and updatable courses,);
2. Libraries do not have the economic resources to constitute and update a relevant base of pedagogical materials;
3. Absence of well-defined curricula or again of curricula adapted to actual market trends and constraints;
4. Overlapping and concurrent initiatives due to the fact that the entire school system belongs to several ministries and other authorities – consequence: lack of a coordinating pedagogical effort;
5. Insufficient number of teachers or trainers or again: high variation in the ratio pupil/teacher following the different regions in Vietnam;
6. Especially: “marginalisation” of specific regions in Vietnam due to the absence of a pedagogical environment (schools, training centres, ...) and teachers;
7. Absence of adequate physical infra-structures.

² fore more information, cf. the state of the art report of this project

Consequences for the design of the EAKV:

1. produce and manage “stocks” of virtual, digital educational resources;
2. arose regions with adapted, personalised teaching and learning materials in electronic form;
3. enhance communication and cooperation means between the principal actors in (professional) education;
4. enhance teaching possibilities of teachers (trainers) remotely, on line;
5. facilitate online update of electronic educational resources by teachers and trainers and/or authorised persons.

1.3) Pilot domain and principal user groups of the EAKV

For obvious political and economical reasons (more than 85% of the Vietnamese population is working in the – broadly speaking – agricultural sector), the Vietnamese partners of the EAKV project have chosen as the pilot domain for the implementation of the EAKV portal, the rural education in Vietnam.

The principal user groups for the EAKV project and the realizations of it are the following ones:

- a) public institutions (state, ministries, regions, ...);
- b) content providers (domain experts, authors of educational resources, pedagogical experts, curricula designers, ...);
- c) teachers and trainers (working with one or more of the 12 000 local nodes of the educational system in Vietnam);
- d) “learners” (i.e. especially sufficiently competent people for being able to use, in one of the 12 000 local nodes, the technological facilities for a more autonomous learning);
- e) documentalists, librarians, (i.e. professionals in the management of on-line libraries, directories, archives, etc.);
- f) system administrators, developers, ... (i.e. staff with technological and programming responsibilities).

1.4) Rural education on the web – a state of the art

A critical comparative survey of web sites dedicated to rural education has been undertaken with the objective to localise:

- Existing “showcases” and experiences in the field of rural education;
- Models of reference for the specification of the EAKV portal;
- Already available and relevant e-resources in rural education;
- “Web ring” of similar an/or relevant projects;
- Potential partners for the EAKV project.

A reference catalogue of such web sites has been created which will be extensively used during the second phase of the EAKV project. Here is a (small) sample list of localised web sites:

Web Site	URL	Description
Enseignement Agricole du Ministère de l'Agriculture	http://www.edu.cagri.fr	Most important web site in France in rural education
L'apprentissage agricole en Europe (Germany, France, ...)	http://www.a-a-e.org/	Description of the system of rural education in EC countries
The Northwestern Regional Educational Laboratoy – Rural Education in Portland (USA)	http://www.nwrel.org/ruraled/#multigradepubs	<ul style="list-style-type: none"> – Organising a classroom in rural education – Self-oriented learning – Instructional organization, curriculum and evaluation, – Instructional delivery and grouping – Planning and using peer-tutoring
ICRA (International Centre for Development oriented Reserach in Agriculture) – (The Netherlands)	http://www.icra-edu.org/	Important R&D activities in rural education
The ERIC Clearinghouse on Rural	http://www.ael.org/eric/	Projects in Latin America, on-line resources, ...

Education and Small Schools (Minneapolis, USA)		
ALGORA (Base de ressources multimédias pour la formation des adultes) - France	http://ressources.algora.org/ressources/horsligne/base/index.asp	On line resources and archives of records of educational materials in rural education

The logical organisation of the EAKV for rural education in Vietnam

2) The general content of the EAKV

In this second part will be specified the overall logical organisation of the EAKV. A more detailed specification will be presented in part three of this report. The overall specification of the logical architecture of the EAKV is based on one:

- The report presenting the state of the art of rural education in Vietnam;
- A comparative analysis of already existing web sites in rural education (cf. part one for the corpus – the list – of consulted web sites);
- Internal meetings within NACESTID (Vietnamese partner of this project) and Vietnamese authorities in education and research;
- In-depth discussions with the Vietnamese, Greek and French partners of the project.

The EAKV attuned to the rural education in Vietnam comprises 9 principal components which are the following ones:

1. **The general educational system for agriculture in Vietnam**
2. **Information for teachers and trainers in the field of agricultural education**
3. **Specialised networks for teaching in rural education**
4. **E-library of educational resources**
5. **Search engine and thematic category management**
6. **Communication**
7. **Subscriptions**
8. **Shared working spaces (“collaboratories”)**
9. **Management of the EAKV for rural education in Vietnam**

It has to be stressed that these 9 components are *typical* ones. This means that:

1. they could be completed by new ones;
2. not each one has to be fully implemented during the development phase.

The nine components constitute an open logical architecture which can (partially) be re-used in other application or pilot domains:

- Either in rural education for other political entities than Vietnam

- Or for other fields in education (fields such as commerce, language studies, etc.)

Typology of these 9 components:

Components 1 and 2: information components (about the general context and the profession “teacher”)

Component 3: especially “teaching” or “training” the teacher or again teaching someone how to become a teacher in a specific field (of rural education, ...)

Component 4: central EAKV component : a library component of educational (online) resources as well as of editing easily structured courseware)

Component 5 – 9: technical components for the exploitation and best use of the information space and the proposed (publishing) web services in education.

This means that component 1 – 4 are specified as the actually best answers to the structural needs identified and explained in the first report and summarized in chapter 2 of this report.

	Principal types of needs	Corresponding web information system (i.e. component)
1	Information deficiencies, lack of coordination,	Component 1 and 2
2	Difficulties to form teachers, trainers, for specific regions in Vietnam	Component 3 : thematic networks for teachers, for teaching/informing teachers, for educating people to become trainers, ...
3	Lack of pedagogical libraries in schools, lack of courseware, difficulties for building and maintaining courseware, ...	Component 4: distributed e-library of educational textual and multimedia (online) resources and provided with a set of web services for easily producing, publishing and renewing educational courseware.

In this chapter, a broad description of each of these nine components will be presented.

In the following chapters of the second part of this report, a more detailed description as well as a logical design structure of each component will be given.

Component 1: The general educational system for agriculture in Vietnam

This is an information component that covers the rural educational system in Vietnam, i.e.:

- general political orientations (laws, directory schemas, ...);
- existing formations and diplomas;
- teaching institutions;

- alphabetisation, scholarisation and other educational statistical information.

Component 2: Information for teachers and trainers in the field of agricultural education

This information component is attuned to the specific information needs of professional workers, trainers or teachers exercising their job in rural education in Vietnam:

- job information;
- information of how to become a worker or teacher in this field;
- institutions concerned;
- teacher’s memento.

Component 3: Specialised networks for teaching agriculture

This rather complex component recovers the possibility to create and manage specialised portals and work-spaces for given “groups of interest” within the rural education system in Vietnam. The principal objective of such “networks” relies upon the constitution and management of a “library” of sometimes very specialised of educational materials in order are to enhance commerce, practical and technical know how exchange, etc. Two principal types are distinguished:

a) thematic networks

Thematic networks are more specialised groups of interest within the rural education system In Vietnam – specialised groups, for instance, in aquaculture, riziculture , élevage des bovines, de canards, in sylviculture, biodiversity, rural management, rural tourism.

b) geographic networks

Geographic networks are specialised groups of interest that are concerned more particularly with geographic regions : Europe, Australia, USA, ... but also countries and regions of South-East Asia, South Asia, China, ...

Component 4: E-Library of educational resources

This – central – component recovers the constitution and management of all types of resources which possess a pedagogical relevancy in the field of rural education (or in one of its sub-fields). It recovers:

- an on-line library catalogue (of off-line consultable and usable resources);
- online educational resources;
- “all in one” courseware online;
- experiences and “best practices”;
- pedagogical programs and guidelines
- tools, methods and templates for editing and publishing multimedia resources for teaching and learning in rural education.

Component 5: Search engine and thematic category management

This component recovers all information search and navigation possibilities within the EAKV – especially:

- The search engine itself
- A management tool for organising and searching the EAKV resource library through specific topics, themes or “knowledge spaces”.

Component 6: Communication

This component recovers all communication tools and facilities between the member group of the EAKV of rural education in Vietnam – especially:

- Web mail;
- Diffusion lists;
- Thematically restricted discussion fora;
- Agendas;
- Possibly multimedia conferencing opportunities via the web.

Component 7: Subscriptions Management

This component recovers the management of subscriptions contracted by users (anonymous and/or identified ones) in order to stay informed on specific topics in rural education in Vietnam. It is divided in:

- A tool for (anonymous, identified) users for contracting an subscription;
- A management tool for the coordinator of the EAKV to follow all subscriptions.

Component 8: Shared Workspaces

This component – physically integrated within the fourth component – *educational resources* – constitutes one of the central parts of the Intranet of the EAKV. It allows registered groups of people to:

- Share a common educational resource workspace;
- Communicate and work together on documents or any other type of resource within this space;
- Archive and publish resources within this space.

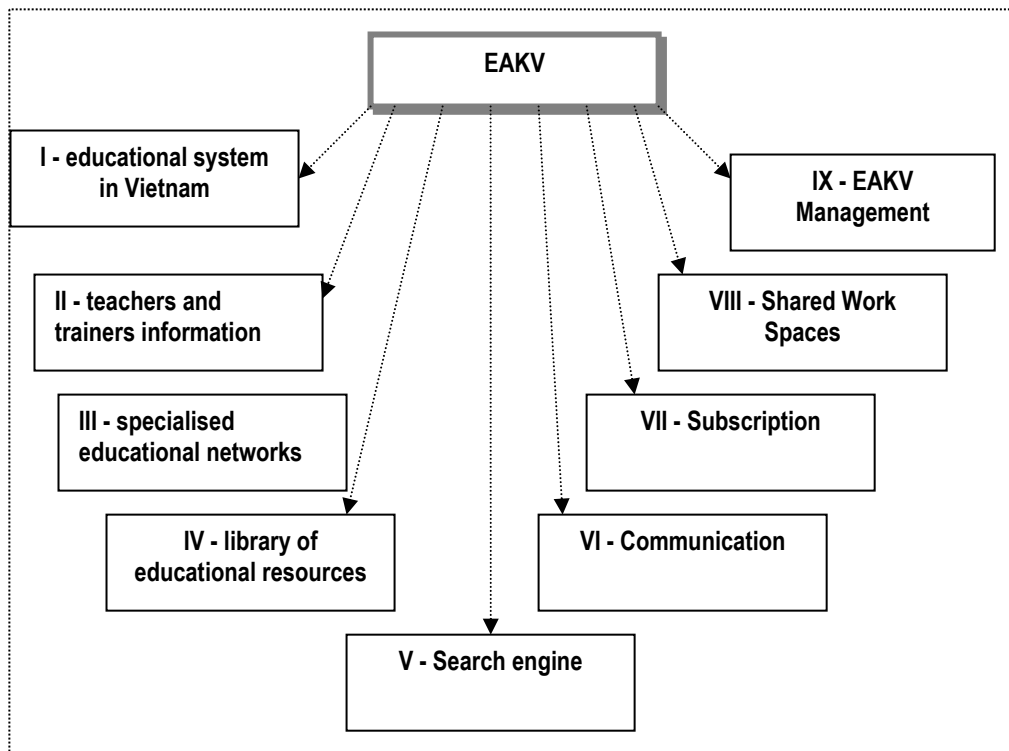
Component 9: Management of the EAKV for rural education in Vietnam

This component is reserved to the coordinator(s) of the EAKV and contains the principal management tools of it:

- Information management tools (announcements, news, mails, diffusion lists, ...)
- System management tools (portal configuration, member directories, document space configuration, ...).

Remarks:

- These 9 components are not fixed ones. New components can be added during the implementation phase or also during the life cycles of the EAKV. Also the internal organization of each of these components can be modified.
- NACESTID and the Vietnamese authorities will be the principal information providers and chose the most relevant resources for each above identified information components. This means also that the overwhelming majority of these resources will be available in Vietnamese!



(figure 2: principal components of the EAKV for rural education in Vietnam)

Figure one shows in a nutshell the overall logical structure – the “organigramme” – of the Euro Asian Knowledge Village attuned to rural education in Vietnam.

3) Component-1: “The educational system in Vietnam”

As already stated, this information component recovers on-line documents and other resources (directories, ...) related to:

1. general political orientations (laws, directory schemas, ...) in Vietnamese rural education;
2. existing institutions, formations and diplomas in Vietnamese rural education;
3. alphabetisation, scholarisation and other educational statistical information in Vietnam.

Part 1. General political orientation in Vietnamese rural education

a) Online documents :

- national laws and rules governing the rural educational system in Vietnam,
- general situation of the rural teaching and learning system (state of the art, plannification, ...)

b) On-line directory:

- national institutions relevant to rural education (description, function, ...)

Part 2. Existing (training and teaching) institutions, formations and diplomas

a) Online documents :

- general situation,
- types of institutions,
- types of diplomas,
- professions and careers,
- ...

b) On-line directory

- training and teaching institutions, types of formation, ... (types, fields of specialisation, geographic localisation, ...) and search tool via the landscape of Vietnam

Part 3. Alphabetisation, scholarisation

online documents

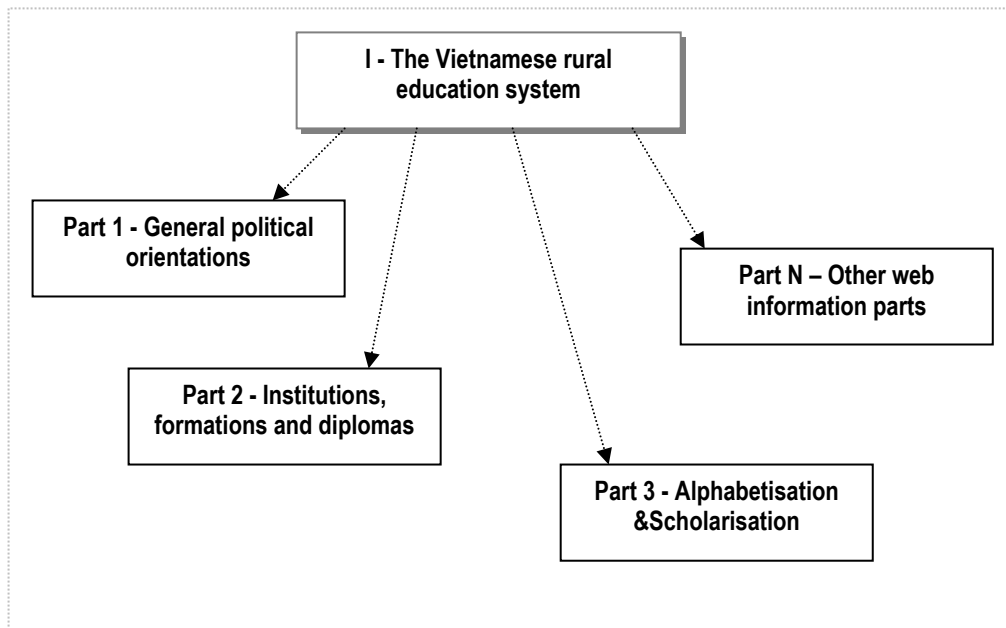
- concerning the educational situation in Vietnam in general, and in rural education in particular

Additional remarks:

- This first information component is typically organized by the *three parts* identified and described above.
- But it can have other – *new parts of information* – related to topics that have not yet been identified.
- The denomination (translation, multilingual representation) of the three identified information parts is not yet fixed (terminological and representational decisions will be made during the implementation phase of EAKV).
- Typically, an information part possesses two principal features:
 1. a – more or less important – *library* of online documents and resources
 2. *directories* of actors (institutions, ...) and objects (diplomas, ...)

These aspects have to be taken in account for the design of the information component “The educational system in Vietnam” (cf. part three of this report).

Figure two shows in a nutshell the overall logical structure – the “organigramme” – of the first information component of the Euro Asian Knowledge Village attuned to the educational system in Vietnam.



(figure 3: principal information parts of the first EAKV component: “The educational system in Vietnam”)

4) Component-2: “Teachers and trainers information”

As already stated above, this second information component is articulated around the following 4 typical (but not exclusive) information parts:

1. job information;
2. information of how to become a worker or teacher in this field;
3. institutions concerned;
4. teacher’s memento (practical guides for the teacher).

Part 1. Job information

Online documents (content: careers; concrete examples; ...)

Part 2. How to become a teacher/a trainer

Online documents (how to become a trainer, a teacher, what types of formations for trainers and teachers,

Part 3. Institutions and events specialised in educating educators, trainers, professional workers in rural education

On-line directory of such institutions and events

Part 4. Teacher’s memento

practical guides (*on line documents*) for a teacher or trainer facilitating his/her work (following the model: “Memento TUTAC”³):

- understanding of the educational system;
- preparation for working within;
- exercising a teaching activity

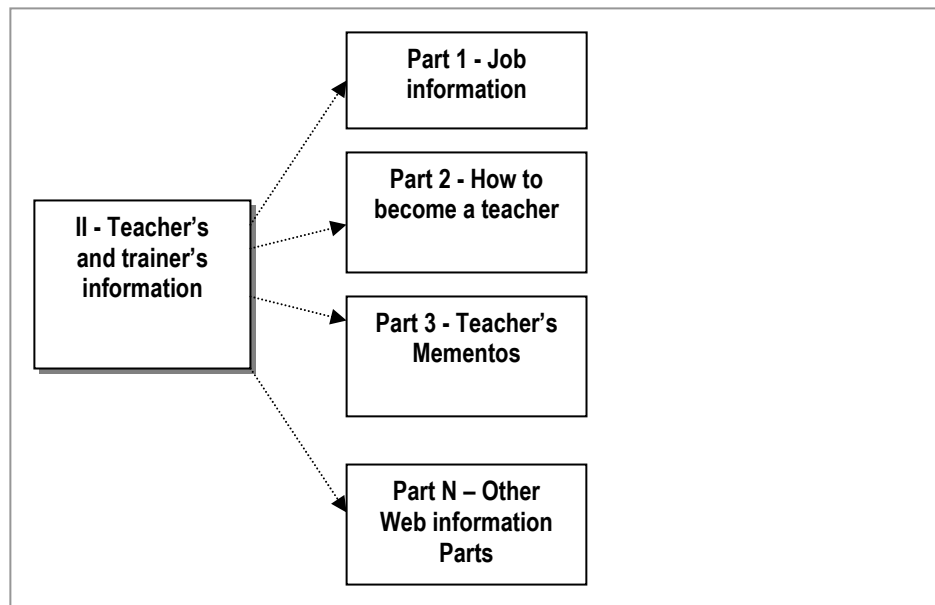
Additional remarks:

- This second information component is typically organized by the *four parts* identified and described above.
- But it can have other – *new parts of information* – related to topics that have not yet been identified.
- The denomination (translation, multilingual representation) of the four identified information parts is not yet fixed (terminological and representational decisions will be made during the implementation phase of EAKV).
- Typically, an information part possesses two principal features:
 1. a – more or less important – *library* of online documents and resources
 2. *directories* of actors (institutions, ...).

These aspects have to be taken in account for the design of the information component “The educational system in Vietnam” (cf. part three of this report).

Figure three shows in a nutshell the overall logical structure – the “organigramme” – of the second information component of the Euro Asian Knowledge Village attuned to the educational system in Vietnam.

³ Cf. <http://www.educagri.fr/actions/vertutac2.htm>



(figure 4: principal information parts of the second EAKV component: “Teachers and trainers information”)

5) The component “Specialised educational networks”

As already stated in the chapter 3, this rather complex component comprises the production and management of all more specialised portals and working spaces in rural education – portals and working spaces which are attuned to the particular knowledge domains and objectives of special interest groups (composed by professional workers, teachers, trainers, experts, ...) in rural education. This means, that each group of interest should have, within the EAKV, a specific information portal and work space (= both are “restrictions” within the global knowledge space of the EAKV).

Note: a specific information portal for a given (thematic or geographic) network can be accessed – like the EAKV – in two modes:

- as an extranet (for anonymous users who possess restricted rights – in general only the right to consult the web site of the portal and the resources)
- as an intranet (for identified groups of users with higher or lesser high rights – in general the members of a given network or special interest group).

The principal components of a specialised portal and working space are rather similar to the global portal (of the EAKV):

1. Dashboard;
2. Presentation of the (thematic or geographic) network;
3. On line resources and (shared) workspaces;
4. Communication;
5. Directories;
6. Search tool;

7. Teaching & Learning;
8. (Web based) management of the portal.

1. Dashboard

The dashboard is the “homepage” of the portal of a specialised network. It contains central items such as:

- a general welcome message,
- news and announcements,
- a list of important links,
- the logos of participating institutions,
- etc.

2. Presentation of the (thematic or geographic) network

The presentation of a thematic or geographic network includes typically the following items:

- Content and objectives of a network,
- Coordinators and general (administrative) organisation,
- Types of activities pursued,
- Contacts

3. On line resources and (shared) workspaces

On-line resources include:

- (general or specialised) information resources relative to the special fields of interest of a given network,
- educational resources strictly speaking (cf. infra),
- information resources for teachers and/or other people working within a given network (career, laws, economy & business, ...),
- links to relevant web sites, etc.

Concerning the organisation of such a resource space, cf., infra, chapter 7: “*Library of educational resources*”. “Shared workspaces” include:

- the constitution of a group (groups) of members (within a special interest group) working together
- the creation of a documentary working space for this group(s),
- the (hierarchisable) permission to work (create, modify, publish, ...) on the documents within the working space assigned to a group,
- communication facilities (web mail, conferencing system, ...).

Note: shared workspaces are accessible only as *intranets* (i.e. via logins and passwords).

4. Communication

Each portal has to be provided by a set of more or less standard communication tools:

- Web mail,
- Diffusion list,
- Discussion forum,
- Agenda of activities,

- Possibly – on line conferencing system.

5. Directories

The rubrique “directories” covers :

- A directory of the participants in a network, in a special interest group,
- A directory of relevant institutions for the activities of a special interest group,
- Other directories.

6. Search tools

The search tool is a search engine that covers:

- Search following thematic categories (a thematic index),
- Key word based search,
- Search based on other criteria (meta-index, resource category and profile, resource location, language criteria, ...),
- Plain text search,
- Search within structured information data (databases).

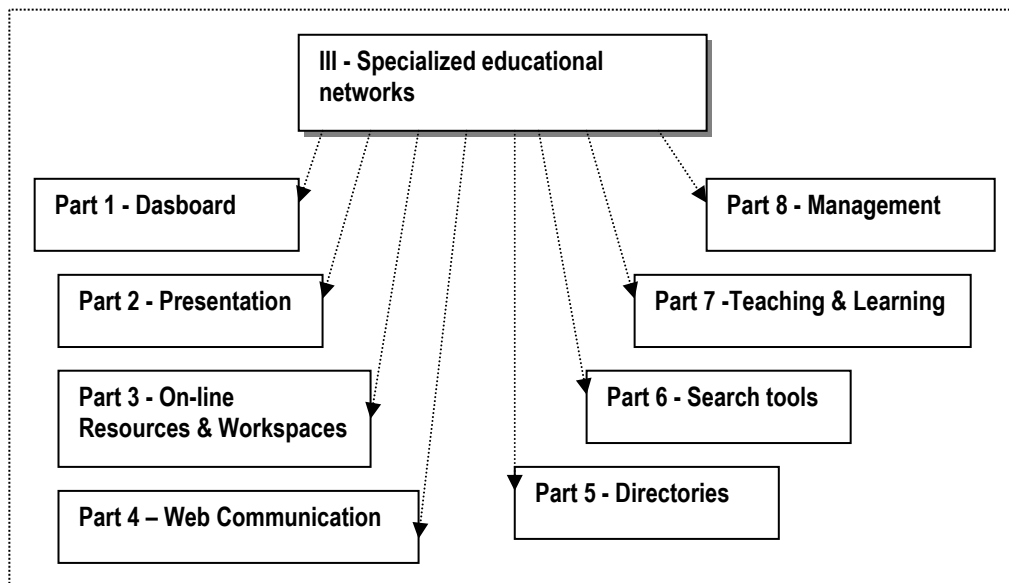
7. Teaching & Learning

This rubrique is dedicated especially to teachers or trainers who want to have a direct access to following types of (on-line) resources:

- Referenced teaching material (within the global thematic of the special interest group in, for instance, rice culture, rural tourism, etc.),
- Professional information (career, teacher’s training, ...).

8. (Web based) management of the portal

This rubrique is reserved to the coordinator(s) of a specialised portal and allows him (them) to control and maintain it.



(figure 5: principal information and communication parts of the third EAKV component: “Specialised educational networks”)

Figure four shows in a nutshell the overall logical structure – the “organigramme” – of the third information and communication component of the Euro Asian Knowledge Village attuned to the educational system in Vietnam.

6) The component “E-Library of educational resources”

This central component encompasses, as already stated above, the three following *functions*:

1. The function of an **e-library**;
2. The function of a (commonly shared or private) **work space**;
3. The function of an **editing** and **publishing environment** of (multimedia) pedagogical materials.

More particularly, the major elements of this component are:

1. the on-line library catalogue of resources of educational relevancy;
2. the online educational resources;
3. “All in one” courseware available online;
4. Experiences and “best practices”;
5. Pedagogical programs, assessment and management guidelines;
6. Tools for editing and publishing multimedia resources for teaching and learning in rural education
7. Methods and templates for editing multimedia resources.

1. The on-line library catalogue

It is – typically - a catalogue of titles of educational resources (available either off-line or on-line). The information structure of the catalogue is the following one:

1. *general (librarian) information concerning a resource* :
 - author(s),
 - title;
 - type of resource;
 - description;
 - domain; key-words;
 - rights;
 -
2. *pedagogical relevancy of the resource* :
 - principal user type (teacher, learner, ...);
 - learning context (school, vocational training, self-learning, ...);
 - cognitive level of the resource;
 - pedagogical function of the resource (information, exercise, tests, project outlines, ...);
 - ...
3. *discussions and annotations* of an educational resource by (authorised) users of these resources (experiences; uses in concrete situations, ...)

Note: the general information aspect will integrate – partially - the *Dublin Core* standard.

2. The on-line educational resources

This is a (textual, audiovisual, photographic,...) archive of scanned and *on-line available* resources for the teaching and learning in the field of rural education. The global organization of this archive recovers:

1. files and structured data (= on-line available resources);
2. the description of the files and data similar to the information structure of the catalogue described above:
 - a) general (librarian) information of a resource
 - b) pedagogical relevancy of a resource
 - c) discussions and annotations of a resource

3. “All in one” courseware on-line

This is a library of already pre-packaged courses already used within and appropriate to specific teaching contexts or situations in rural education (i.e. it is constituted by a set of “pedagogical reference material” for *specific* teaching and learning situations). The global organisation of this library recovers :

1. courses (assembled files, data and programs) + other resources already tested and used in a specific teaching situation;
2. description of the courses similar to the above presented information structure of the catalogue:
 - a) general information.
 - b) pedagogical relevancy,
 - c) discussions and annotations.

4. Experiences and “best practices”

This is a multimedia library of presentations, testimonies and discussions of concrete teaching and learning experiences (situations) in Vietnamese communes. The organisation and function of this library recovers:

1. testimonies or otherwise recorded concrete pedagogical experiences (simple text files, on-line videos, explanative hypertexts, ...)
2. description of this material similar to the above presented information structure of the catalogue:
 - a) general information.
 - b) pedagogical relevancy,
 - c) discussions and annotations.

5. Pedagogical programs, assessment and management guidelines

This is a library of pedagogical programs and guidelines (i.e. “lesson and assessment plans”) that are to be used, in Vietnam, by a teacher or trainer in rural education. They recover more specific pedagogical topics such as:

- “Classroom” organization and management;
- “Classroom” management;
- Lesson and assessment plans;
- Instructional design procedures of curricula and evaluation;
- Guidelines for self-oriented training;
- Specific methodologies in rural education (such as the ARD – Active Research for Development - methodology developed by the International Centre for Development oriented Research in Agriculture⁴);
- Etc.

Such guidelines are, in general textual resources explaining the teacher or trainer how to plan his/her course, the pedagogical materials that could (should) be used as well as the procedures of assessing the knowledge acquisition by the learner. The general organisation of this library recovers:

1. simple text files or hypertext products containing the lesson and assessment plans for the teacher, trainer or the responsible person of a course ;
2. description of this material similar to the above presented information structure of the catalogue:
 - a) general information.
 - b) pedagogical relevancy,
 - c) discussions and annotations.

6. Tools for editing and publishing multimedia resources for teaching and learning

The (authorised) user (teacher, trainer, responsible person of a pedagogical framework in rural education, ...) must have the possibility to exploit actively the e-library resources of the EAKV. This means especially that an – authorised – user should be enabled to:

1. *Build his/her own pedagogical archive* out of the resources available in the EAKV;
2. *Organise (classify, describe, annotate and index) the selected resources* with respect to his/her specific pedagogical needs, objectives, domains as well as pedagogical situations;
3. *Assemble* - with respect to his/her specific pedagogical needs and objectives - (pieces of) *selected resources* in order to create his/her own (personalised) support for a concrete teaching situation;

⁴ cf. the ICRA web site : <http://www.icra-edu.org/> for more information

4. Publish his/her personalised teaching on different (available) supports and technologies: VCD, CDROM, paper, VHS cassettes, web sites, ...

This means that the EAKV library must be provided with tools or an “environment” that enable an authorised user to process the four above quoted tasks. A set of tools are needed:

1. A tool for creating a “personal” web space (“archive”, “portal”);
2. A tool for producing classification categories (i.e. an “ontology” or a small “thesaurus”);
3. A tool for indexing, describing and annotating resources;
4. A tool for linking and assembling (pieces of) resources;
5. A tool (tools) for multi-support publishing.

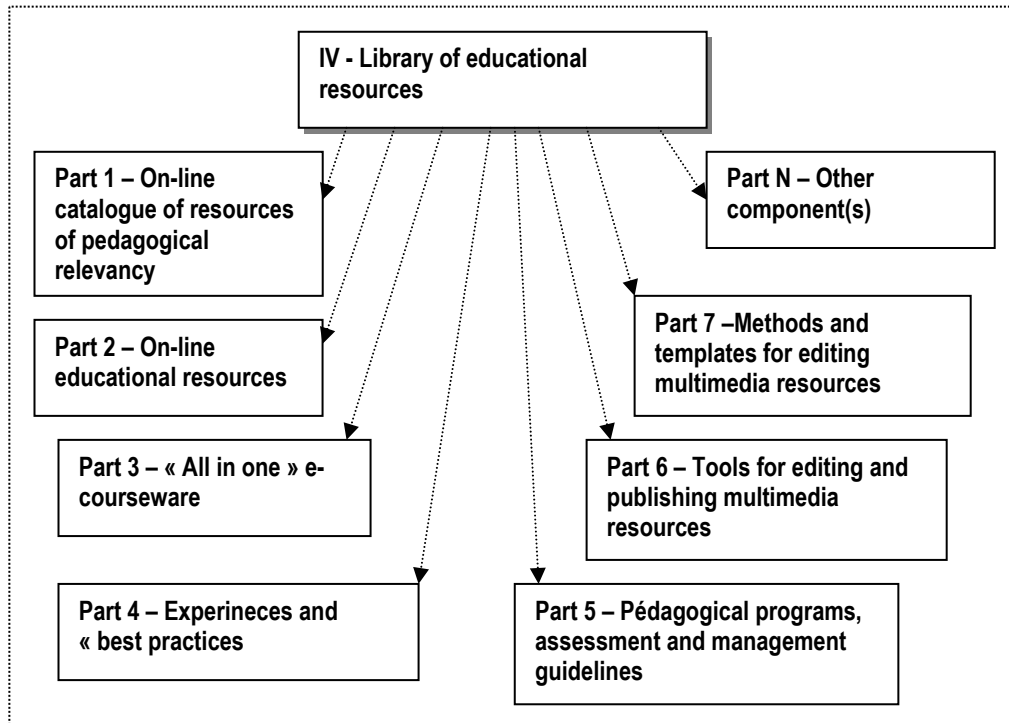
7. Templates and methods for editing and publishing a courseware

This is a library of easy-to-use models or templates helping the author (teacher, trainer, ...) of a courseware in selecting, organising and “printing” content relevant to a given teaching and training situation in rural education. The principal types of such models or templates are the following ones:

- Templates for knowledge presentation and transfer (i.e. for selecting and organising relevant content belonging to the knowledge domain of a course);
- Templates for organising a set of lessons in a curriculum;
- Templates for creating exercises and tests;
- Templates for specifying evaluation forms;
- Templates for editing learner (user) guides;
- Templates for editing teacher guides;
- Templates for editing “classroom management” guides;
- Etc.

These templates are conceived either as simple guidelines for facilitating the publishing process of educational material or as scenarios of “slots” or “placeholders” that have to be filled out by the author of an educational material. Templates understood as “placeholder models” have to be integrated within the editing and publishing environment (cf., supra, component 6) as specific and constrained “views” (or view points) with the help of which the author of an educational material select, index and assemble on-line resources available in the EAKV resource library.

Figure five, finally, shows in a nutshell the overall logical structure – the “organigramme” – of the fourth information and communication component of the Euro Asian Knowledge Village attached to the educational system in Vietnam.



(figure 6: principal information and communication parts of the fourth EAKV component: “Library of educational resources”)

7) The component “EAKV search and exploration tools”

The fifth component recovers all information search and navigation possibilities within the EAKV. There are three types of search (and exploration) tools within the EAKV:

1. General search and navigation tools;
2. Search tools restricted to specific information spaces within the EAKV global information space;
3. Specialised search and exploration tools based on the OPALES editing tool of e-resources.

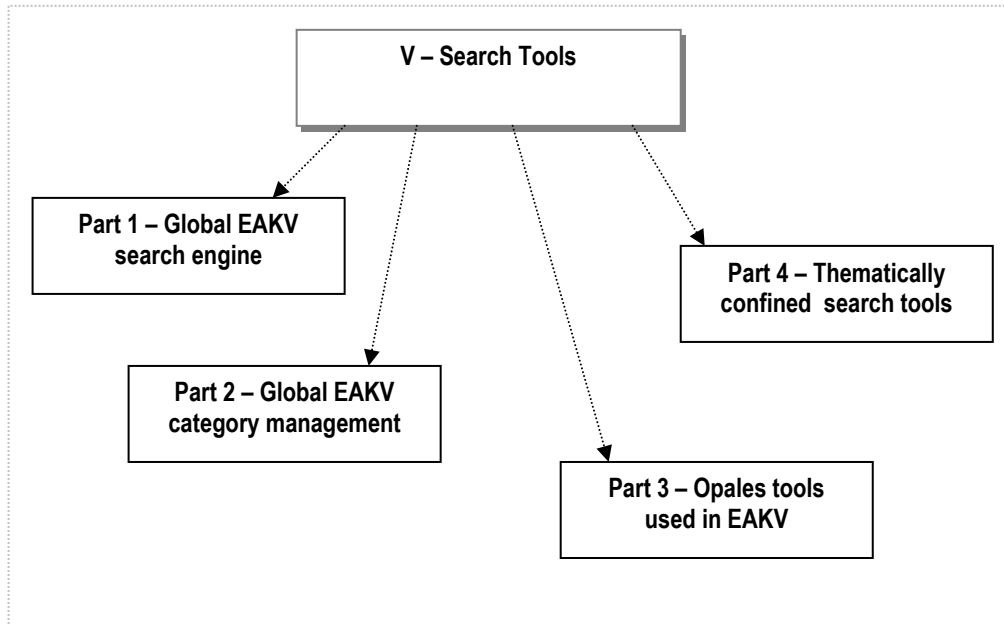
Part 1. The search engine

The *general search and navigation possibilities* are the following two ones:

1. The search engine itself;
2. A management tool for organising and searching the EAKV resource library through specific topics, themes or “knowledge spaces” (comparable to the Yahoo or Dmoz directory).

Both tools recover the whole EAKV information space. The search engine indexes not only textual information (contained in e-documents) but also

structured information (databases, structured descriptions of data, etc.). It is, obviously, a multilingual indexing tool.



(figure 7: principal information parts of sixth EAKV component: “Practical information for teachers and trainers”)

From the point of view of the user, the search engine can be used for “quick” and “simple” search but also for advanced search of information within the EAKV information space – advance search taking into account parameters such as:

- signaletic information restriction (author, title, year, language, ...);
- pedagogical information restriction (pedagogical relevancy, pedagogical context, pedagogical objectives, pedagogical level, ...);
- information restriction with respect to other descriptive meta-data of resources (document profiles, ...).

Part 2. Confined search tools

These are search tools (such as directories, event calendars, agendas, etc.) are restricted to specific topics and integrated in the corresponding information components of the EAKV.

Part 3. Specialised search and exploration interfaces

This is a particular case. It concerns the search and navigation interfaces produced by authorised users themselves working with the above mentioned OPALES tool for editing (indexing, annotating, assembling, ...) educational resources.

Figure six shows in a nutshell the overall logical structure – the “organigramme” – of the sixth information component of the Euro Asian Knowledge Village attuned to the educational system in Vietnam.

8) The component “Communication facilities”

This component recovers all communication tools and facilities between the members of a specialised thematic network in rural education, the EAKV team or again other yet to be identified user groups. Following means constitute the (web based) communication possibilities in EAKV:

1. Web mail;
2. Diffusion lists;
3. Thematically restricted discussion fora;
4. Shared agendas;
5. Multimedia conferencing opportunities via the web.

Part 1. Web mail

The EAKV has to be understood as an application based on functionally different server technologies. One of these server technologies is a (SMTP) mail server. This means that the EAKV will propose – for registered member and member groups – web mail boxes.

Part 2. Diffusion lists

For the different specialised thematic networks in rural education as well as for other information spaces within EAKV, diffusion lists will be established for keeping informed registered members as well other (anonymous) users.

Part 3. Thematically restricted discussion forums

If expected or required, the EAKV will provide networks of users in rural education with discussion forums that are connected to the educational resources relevant with the topics and objectives of a given specialised network.

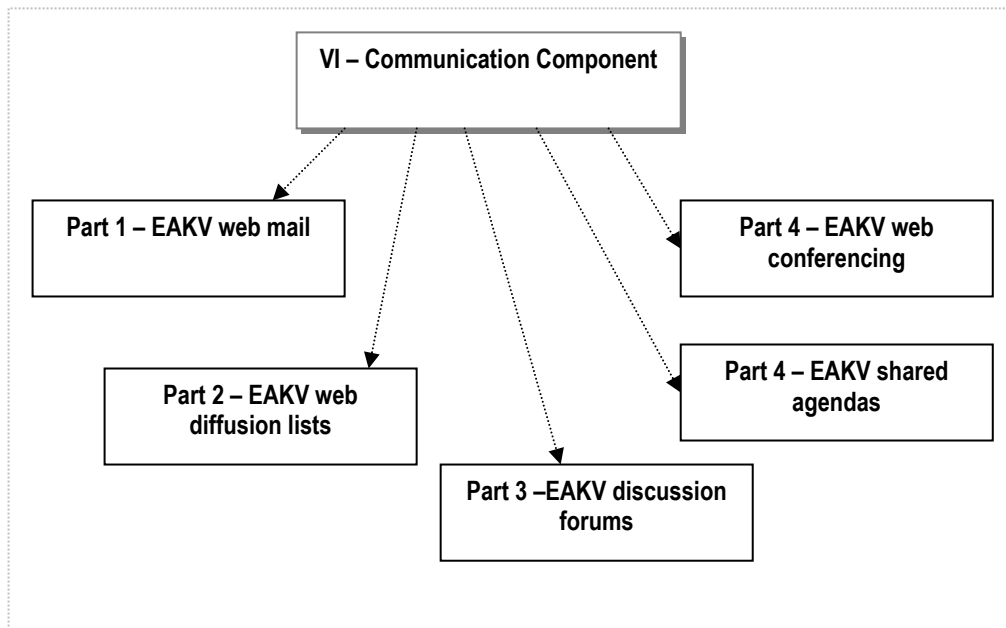
Part 4. Shared agendas

If expected or required, the EAKV will propose networks of users in rural education the possibility to share agendas for coordinating common activities or activities of common interest – agendas that are completely integrated with the other web communication facilities.

Part 5. EAKV multimedia conferencing on the web

EAKV will integrate the possibility for registered member groups (teachers, trainers, experts, participants in specialised networks in rural education, ...) to plan and realise conferences (workshops, training courses, ...) on the web for small groups (till 15 persons) with the help of multimedia technology (video) and the possibility to intervene on the desktops of the participants (if accepted).

Figure seven shows in a nutshell the overall logical structure – the “organigramme” – of the sixth component of the Euro Asian Knowledge Village attuned to the educational system in Vietnam.



(figure 8: principal information parts of seventh EAKV component: “Web based communication facilities”)

9) The component “Subscription management”

As already specified in third chapter above, this component recovers the management of subscriptions contracted by users (anonymous and/or identified ones) in order to stay informed on specific topics in rural education in Vietnam. It is divided in:

- A tool for (anonymous, identified) users for contracting an subscription;
- A management tool for the coordinator of the EAKV to follow all abonements.

This component is physically integrated in the several information component of the EAKV, on the one hand, and in the EAKV management component (see below).

It functions as a kind of “newsletter” automatically generated and send, followed a fixed periodicity, to registered users.

10) The component “Shared workspaces & Management”

This component allows the manager(s) of the EAKV or the coordinators (moderators) of a specialised thematic network in rural education to configure and organise a workspace for a group of users (as well as individual users) working on specific topics and identified objectives. It incorporates following management tools:

1. Configuration of a (“stand alone”) *dashboard*;
2. Access to *generic information templates* (models provided with “placeholders”) that a registered user (group) can instantiate with respect to a given sub-domain in rural education;
3. Access to generic *directory tools* (addresses, web sites, ...) for building specific directories for the given sub-domain in rural education;
4. Access to specific *document directories* (sub-directories) for storing and sharing e-resources relevant for the given sub-domain in rural education;
5. Access to specific *document profiles* adapted to the needs and objectives of a given user group working on the sub-domain in rural education;
6. Access to the information search and exploration tools of the EAKV for adapting them to the specific sub-domain in rural education;
7. Access to the web *communication tools* of the EALV in using them within their work on the identified sub-domain in rural education;
8. Access to the *subscription* (“newsletter”) management tool restricted to the given sub-domain in rural education;
9. Access to the *Opales editing environment* for indexing, annotating and assembling e-resources relevant for the given sub-domain in rural education;
10. Access to the educational templates for building pedagogical e-resources for the given sub-domain in rural education.

11) The component “EAKV Management”

This component is strictly reserved to the coordinator(s) of the EAKV and contains the principal management tools of it:

1. *System management tools* (portal configuration, member directories, security management, stand alone dashboard configuration, ...);
2. *Information management tools* (announcements, news, mails, diffusion lists, ...);
3. *Document knowledge management tools* (organization of the e-library and the e-resource profiles)
4. Thematic category and search engine management of the EAKV information space;
5. *Generic information and educational templates* (models) management;
6. *Content management* of the global EAKV information space.

12) The underlying technologies of the EAKV main components

12.1) Information technologies and components

The implementation of the EAKV portal has to take into consideration a high diversity of document production, management and distribution technologies and standards of which the principal characteristics the following ones have to be mentioned:

a) Structured, semi-structured, unstructured e-resources

Structured:

Data in databases (relational databases)
Meta-data (DC, SCORM, xml schemas)
Document profiles

Semi-structured

Templates: information templates and educational templates (placeholder models; knowledge objects; dynamic models)

Unstructured

Simple and complex document files (complex = hyper-documents)

b) Multilingual e-resources

This means Unicode compliancy of Vietnamese written documents (as well as probably of documents written in other languages of the South-East Asian region: Laos, Cambodia, ...)

c) Multiple file types

This feature refers to text documents (pdf, doc, txt; ...), static visual resources (jpeg, gif, png; ...); video resources (wmv, mpeg; ...), etc.

e) Sharable e-resources

This feature requires a DAV technology (Document Authoring and Versioning) the allows the management of different versions of one e-resource

f) e-resource access and publication

This characteristics implies :

- the distinction between public, restricted, private, ... accesses to e-resources in the EAKV portal;

- the distinction between open extranets and closed (secured) intranets within the EAKV portal;
- the possibility to distinguish and to manage different user roles (manager of the EAKV portal, coordinator of a given work space; author within a given work space; reader of e-resources available on the EAKV portal web site; ...)
- an efficient security and authentication management;
- an efficient approbation management controlling the workflow of e-resource production, maintenance and distribution within the different work spaces composing the EAKV portal.

14) Server Technologies and Specialised Softwares

In order to build the *EAKV network* and to implement the *EAKV web portal*, a sophisticated family of Microsoft server technologies has been chosen:

SPS (Sharepoint Server) 2001 (2003)

Implementation and management of

- e-resource library;
- specialised work spaces;
- pedagogical document profiles;
- reusable web parts;
- category management;
- search engines;
- subscription (“newsletter”);
- announcement and news;

CMS (Content Management Server) 2001 (2003)

Implementation and management of generic web templates (placeholder models) for dynamic web sites

SQL Server 2000

Implementation and management of:

- directories
- calendar of events
- “archives” of (bibliographical, iconographical,) records
- benchmarking of web sites.

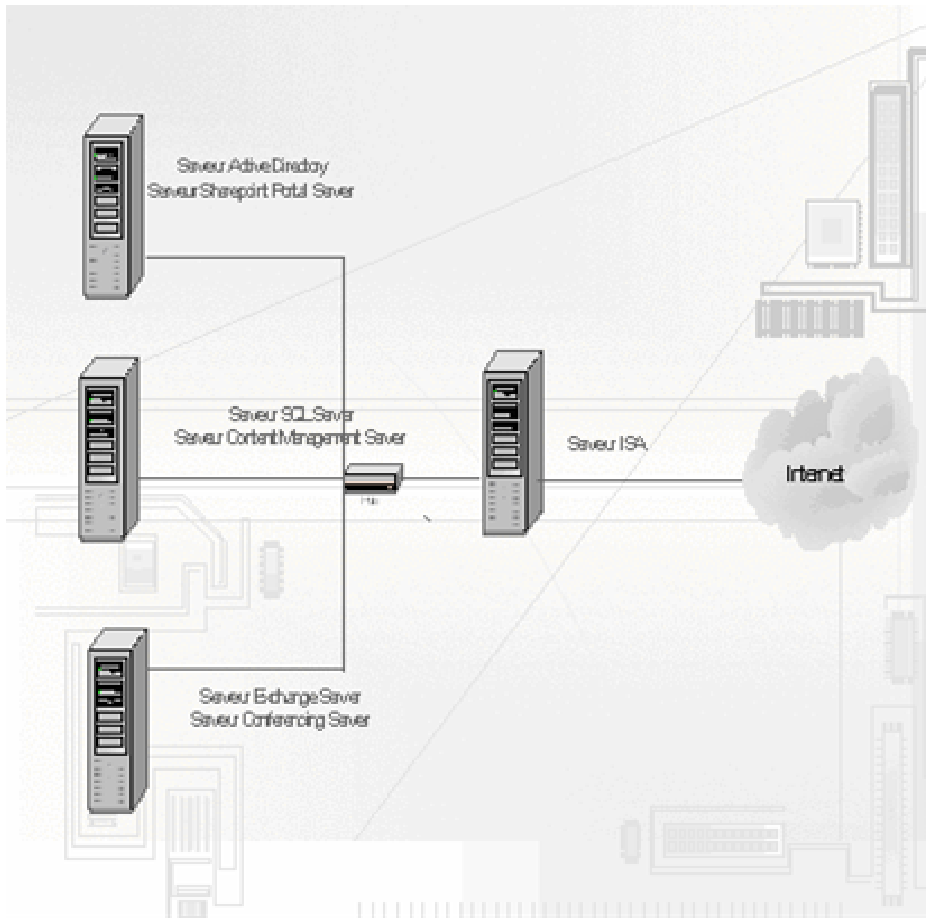
Exchange & Conferencing Server

web mail, discussion forums, shared agendas, web conferencing

Active Directory and ISA (Internet Security and Acceleration Server)

Management of different user roles and user groups as well as of the security of the EAKV network

The general architecture of the EAKV network is presented in figure 9



(figure 9: the technological architecture of the EAKV network)