INFORMATION SOCIETY TECHNOLOGIES (IST) PROGRAMME

Contract for:

Combined RTD & Demonstration project

Annex 1 – Attachments

Project acronym: **REGNET**
Project full title: **Cultural Heritage in Regional Networks**
Proposal/Contract no.:   **IST-2000 - 26336**
Related to other Contract no.:

Date of preparation of Annex 1 – Attachments: 2000-09-29

Operative commencement date of contract:

List of Attachments

WEB-Presence to be developed

The REGNET-Project Activities will be supported by a WEB-Server which is located at AIT. The Server can be accessed by the **project members** via: http://www.regnet.org and is protected by User Id and Password. There is also a **public area** which can be accessed via: http://www.regnet.org/pub . The Server is already up and running.

The structure of the Server Content is like this:
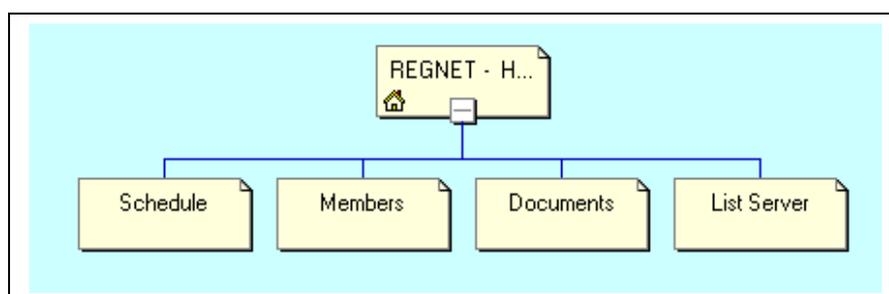
There are four main sections, namely:

- Schedule
- Members
- Documents
- List Server

The actual layout looks like this:

Schedule contains important events, deadlines, milestones in chronological order,
Members gives partner related information (organisational details, key persons),
Documents contains relevant contractual and work package/task related information as well as supplementary information (publications, standards, etc). This sections is structured into sub trees as appropriate.
List Server provides details of discussion lists available for the REGNET-Partners. In addition to a general list: regnet-eu@cscaustria.at there will be special lists dedicated to work areas.
The **public part** of the REGNET WEB-Server is already provisionally set up:

As soon as the project will start this page will be redesigned and structured in the following way:

1.   project description
2.   consortium
3.   public documents
4.   internal communication space (link to member section)
5.   other projects
6.   dissemination activities & news
7.   web map
8.   search

The public part of the WEB-Server will be multilingual while the member related part will be maintained in English language only.

According to the progress of the REGNET Project there will be also introduced a public discussion list: regnet@cscaustria.at

For uploading purposes there is already running a ftp-Server which can be accessed via: ftp.regnet.org

The WEB-Server pages will be included in the Deliverable D16: "Project Presentation".

REGNET User Requirement (URQ) activities.
The URQ Activities in REGNET are primarily based on different concepts:
The general approach follows the recommendations laid down in the "ESA SOFTWARE ENGINEERING STANDARDS" (ESA PSS-05-0):

"1.2.1   UR phase: user requirements definition

The UR phase is the `problem definition phase' of a software project. The scope of the system must be defined. The user requirements must be captured. This may be done by interview or survey, or by building prototypes.   Specific user requirements must be identified and documented in the User Requirements Document (URD).
The involvement of the developers in this phase varies according to the familiarity of the users with software. Some users can produce a high quality URD, while others may need help from the developers.
The URD must always be produced. The review of the URD is done by the users, the software and hardware engineers and the managers concerned. The approved URD is the input to the SR (Software Requirement activities) *phase.*
Before the completion of the User Requirements Review (UR/R), a Software Project Management Plan outlining the whole project must be produced by the developer. This plan must contain a cost estimate for the project. Detailed plans for the SR phase must also be produced."

Within REGNET there are two Work Areas which are mainly affected by URQ activities:

Work Area A: Content Creation and Content Management

In this area the URQ process is supported by a simple method developed in the field of Cultural Heritage: DIYSA – Do It Yourself System Analysis. The collection of requirements is supported by different work sheets as shown at left hand ('File'). The work sheets are dedicated to:
- Files (catalogues)
- Data fields
- Procedures
- Input-Output
- Statistics

Work in this area also includes the development of user scenarios as shown below.

DIYSA - File - work sheet (Page 1)

Instructions: For each „file" you have to use one work sheet. Files that are actually not used shall als into account.

Filename:

Format:	Measures:
( ) Index cards	( ) DIN A4
( ) Inventory	( ) DIN A5
( ) Note book	( ) DIN A6
( ) Others:	( ) DIN A7
	( ) Others:

Description:

Location:

| Use	from:	to:
Status:	( ) in use	( ) finished

USER SCENARIOS

The scenarios outlined below are only simplified examples and should be considered as first reference to e-business processes only. Within the REGNET-Project there will be an own Work Package dealing with the elaboration of business cases (functions and processes) based on actual needs of all relevant partners within the Cultural Heritage domain.

1.   Business to Consumer (B2C):

A tourist in wants to buy articles related to the cultural heritage of a region; he/she is interested in physical goods from one or more museum shops as well as in specific surrogate (images) of cultural objects located in museums, archives, or libraries in the region.

Solution: He/she uses a terminal at a tourist office, searches the virtual catalogue for relevant images and information, browses the catalogues containing articles located in museum stores and places orders. Goods are delivered on sites he/she addresses within the order placement.
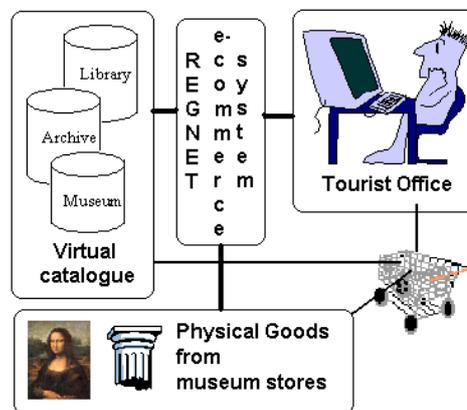
2.   Business to Business (B2B):

A museum wants to produce a CDROM containing information about specific objects that he/she is interested in and which are related to a region.

Solution: The curator at the museum's side selects relevant information (text, images, films); he/she contacts a media producer, selects the basic layout/storyboard for the CDROM and works out together with the industrial partner - eventually with the help of other expert(s) - the final storyboard and the work flow necessary for the production process. He/she signs a contract for the production process and receives the master copy of the CDROM.
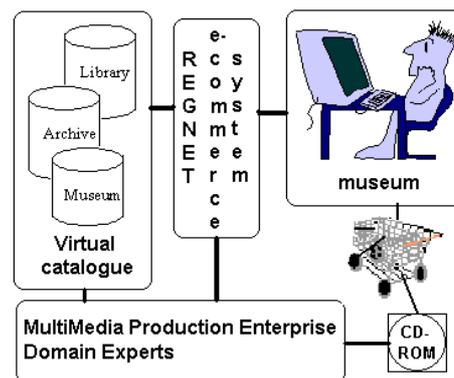
3.   Consumer to Consumer (C2C):

The owner of a private collection wants to sell some of his/her assets on a maximum prize. He/She thinks about putting the offers on the internet.

Solution: The owner of the collection digitises with the help of a **REGNET**-Partner (e.g. Cultural Service Centre/CSC) surrogates of the goods which will be sold. Additional information and expertises are gained after consultation of the Virtual Catalogue. An dedicated Internet Auction System is set up at an Cultural Service Centres (CSC) site and offers bidding to interested user communities. The marketing of this auction is supported by the CSC. This business case can be considered as combination of B2C and B2B functions and demonstrates that a stakeholder can obtain different roles in different biz-cases.
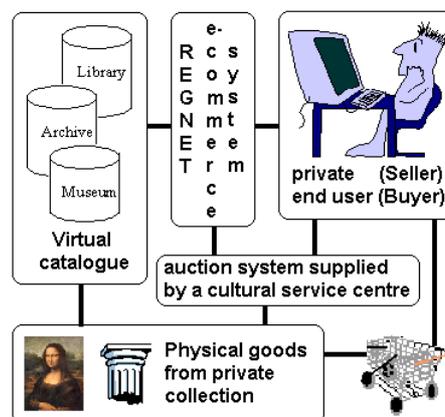
Within Work Area B (Platform Engineering) highly technical related UML will be used as far as possible. Use Cases which reflect different scenarios will be developed as outlined in the "Pop kin Software White Paper":

"Use Case Modelling

Use Case modelling is the simplest and most effective technique for modelling system requirements from a user's perspective. Use Cases are used to model how a system or business currently works, or how the users wish it to work. It is not really an object-oriented approach, it is really a form of process modelling. It is, however, an excellent way to lead into object-oriented analysis of systems. Use cases are generally the starting point of object-oriented analysis with UML.

The Use Case model consists of actors and use cases. Actors represent users and other systems that interact with the system. They are drawn as stick figures. They actually represent a type of user, not an instance of a user. Use cases represent the behaviour of the system, scenarios that the system goes through in response to stimuli from an actor. They are drawn as ellipses.

Each Use Case is documented by a description of the scenario. The description can be written in textual form or in a step-by-step format. Each Use Case can also be defined by other properties, such as the pre- and post-conditions of the scenario - conditions that exist before the scenario begins, and conditions that exist after the scenario completes. Activity Diagrams provide a graphical tool to model the process of a Use Case."

"Capture and/or Verify Requirements

The final objective of any software design is to satisfy the user requirements for the system. These requirements can be software requirements, product requirements, or testing requirements. The goal of capturing and verifying user requirements is to ensure that all requirements are fulfilled by the design, and that the design conforms to the defined requirements.

Oftentimes system requirements exist already in the form of requirements documents. Use Cases are used to correlate every scenario to the requirements it fulfils. If the requirements do not exist, modelling the system through Use Cases enables discovery of requirements."

To support the development of Use Cases templates like shown below will be used.

No:	**Number of use case = UCx.x where**
	UC … use case
	x.x … number of use case diagram(UD).number of use cas
Name:	name of the use case
Description:	short description of the use case
Impl. Phase:	implementation phase of the use case (i.e. 1 or 2)
Actors:	actors
Pre Conditions:	• pre conditions to the use case
Post Conditions:	• post conditions to the use case
Notes:	•
Tasks:	•
Questions:	•

A Use Case diagram looks like this:
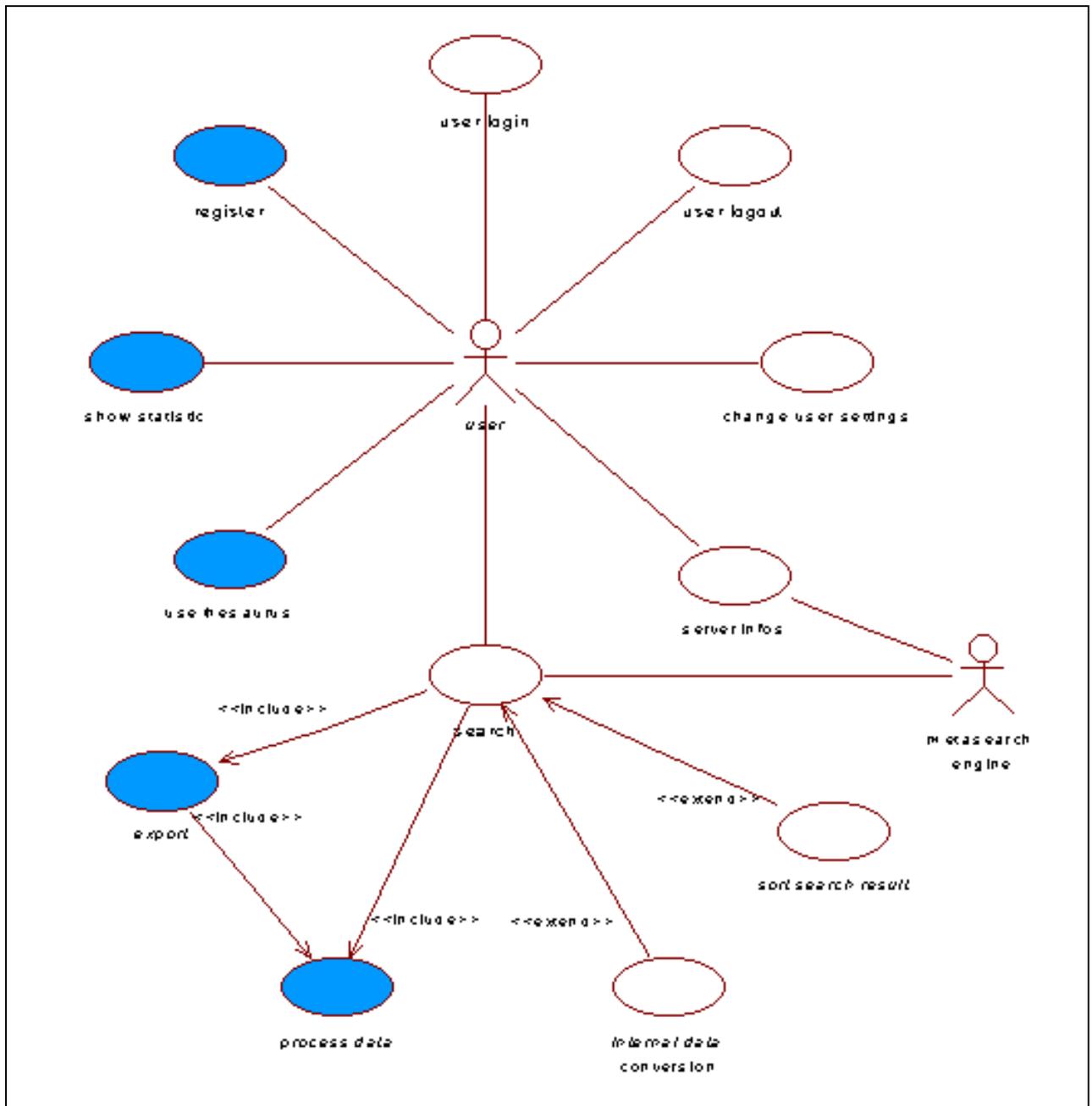
The REGNET System Architecture

The REGNET Project is developing building blocks to set up a service infrastructure for organizations and users in the field of Cultural Heritage. These blocks (referred to as 'nodes' within the REGNET Architecture) which constitute the REGNET-System are supporting access to cultural & scientific information as well as to product & service information offered by different organizations. The building blocks are outlined in figure 1.
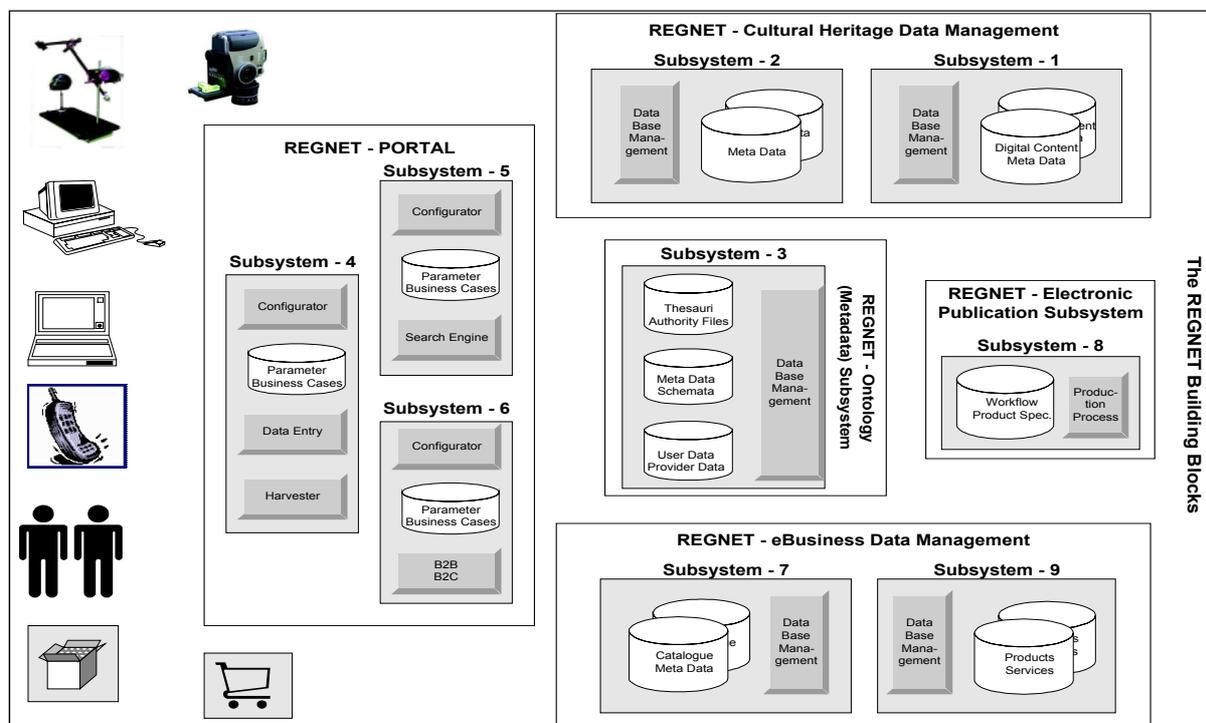
Figure 1

The REGNET-Node-Types:

The REGNET-System consists of different nodes which can be located on different Hardware/Software-Platform. These Nodes ('building blocks') are:

- REGNET-Portal,
- REGNET-Cultural Heritage Data Management,
- REGNET-eBusiness Data Management,
- REGNET-Ontology Checker,
- REGNET-Electronic Publisher.

These nodes host **REGNET-components** ('subsystems') which provide following functionalities:
- Repository Management (subsystem-1)
- Reference System Access (subsystem-2)
- Knowledge Base Access (subsystem-3)
- Data Generation (subsystem-4)
- Search and Retrieval (subsystem-5)
- E-Business (subsystem-6)
- Product Catalogue Management (subsystem-7)
- Electronic Publishing (subsystem-8)
- Procurement Invocation (subsystem-9)

REGNET-Portal:

```
┌─────────────────────────┐
│  REGNET-Portal          │
│                         │
│   ┌─────────────────┐   │
│   │ Data            │   │
│   │ Generation      │   │
│   └─────────────────┘   │
│                         │
│   ┌─────────────────┐   │
│   │ Search          │   │
│   │ System          │   │
│   └─────────────────┘   │
│                         │
│   ┌─────────────────┐   │
│   │ E-Business      │   │
│   │                 │   │
│   └─────────────────┘   │
│                         │
└─────────────────────────┘
```
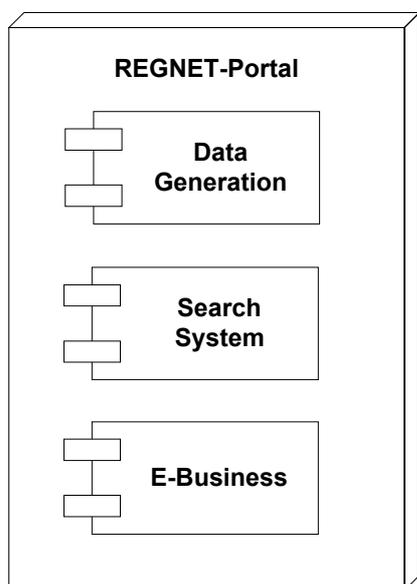
The 'REGNET-Portal node' consists of three components (subsystems), enabling access to following system functions:

Data Generation (subsystem-4):

This subsystem enables the generation of meta data either via a (configurable) data entry facility (loaded into the user's browser) or by sending a harvester to repositories included in Subsystem-1. Meta data are either stored in Subsystem-1 or -2. Data entry and harvester processes can be triggered by document type definitions (residing in Subsystem-3) according to the needs of the end user (librarian, archivist, curator). The client connected to this subsystem might even support multimedia and 2/3D data input of digital content.

Search and Retrieval (subsystem-5):

The Search Subsystems allows distribution of searches to different repositories and the merging of different result sets delivered by repository subsystems. It includes a subject gateway which directs queries in a domain or user profile specific way to repositories. Besides this query mechanism which is well known in the library/archive/museum world (Z39.50 based), this subsystem also provides the user with the possibility to distribute queries to product catalogues related to e-commerce systems (e.g. used by managing a museum store). Searches can be done on collection or item level.

E-Business (subsystem-6):

Besides the pure access to digital collections of cultural and scientific content, REGNET supports business processes based on digital surrogates. This can be a simple buying function (B2C) of digital surrogates or real objects (museum shop) or even an order to produce a personalized CD-ROM based on raw data coming and pre-selected (shopping cart) from different repositories. The second case involves Subsystem-8 which supports the generation of digital goods and might involve several suppliers in a B2B case. All sub processes (electronic payment, copy right management, data entry, etc) are invoked within this subsystem.

REGNET-Cultural Heritage Data Management:

```
┌─────────────────────────┐
│ REGNET-Cultural Heritage│
│ Data Management         │
│                         │
│   ┌─────────────────┐   │
│   │ Repository      │   │
│   │ Management      │   │
│   └─────────────────┘   │
│                         │
│   ┌─────────────────┐   │
│   │ Reference       │   │
│   │ System          │   │
│   └─────────────────┘   │
│                         │
└─────────────────────────┘
```
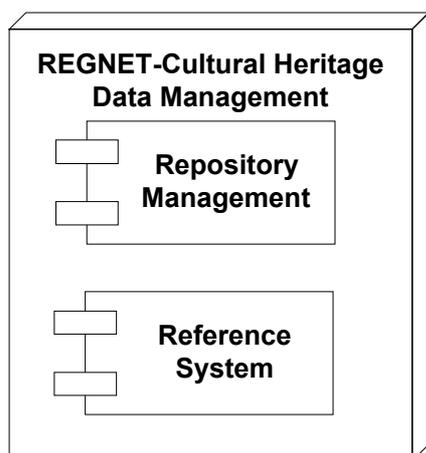
The 'REGNET-Cultural Heritage Data Management node' facilitates the management of data related to scientific and cultural heritage. The connected repositories contain electronic documents as well as surrogates (e.g. Images) of 'real objects'. This node type consists of two components:

**Repository Management (subsystem-1):**

Repositories containing digital surrogates of 'primary' (real world) objects. A repository may be accompanied by a metadata data base within this subsystem which can be accessed by standard protocols (http, ISO-

Z3950). Using conversion facilities data from legacy systems or not compliant with the REGNET meta data framework can be imported into the REGNET environment.

Reference System (subsystem-2):

This subsystem contains meta data related to the Repositories included in Subsystem-1 or Subsystem-7. It allows distributed searches over those repositories. The metadata data base is populated by uploads of Subsystem-1 or Subsystem-7, or meta data generation done within Subsystem-4 (data entry, harvesting).

REGNET-eBusiness Data Management:
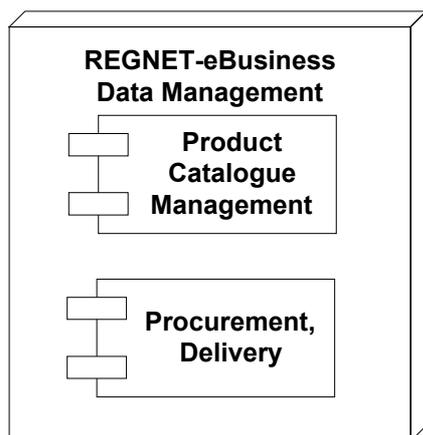
The 'REGNET-eBusiness Data Management node' facilitates the management of data related products and services. This node is connected to the procurement and delivery of goods and services provided by cultural organizations and consists of two components:

**Product Catalogue Management (subsystem-7) :**

This subsystem includes meta data describing products (real or digital) offered by content providers up to services offered by service providers (e.g. consultancy, digitisation projects, etc). REGNET allows also search and retrieval of distributed product (and service) catalogues (as included in the ebXML specifications). Doing this the user will be able to compare products which supports his/her buying decision.

Procurement, Delivery Invocation (subsystem-9):

This subsystem provides access to products and services and transforms requests into real orders or logistic processes. Contractual matters and partnerships among the different stakeholders in the REGNET-System (Content Provider, Service Centres, Added Value Generator, Dealer, etc) are dealt with by this subsystem.

REGNET-Ontology Checker:
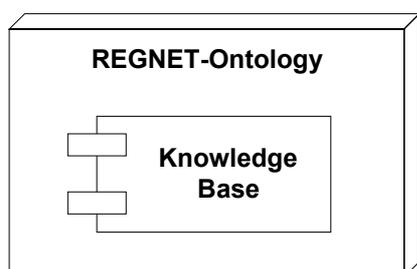
The 'REGNET-Ontology Checker node' is a core element of the REGNET system and guarantees unification with respect to terminologies, metadata, business rules, etc. There is one component hosted by this node:

Knowledge Base Access (subsystem-3):

Subsystem-3 includes data about repositories, document types, domains, user profiles, product catalogues, terminologies, external systems, etc. It can be considered as a layer between the 'user access points' (Subsystem-4, -5, -6) and the different repository (content) related subsystems (Subsystem-1, -2, -7). It includes different administration tools for managing authority files, thesauri, meta data schemas, document type definitions, etc). This subsystem might be connected to external registries.

REGNET-Electronic Publisher:

```
REGNET-Electronic
   Publishing

   ┌──────────┐
 □ │ Electronic│
   │Publishing │
 □ │           │
   └──────────┘
```
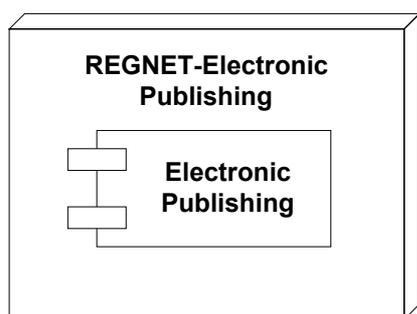
The 'REGNET-Electronic Publisher node' provides the production of digital products like CD-ROMS, WEB-sites, etc. This node consists of one component:

Electronic Publishing (subsystem-8):

Raw data located in digital repositories combined with commercial available data are the basis for personalized electronic publishing. The products generated are bound to a workflow which specifies the production process. Underlying knowledge and methodologies are accessible via this subsystem. Besides the production of CD-ROMs (e.g. using predefined story boards and workflows) the creation of virtual galleries or exhibitions or even WEB-sites are supported. The use of XSL and XML-DTDs in defining products will be investigated. Products or new workflow specifications, generated by Subsystem-8 can be used as new input to the existing range of products and services.

Risk Management

Milestones are put after WP1, WP2 which are essential for the preparation and the success of the demonstration. The work done within these two WP's is well defined and dedicated to the three work areas. Failure of one of these work packages means termination of the project. To handle the complexity of the whole project the work areas have been introduced. Each work area has a work area manager. The risk in **work area A** consists in not having representative data for both 'data management blocks' (cultural heritage, e-business). This will be unlikely since there is a large group of content providers in the project most of them already having digitised data.

The work in **work area B** (mainly included in WP1+WP2) refers mainly to the integration of already available components preferable from the public domain. The use of standards like XML and different meta data schemas (relevant for both areas: cultural heritage and e-business) supports the exchange of data to a great deal. Interoperability (internally between the REGNET Subsystems and externally to foreign systems) is based on standard protocols like http and ISO 23950. The risk not finding a unique platform for the implementation of all subsystems and having problems in interfacing them might be minimal but there is also a task dedicated to that question. Partners working in area B have in most cases already being involved in relevant projects of FP4 or are just engaged in projects of FP5. Specification and development work will be based on sound methodologies and systems like UML.

Work area C refers to all legal and contractual matters. Partnership models will be based on experiences already made in other environments, e.g. like the AMICO (Art Museum Image Consortium) project. The work related to business processes and functions can also be based on existing standards for example in the work flow domain.

To minimize the risk to handle a very large consortium a very detailed management structure down to the task level has been introduced.

Hardware/Software List

Software
REGNET will extensively use software available in the public domain (Open Software Foundation).

Platform and components (Servers, Data Base System, …)
All subsystems are based on state of the art technical platforms (**UNIX, Windows as an option**). Initially the demonstrator will be developed on **LINUX** server systems containing components available in the public domain: WEB-Server (e.g. **Apache**), Data Base System (e.g. **MySql**), XML-Tools (e.g. parsers), **Z39.50**-Server (**YAZ/Zebra**) as well as generic Internet Services like email, ftp, list management.

The architecture which supports the REGNET-system can be split into the following elements:
- Integration and automation layer (EAI) with connection to DBMS, Legacy, ERP, etc.
- Enterprise Business components (**EJB**).
- Web application platform
- Directory and security platform (based on LDAP for example)

Such an architecture can be supported by an Enterprise Java Bean (EJB) application server.

Protocols & Metadata
Protocols used comprise **TCP/IP**, **ISO 23950** and e-business related as far as available (e.g. **ICE** will be investigated). **WAP** will be used to access the REGNET 'business access points'. Data exchange will be based on the different XML developments already available in the field of Cultural Heritage (XML/**Dublin** Core, **EAD**-XML, etc) and e-Business (e.g. XML/**EDI**, **ebXML**, etc).

Programming Languages and Interfaces
Integration work on the subsystem level (each subsystem consists of a set of servers) will be done in **Java** as far as possible. Dedicated clients are in general not necessary, but an exception might be a client system enabling 2D or 3D data capture. If this client will not be delivered by another project (Open Heritage) a simple solution using **Delphi** will be developed. The repositories are either based on traditional relational data base systems (e.g. integrated via **DBD-DBI** mechanism to the WEB-Environment or managed by XML Servers. If necessary other languages will be used namely **PHP**, **Perl**, **Tcl/Tk, C++**.

Hardware
Hardware used comprises different low cost makes, no special hardware will be needed. State of the art PCs supporting LINUX will be used, especially INTEL based ones and PowerPCs.

Software methodologies

Ideas about REGNET B2B software architecture
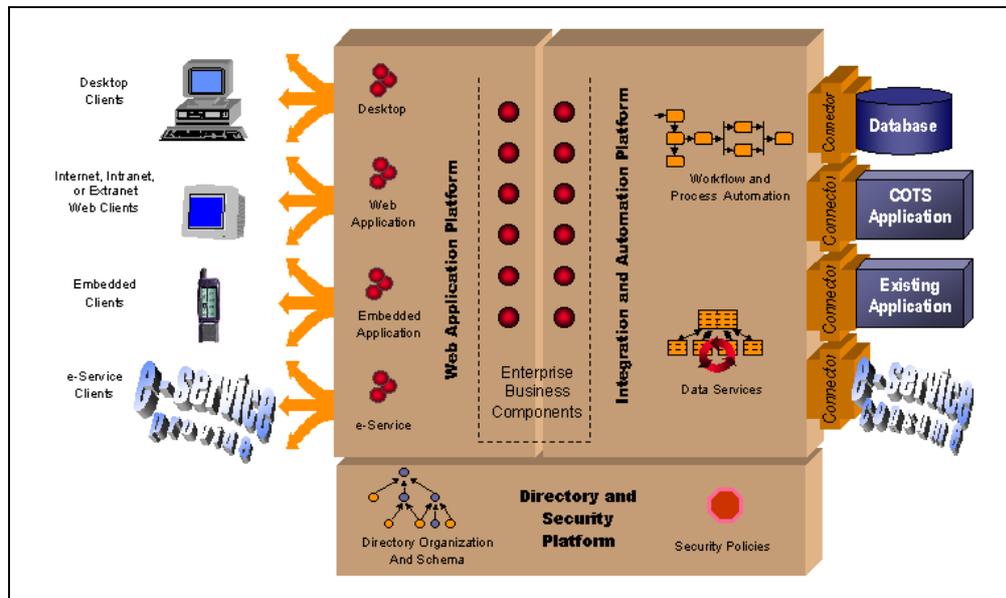
REGNET software architecture may be based on elements illustrated by the figure left side.

Incremental process

Valtech's process approach is based on three principles:

- **Incremental Development.** Increments should be limited to 3 months. This provides visibility for management, allows requirement changes along the way, and would potentially allow intermediate versions of the system to be delivered.

- **Risk-Oriented Planning**. Each increment should focus on the list of risks to be evaluated and managed, rather than on producing functionality while still leaving major unknowns. The deliverable of an increment is not just the code that works, but also the risks that are resolved by the increment.

- **Separation of architecture from functionality on separate tracks**. Separate tracks (see figure below) allow architecture to represent a specific focus within the project. A common cause of failure is the focus on business functionality, with the architecture risks only managed after the functionality is fully defined and modelled. This pushes these risks towards the end of the project. The separate architecture track should instead qualify these risks as early as possible.

Project-based Architecture Deployment

activities. Based on a cyclic model eg. the 'architecture deployment' will be done (see figure above). The target to achieve will be a 'well formed infrastructure' (right side figure). Different architectures relevant to the REGNET system design can be found below.
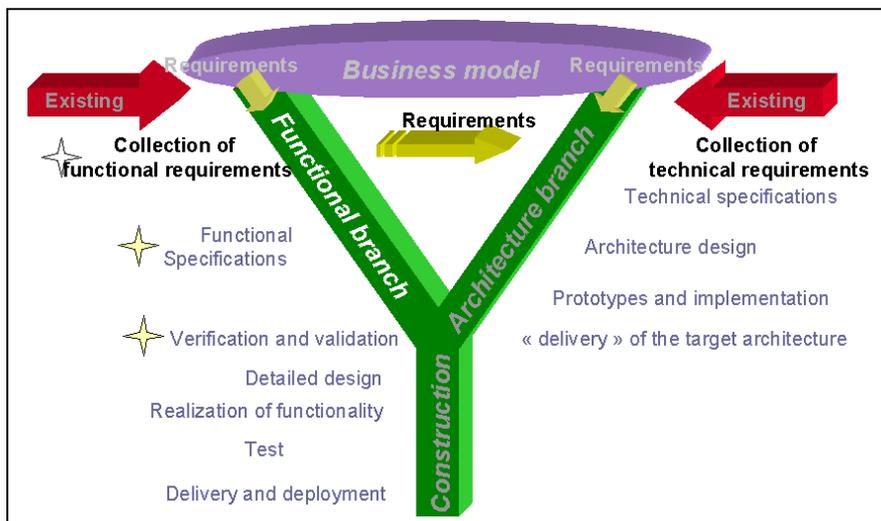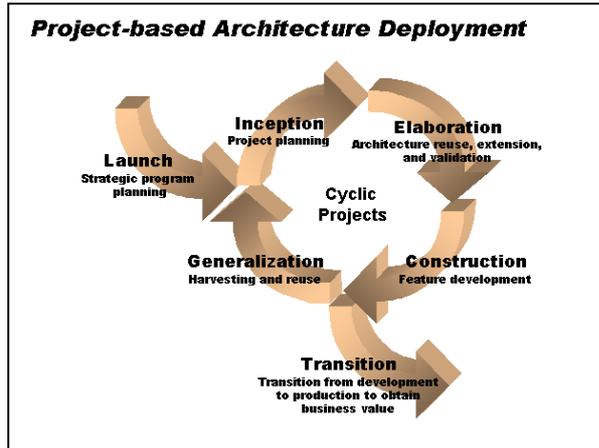
The development process can be based on different standards and best practices. As a baseline the "ESA Software Engineering Standards" (ESA PSS-05-0) and the model described in the "Pop kin Software White Paper" (see also "Rational Unified Process") will be taken for the REGNET development

Characteristics of a Well-formed Infrastructure

- **Evolution points can be changed through user interfaces on the deployed infrastructure.**
  - Runtime parameterization through management consoles
  - Runtime deployment updates
  - Scaling by adding a new node to a server cluster
- **New functionality reuses deployed capabilities**
  - Not just code reuse!
- **Cost is managed through hardware sharing and bulk agreements**
  - Requires a small consistent set of hardware and systems software vendors.
- **Operational management is centralized**
  - Unified management consoles
  - Standard operational procedures

WAP Architecture

3-tier Web Applications

Example: Distributed e-Business

NOTE: Several elements are intentionally left out of this diagram.

Tool list

Regarding the tools which can be used during the REGNET development process the general approach will be to use free software (open source as far as it is possible). The final decision will be done during the start up of the project.

For **UML modelisation** one option is to use:
- **'argouml'** (http://argouml.tigris.org/index.html)

 which is quite good for Java development. Another option consists in using
- **Rational Rose**

based products (http://www.rational.com/index.jsp) .

For **XML development** Apache Fundation sofware is an option (http://xml.apache.org/) that is:
- Xerces : an XML parsers in Java, C++ (with Perl and COM bindings)
- Xalan : an XSLT stylesheet processors, in Java and C++
- Cocoon : an XML-based web publishing, in Java and so on.

Besides this low cost products as **XML-Spy** are additional options.

For **HTTP server** and **JSP**, **Servlet engine** following option will be considered:

- Apache server + Jakarta/tomcat (http://jakarta.apache.org /).

In case it will be decided to use a **Java Application server**, which might be a good choice according to scalabilty and many other aspects following products will be evaluated:

- JBOSS (http://www.jboss.org/)
- Jonas (http://www.objectweb.org/jonas/)
- Enhydra (http://www.enhydra.org/)

Regarding the **operating system** two LINUX-Distribution will be recommended:

- Red Hat Linux (seems to be the more stable and easiest to install Linux distribution)
- SuSe Linux (popular in Europe)

For **version control and configuration management** the primary option will be:

- CVS (http://www.cvshome.org/)

Besides these all the tools available from the **GNU project** might be used during the development phase of REGNET.

For **administrative and management** purposes the **Microsoft Office Suite** of tools (Word, Excel, Powerpoint, Project, etc) will be used if possible most recent versions. The use of **Visio** also will be envisaged.

Standard **WEB-Browsers** (Internet Explorer 5.0+, Netscape 4.7+, …) will be used at client side as well as utilities for generic internet services (ftp, telnet, ping, etc)

Standards (selection)

Metadata Systems

Cross Domain Searching
Dublin Core = Dublin Metadata Core Element Set (15 Core Elements)
➡ 1995 OCLC/NCSA Metadata Workshop
http://www.purl.org/dc/

Bibliographic information objects
UNIMARC = Universal-Machine Readable Cataloging
➡ 1977 IFLA Int. Federation of Library Associations
http://www.ifla.org/ifla/VI/3/p1996-1/unimarc.htm
USMARC = United States Machine Readable Cataloging
➡ 1995 Library of Congress
http://lcweb.loc.gov/marc/bibliographic/ecbdhome.html

Archival information object
ISAD(G) = General International Standard Archival Description (26 Elements)
➡ 1994 International Council on Archives
http://data1.archives.ca/ica/cds/isaare.html

Audiovisual information object
IASA = International Association of Sound and   Audiovisual Archives Cataloguing Rules
➡ 1998 IASA
http://www.llgc.org.uk/iasa/

Museum information object
ICOM = CIDOC Information Categories (22 Kategorien)
➡ 1995 International Committee of Documentation of ICOM
http://www.cidoc.icom.org/guide/guidecat.htm

Protocol

Distributed Search and Retrieval
Z39.50 : http://lcweb.loc.gov/z3950/agency/agency.html

Data Formats

Extended Markup Language
XML : http://www.xml.com/pub

eBusiness

Virtual Business : http://www.ontology.org/
RosettaNet: http://www.rosettanet.org/
CommerceNet: http://www.commerce.net/
BizTalk: http://www.microsoft.com/biztalk/
EbXML: http://www.ebxml.org

multimedia authoring, storyboards and multimedia document models

Zyx, HyTime, SMIL, MPEG-7

EU Policies

a) "eEurope - An Information Society For All":
In this initiative (progress report; Lisbon, 23 and 24 March 2000) it is stated: "...There is increasing evidence that a 'new economy' or e-economy is emerging, mainly driven by the Internet. The European response to these opportunities and challenges has been rather slow, partly because the logic of the traditional industrial economy remains strong in Europe". This is also valid for cultural industries and institutions. REGNET will support the service infrastructure of cultural industries and institutions but this needs a restructuring of business organisations which normally is a long-run process. It is essential to identify the possibilities to incorporate the internet throughout the production and distribution chain. This will be addressed by several 'building blocks' of the REGNET system: the (distributed) search system, the electronic publishing subsystem, and both connected to the e-business component. Another aspect relates to the access to 'service centres' constituting the REGNET (European wide) network: the mobile phone penetration in the EU has passed in 1999 already the number of 150 Mio subscribers. REGNET has recognised a potential for broad access to cultural heritage related data and services and will integrate WAP access into the system.

b) "Draft Recommendation No. R(98) ... on cultural work within the information society - New professional profiles and competencies for information professionals and knowledge workers operating in cultural industries and institutions".
Within this context 'cultural institutions' are identified as 'public, semi-public or private institutions, which perform a mission beyond the commercial interests, consisting in providing cultural products and services and making them accessible to a large public. In the new electronic environment, cultural institutions are in the process of fully digitising their services, both at the stage of production and distribution to users.' This last sentence is not valid for most of these institutions, since very frequently those organisations are not aware that a WEB-site could also be a portal to business. REGNET will change this attitude and enable those institutions to sell products and services over the internet as well as enable cooperative work amongst themselves and other industries and partners.
On the technical side, REGNET will build upon distributed databases for a global search and retrieval and e-business components supporting business to business (B2B) and business to customer (B2C) relationships. In that way the effect of a common search and retrieval throughout different types of cultural & scientific and business oriented information must result in an increasing access to the resources of archives, libraries and museums.
To achieve a critical mass of products (digital as well as physical) and services it is necessary to bundle the capacities of different stakeholders coming from the cultural institutions and industries. REGNET will achieve this target by setting up an European wide demonstration initiative including three types of organisations: Content providers, service providers, and organisations providing 'access points' to the REGNET network. To get realistic results from a trial service (included in the REGNET demonstration phase) a remarkable number of organisations spread all over Europe have to work together. For that reason REGNET has an extensive number of partners coming from 12 European states and grouped into 4 regions (each region has at least one technical centre, running the REGNET system and a 'regional pole' which is responsible for the organisation of the network). The REGNET service centres can be considered as the kernel of a future network which should be able to grow fast by integrating additional institutions at all partner levels. This network will be open and accessible to different users like experts, students, home users, tourists, etc via different means, one of them the emerging wireless communication facility enabled by the still fast growing mobile telephone market. Setting up such a network cannot be done on a national level therefore the project has to be carried out on a European level.

To be in line with these objectives REGNET has set up a large European Consortium based on different types of organisations (mainly cultural industries and institutions), both users and (content & service) suppliers, with different approaches to the problem of distributing information, products, and services through Internet. They represent a wide range of expertise (libraries, archives, universities, new media, data bases, etc.) in processing documentary and electronic information (meta data and digital surrogates), and in developing and implementing software applications and solutions.

c) Structural Funds (EFRE):

The Commission has (14 July 2000) adopted new Guidelines for schemes supported by the Union to promote innovation in the regions. Funding on the order of EUR 400 million will be made available to the regions from the Structural Funds to develop innovative schemes in the 2000-06 programming period.

The proposals are aimed at three key areas of opportunity in the modern economy:

- developing regional economies based on knowledge and technological innovation;
- supporting the Commission's **"e-Europe"** initiative on the information society and, in particular, extending the benefits to the regions;
- promoting regional identity and sustainable development.

REGNET addresses exactly an innovative scheme in the domain of modern economy.

d) Culture 2000:

Culture 2000 is a Community programme established for a period of 5 years (2000-2004), with a total budget of 167 million EUR. This financial instrument will grant support for cultural co-operation projects in all artistic and cultural sectors (performing arts, visual and plastic arts, literature, heritage, cultural history, etc). The objectives of the programme are the promotion of a common cultural area characterised by both cultural diversity and a common cultural heritage. Culture 2000 looks to encourage creativity and mobility, public access to culture, the dissemination of art and culture, inter-cultural dialogue and knowledge of the history of the peoples of Europe. The programme also views culture as playing a role in social integration and socio-economic development.

REGNET Conference outline

A REGNET Conference is scheduled to be held in third quarter 2002. The Austrian National Library has offered their facilities to host such a conference. The theme will be:

"**Cultural Heritage and the new economy**".

Main topics will cover:
- New economy models for Cultural Heritage
- E-Business perspectives for museums, libraries and archives
- Wireless access to Cultural Content and services
- Electronic and personalized production of digital goods
- Information management strategies for cultural institutions
- New job opportunities
- The "digital value chain"
- Standards and methods
- Education and training

The conference will be accompanied by a exhibition (vendors and providers of innovative software solutions, e.g. virtual exhibition generator, etc)

If possible the conference will be organized in combination with an event of the CIMI Institute (Consortium for the Interchange of Museum Information) to reach also non European guests.

Besides this REGNET will be presented at the occasion of different other events like:

Conference : XML ONE (http://www.xmlconference.com/) : a publication will be done in a thematic session

International Conference "Automatics and Informatics' 2001", which will held in Sofia in October 2001

Special attention will be given to participation in **meta data** activities.
 Presentations will be given within the framework of the SCHEMAS project. (AIT is correspondent to this project).

REGNET Publications

The progress of the REGNET project, especially outcomes of current research work, will be published in international and national journals either in printed or electronic form, e.g.:

"Cultivate Interactive"
(http://www.cultivate-int.org/issue1/)
„e-Culture"
(http://www.cordis.lu/ist/ka3/digicult/en/newsletter.html)
Publications published by the „**Council on Library an Information Resources**",
Washington.
"Archives & Museum Informatics", Pittsburgh.
"D-Lib Magazine"
„ICOM News"

Besides English language publications, journals in other languages will be used to transport REGNET issues. E.g. in the German speaking region:
„Neues Museum", Wien
„Museum Aktuell", München
„Nachrichten für Dokumentation", Frankfurt

In cooperation with the Austrian National Library it is planned to start a new electronic publication, backup by a printing on demand service: "**New Economy & Cultural Heritage**".

<u>Special publications as already foreseen now include:</u>
Grossmann, S./Herget, J.: E-Commerce und Museen - Das Projekt REGNET,
VMS-Bulletin, 2001

Grossmann, S./Herget, J.: Museen auf dem Weg in die Informationsgesellschaft,
nfd - Zeitschift für Informationswissenschaft und -praxis, 2001

Herget, J.: New Economy, Museen und Informationswirtschaft - Bedeutung und
Synergien,
in: Tagung der Deutschen Gesellschaft für Informationswissenschaft
und -praxis, 2002

Grossmann, S.: Metainformationen in der Kulturwirtschaft - Ein
Analysekonzept am
Beispiel des Projektes REGNET, nfd - Zeitschift für Informationswissenschaft
und -praxis, 2001

Herget, J./Grossmann, S.: Neue Geschäftsmodelle in der Kulturwirtschaft - Am
Beispiel von
Museen. Publikation der DSK, Bern 2001

JOOP : The Journal of Object Oriented Programming (SIGS publication)

"Automatics and Informatics" - bimonthly national scientific journal

Newspaper: PC WEEK - Bulgaria

National bulletin of the Union of Artists of Bulgaria

Web site of the European Innovation Centre, branch Sofia (electronic)

Different levels of dissemination on regional basis are addressed:

1. Direct contacts with regional museums and archives with known interest in digitising their collections and/or possessing content suited for the development of cross-regional themes. Possible candidates are the regions of East Anglia and Buckinghamshire in the UK.
2. Half-day seminar in Flanders via personal invitation by mail, followed by the same event for the French-speaking part.
3. Publications mainly focused on the cultural and technological sections of newspapers and magazines covering a wide potential of REGNET-customers and -users: De Standaard, De Morgen, De Financieel Economische Tijd, Knack, Openbaar Kunstbezit in Vlaanderen. The same applies again for the French speaking part: Le Soir, La Libre Belgique, L'Echo de la Bourse, Le Journal des Arts.
4. Contacts with regional and federal authorities for the further deployment of the REGNET-services.
5. Lectures and publications within the standard activities of the involved partners.

Similar publication efforts will be made for other regions.

A specific publication strand will be focused on analysing and disseminating the implications of innovation and valorisation of cultural heritage resources in regional contexts, with special attention to the relationships between cultural heritage and tourism, and to the potential and effects of investment on cultural resources in developing regions (e.g., Obj. 1 and 2 regions). In particular 4-5 publications – coordinated with relevant activities carried out within the OpenHeritage project - will be issued covering following themes:
- *Scenarios for the investment of Cultural Heritage structural resources in less favoured Regions throughout Europe.*
- *Policies and facilitators for the widespread adoption of new technologies and solutions for the valorisation of Cultural Heritage.*
- *The meaning of "Regional" Cultural Heritage.*
- *Museum systems in regional contexts: between thematic networks and theme parks.*

REGNET-OPENHERITAGE comparison

Another project which can be considered as complementary is Open Heritage. This project targets to set up a "dot-com" company which provides services to CH institutions. While REGNET is targeting to set up an operational network with dedicated services based on scalable and adaptable components supporting a wide range of services, OH is at the beginning focusing on digitations issues as well as offering generic network services in place. REGNET will implement a cooperation network which was first outlined within the TEN-Telecom project MOSAIC (Museums over States and virtual archives). This concept was introduced in 1996 even before the start up of the AMICO (Art Museums Image Consortium) was announced. REGNET follows the network concept laid down by the Ontology.org *White paper:* The Need for Shared Ontology (Economic and business semantics underpin XML-based architectures. March 1998 touch point paper)

REGNET introduces concrete steps in the direction of wireless access to CH institutions via a UTMS test bed. REGNET in addition does not only look into the merchandising of intangible good; by the integration of museum shops and regular services offered by CH institutions (arrangements of exhibitions, provision of expertises, running internet auctions based on physical goods). By the introduction of a series of technology providers in REGNET it is foreseen that there will in short time be established several service centres in Europe based on REGNET technology which will cooperate and penetrate the CH market. A search request for "museum shops" issued to the AltaVista search engine delivers already (9/00) several hundred hits, related so several dozen museums, mainly located outside Europe. The integration of different repositories hosting scientific, cultural and commercial assets is the first attempt to integrate existing distributed search and retrieval mechanism into eBusiness related search models based on the evolving ebXML model. REGNET extends the metadata issues into ontological issues as e.g. introduced by the University of Michigan Digital Library Project.

The methodology used for business modeling within REGNET (IDEF5) differs from the methodology used within OH.

Innovative Aspects

The innovative elements within the REGNET Projects are based on the convergence of different technologies and concepts:

- **Cultural Heritage (CH) related Information Systems vs e-Business Systems:**
  Several projects have already dealt with mechanisms to distribute searches in parallel to different and heterogeneous information systems. As starting point experiences in the library field have been used (ISO 23950). The evolving XML standard is just underway to provide novel solutions to this problem (e.g. COVAX project/EU, MIX project/USA). But this problem now is also addressed by the e-business community: distributed product/service catalogues have to been queried in a unified way. The ebXML group has outlined this problem in the following way:

How a Query mechanism must scale across multiple Repositories
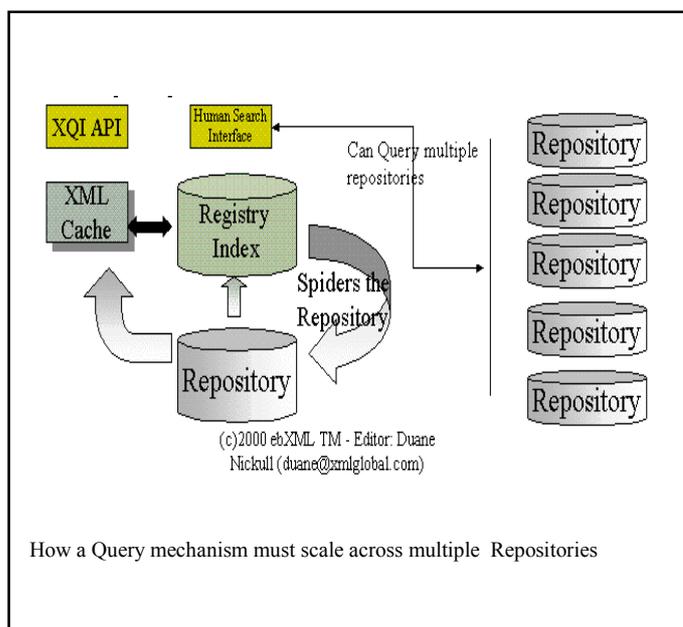
This figure demonstrates that there is a similar problem to distributed searching cultural heritage related data bases. In the framework of REGNET the addressed "Repositories" contain data referencing products in a museum store, services provided by museum experts, etc.

$\Rightarrow$ **REGNET will provide a unique access facility to query and retrieve simultaneously CH- and e-business related data via the search entry in the REGNET-Portal**.

- **Data formatting standards in CH vs EDI within business oriented systems**
  To enable the exchange of and access to data two basic elements have been provided: 'compatible' semantics and data structures. XML provides a sound standard for both areas: CIMI the Consortium for the Interchange of Museum has run a test bed project demonstrating the usage of Dublin Core meta data wrapped in an XML structure within the domain of Cultural Heritage. The e-business is developing meta data systems based on EDI (Electronic Data Interchange) as starting point for the development of DTDs (document type definitions).
  $\Rightarrow$ **REGNET will provide a unique facility to meta data definitions for both CH-related data and e-business related data via the REGNET - Ontology subsystem. REGNET addresses not only meta data related to objects, but includes also definitions of work flows, business processes, etc. which lead to the concept of Ontology within the Cultural Heritage domain.**
  (*Ontology* "An explicit formal specification of how to represent the objects, concepts and other entities that are assumed to exist in some area of interest and the relationships that hold among them.")

- **Wireless communication vs wired access facilities**
  Due to the participation of one of the world leading producers of mobile phones, REGNET can offer an WAP based access to the REGNET System. This provides a novel access method for: teleshopping, e-commerce, data base browsing, and virtual visit to museum or other masterpieces.
  ⇒ **REGNET will examine how next generation mobile networks can be exploited to widen the potentiality of WEB services in the field of Cultural Heritage. Appropriate <u>gateway</u> functions and <u>interworking</u> units will be envisaged to appropriately interface the REGNET architecture with the UMTS (Universal Mobile Telecommunication Systems) structure and ensure a seamless provisioning of REGNET services to mobile customers. Furthermore, the possibility of having access to the "mobile community" will enlarge the set of services that will be part of the REGNET demonstrator.**
 (REGNET aims at demonstrating such enhanced capabilities through a real UMTS network. However, even today, it is not clear when European mobile operators will be ready to open UMTS services and therefore the project will manage this risk through backup solutions. Since the UMTS backbone will rely upon the GPRS (General Packet Radio System) IP infrastructure, WEB services can be demonstrated through an existing GPRS network. This does not tamper the demonstrator goodness because most of the QoS (Quality of Service) issues to be evaluated during the experimentation (access delay, service quality) can be regularly assessed also through a GPRS system.)
  The mobile branch of the REGNET activities will also open the possibility of investigating novel and further application that, although not explicitly incorporated in the project work plan, might show the way for future research activity. This encompasses the use of Blue tooth technology for accessing indoor LANs as well as the interfacing with broadband mobile systems being studied and standardized in ETSI projects (BRAN).
  The applications developed within the REGNET project will be designed suitable to wireless applications as far as possible.

- **Traditional forms of organisations and business processes vs virtual enterprise concepts**
  Organisations, operating in the field of Cultural Heritage are mostly accustomed to traditional ways how to do their day to day business. The global market and new possibilities of doing business open also new forms of co-operations and activities for that organisations. Besides the enabling (e-business) technologies it is essential to introduce new ways of partnerships. As an example the 'partnership model' worked out within the AMICO framework (Art Museums Image Consortium) might be taken. This model integrates different stakeholders (content providers/creators, Compiler Warehouse/Wholesale Licensee, Distributor/Value-added Reseller, Licensee Retailer, User/Consumer) via a legal framework and is targeted to enable income to the different partners of the system. Within the demonstration phase of REGNET a network of different partners (Content Providers, Regional Poles/Business Access Points, Service Providers) will be established. One of the partners has already set up a 'service centre' based on the basic ideas of one of the TEN-Telecom Projects (MOSAIC: Museums Over States and virtual Culture). MOSAIC was probably too ambitious and too early (1996), but the basic idea to form a network of cultural service centre was very appropriate to support organisations (especially small and medium sized) in the Cultural Heritage domain.
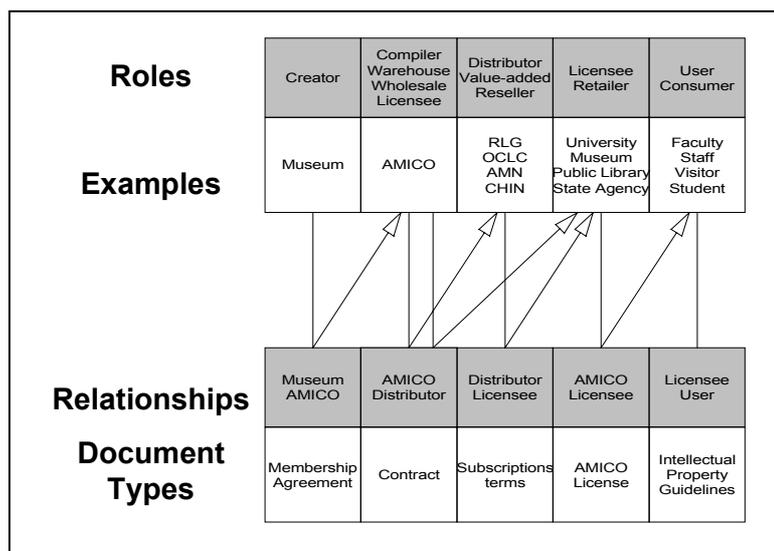
	Creator	Compiler Warehouse Wholesale Licensee	Distributor Value-added Reseller	Licensee Retailer	User Consumer
Roles	Creator	Compiler Warehouse Wholesale Licensee	Distributor Value-added Reseller	Licensee Retailer	User Consumer
Examples	Museum	AMICO	RLG OCLC AMN CHIN	University Museum Public Library State Agency	Faculty Staff Visitor Student
Relationships	Museum AMICO	AMICO Distributor	Distributor Licensee	AMICO Licensee	Licensee User
Document Types	Membership Agreement	Contract	Subscriptions terms	AMICO License	Intellectual Property Guidelines

⇒ **REGNET will provide the technical infrastructure to set up even low cost service centres which can be integrated in a 'service network'. The REGNET Legal Framework will govern this network which should enable income to the different stakeholders. Within this framework REGNET will be the 'layer' between Content Providers and Distributors or Value-added Resellers. The membership concept of the REGNET-service centres will generate a critical mass of digital or physical goods contained in Content Provider's organisations. To demonstrate the benefit of business to business (B2B) relationships the process of generating an electronic publication (e.g. CD-ROM) will be modelled and implemented.**

- **Legacy information systems vs. scalable user oriented information systems**
  In the field of Cultural Heritage traditional information and documentation systems are mainly used. Internet technology allows the introduction of scalable and ubiquitous documentation systems. A first step has been done already some time ago with the development of the 'Reggie' Meta Data Editor. This system enabled the entry of Dublin Core meta data delivering a structured record (selectable: XML, RDF, etc).
  ⇒ **REGNET will provide a data entry facility using WEB-browsers and adaptable to different needs within different domains (Museums, Library, Archives). This facility will support existing standards (ICOM/CIDOC, UNIMARC, ISAD(G), etc) and is configurable by the REGNET System user. At the e-business level REGNET provides the generation of a customised shopping cart systems within the business to consumer (B2C) framework.**

REGNET will integrate in an original way all these aspects into one single system which will be hosted on 'cultural service centres' providing 'business access points' to the CH related user community. The REGNET System will enable novel business processes and novel forms of interactions between users and data (information). The basic elements ('building blocks') of REGNET include:

- REGNET-Portal,
- REGNET-Cultural Heritage Data Management,
- REGNET-eBusiness Data Management,
- REGNET-Ontology Subsystem,
- REGNET-Electronic Publishing System

The REGNET System will be an 'enabler' to set up an 'virtual enterprise' consisting of a network of service centres which are able to support also small and medium sized organisations especially located in regions where local (IT-) services in general are not available.

Relationship to other projects and concertation

The REGNET project addresses several areas, especially:
- Metadata,
- Distributed Search and Retrieval,
- New form of cooperation.

There are several projects within the 4th and 5th Framework Program and outside the EU-domain. $\Rightarrow$ **identifies innovative aspects in addition to the related project.**

Metadata
SCHEMAS IST-1999-10010
Forum for Metadata Schema Implementers
Abstract :
SCHEMAS is a training measure under the Accompanying Measures for Key Action III - Multimedia Content and Tools - of the IST Programme, as defined in the 1999 Work programme under section VIII.3.1. SCHEMAS aims to develop a knowledge base and training materials for the design of metadata schemas and to promote international consensus-building in standards development.

REGNET will use the results of the SCHEMAS Project as baseline for its metadata system.

$\Rightarrow$ **REGNET will provide a unique facility to meta data definitions for both CH-related data and e-business related data via the REGNET - Ontology subsystem. REGNET addresses <u>not only meta</u> data related to objects, but includes also definitions of work flows, business processes, etc. which lead to the concept of Ontology within the Cultural Heritage domain.**

Distributed Search and Retrieval
ONE II & I : OPAC Network in Europe (NO)
Objectives:
The project made a service infrastructure for OPAC searching in Europe which has been extended to include other world-wide resources. Through the ONE-2 project which will be launched in 99, the demonstrators will include implementations in museums. Users will be professional cataloguers, researchers and library patrons.
Duration: To be completed summer 2000
MALVINE : Manuscripts and Letters via Integrated Networks in Europe (DE)
Objectives: MALVINE opens new and enhanced access to disparate modern manuscript holdings, kept and catalogued in European libraries, archives, documentation centres and museums.
Duration: 30 months (to January 2001)

REGNET will use results of both projects regarding to Z39.50 based retrieval and document ordering as input.

$\Rightarrow$ **REGNET will provide a unique access facility to query and retrieve simultaneously CH- <u>and e-business</u> related data via the search entry in the REGNET-Portal.**

New form of cooperation
AMICO: The Art Museum Image Consortium (AMICO) is a not for profit association of institutions with collections of art, collaborating to enable educational use of museum multimedia. Together, AMICO Members are building. The AMICO Library, a joint digital library that is a licensed educational resource available to universities and colleges, public libraries, and kindergarten through 12th grade schools.
MOSAIC - Museums Over States And virtual Culture. This project introduces to a new approach to organisation, maintenance and promotion in the field of art and museums. This

approach is mainly based on a couple of cool interactive technologies: Hypermedia and Telecommunications and applies to museums, art galleries, architecture and other kinds of works of art. Network access to museums and galleries offers both easier access to Europe's heritage and new revenue for its preservation and display from access and re-use fees.

REGNET uses the partnership model developed within the AMICO project and the concept of a Cultural Service Centre introduced by the MOSAIC project but will offer a wider range of different functions than both projects do like eBusiness or media publishing.

⇒ **REGNET will provide the technical infrastructure to set up even <u>low cost service</u> centres which can be integrated in a <u>'service network'</u>. The REGNET Legal Framework will govern this network which should enable income to the different stakeholders. Within this framework REGNET will be the 'layer' between Content Providers and Distributors or Value-added Resellers. The membership concept of the REGNET-service centres will generate critical mass of digital or physical goods contained in Content Provider's organisations. To demonstrate the benefit of <u>business to business</u> (B2B) relationships the process of generating an <u>electronic publication</u> (e.g. CD-ROM) will be modelled and implemented.**

OPENHERITAGE: see separate attachment.

Concertation.

REGNET will especially cooperate with two accompanying measures of the IST-Program, DELOS and CULTIVATE.

DELOS IST-1999-12262

A Network of Excellence on Digital Libraries

DELOS will provide a context for the continuous development of an international research agenda and constitute a reference point for Digital Library (DL) projects funded by the IST Programme, stimulating the exchange of experiences in this multidisciplinary area. It will make test beds available, facilitate their interoperability, and provide mechanisms for the evaluation of models, techniques, and approaches, and the exchange of open-source software components. It will contribute to the definition of relevant standards. Appropriate take-up models will be developed to facilitate the exploitation of DL technologies by industry. A network of links with the international research community will be created. The activities will be organized under five Forums: DL Research, Evaluation, Standardization, Dissemination and Technology Transfer, International Co-operation.

REGNET will cooperate with DELOS on a technical basis, especially regarding interoperability issues and contribute to the Forums as appropriate.

CULTIVATE-EU IST-1999-11133 Version

Cultural Heritage Applications Network

As an accompanying measure of Key Action III "Multimedia Content and Tools" of the IST Programme, CULTIVATE-EU will establish a European Cultural Heritage Network setting up nodes with representatives from all relevant memory institutions and organisations (in particular from archives, libraries, museums, publishers and the multimedia and book-trade) in each participating country. Through various means (web sites, a web magazine, e-mail info-service, information days for proposers, individual advice, proposal pre-screening, etc.) CULTIVATE-EU aims to raise the awareness of the IST Programme for the development and the use of cultural heritage applications in all memory institutions in Europe; to support (potential) proposers in preparing and submitting a proposal; to strengthen the involvement in the development and the use of innovative cultural heritage applications in each participating country; to foster the dissemination and exploitation of project results at national level; to facilitate and to speed up the communication and information exchange between European and national authorities, administrative bodies, professional associations and institutions.

REGNET will cooperate with CULTIVATE within the dissemination activities (WP6).

Deliverable Specifications

Del. no.	Deliverable name		WP no.	Lead participant
D1	Content Creation and Content Management		1	IMAC
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
34	report		Pub.	6

Specification:

This deliverable contains the results of Work Area A (Content Creation and Content Management) related to Work Package 1.

It refers to the contents provided by the content providers to the REGNET demonstration phase. The content providers are:

Region-1: ONB, SUL, LMG, NRM, KVA, (AIT, IMAC)

Region-2: MECH, MUS

Region-3: ALI, (CC)

Region-4: GRAN

In region-1 AIT and IMAC can also provide content (AIT: Basler Plakatsammlung, IMAC: Datenbank Schweizer Kulturgüter). CC will nominate content providers located in Latium and Umbria (Italian regions).

The deliverable is divided in two main chapters related to two tasks of work package 1:

Task 1.1: Definition of content to be provided.

This chapter describes the content available for the demonstration and will be subdivided according to the domains covered by REGNET, mainly: libraries, museums, archives. All collections and their objects will be described according to a unique scheme which will be compatible to standard meta data schemes: x-MARC (library), ICOM/AMICO/CIMI (Museum), ISAD(G) (archives). A mapping to of these different schemas to DublinCore Metadata will be provided.

Task 1.2: Development of a documentation and digitization plan for content creation and management.

The deliverable will include a plan who to prepare the content of the different content holders in that way that it can be used by the REGNET demonstrator. This plan will be structured according to the different formats and material type and define how metadata will be generated. In addition this deliverable will include tools (conversion programs, date entry programs) necessary to enter metadata into the REGNET repositories and product catalogues. An exchange format based on XML will be generated. For the technical work (selection and implementation of tools) as well as for the necessary training of staff at the content provider's side the technical partner(s) in a region will be responsible:

Region-1: AIT, IMAC

Region-2: TARX

Region-3: SPAC

Region-4: IAT, ZEUS, ICCS/SUSU

The deliverable will include test samples form all content provider's data relevant to REGNET.

Del. no.	Deliverable name	WP no.	Lead participant
D2	The REGNET – System: Specifications and State of the Art	1	ZEUS
Estimated person-months	**Del. type**	**Security**	**Delivery (proj.-month)**
72	report	Pub.	6

Specification:

This deliverable contains the results of Work Area B (Platform Engineering) related to Work Package 1.

It refers to the design work to be done for the REGNET demonstrator and a study work related to standards, methods, and tools necessary for the REGNET implementation.

The deliverable will include the basic design principles used for the design process and the baseline design as well as the detailed design for all of its components as outlined in the attachment. The tasks covered by this deliverables are:

Task 1.3: Identification of standards to be used.

This section is divided in two main paragraphs:
- Ontology (metadata) related standards, bibliographic rules, workflow management, …
- technical standards (ebusiness, protocol, formats, architectures, etc).

There will also be a short outline about standards committees active in the REGNET related domains.

Task 1.4: Development of the System Specifications.

This task contains the majority of this deliverables. An introductory section related to this task contains the design methodology (eventual "OPEN – Object-oriented Process, Environment and Notation") and all design documents (including interface and architectural specifications) related to the five REGNET – "nodes":
- REGNET-Portal,
- REGNET-Cultural Heritage Data Management,
- REGNET-eBusiness Data Management,
- REGNET-Ontology Checker,
- REGNET-Electronic Publisher.

The deliverable also contains the class tree used for the implementation (as far as available at this stage). There will be a special section dedicated to application servers, eventually having "enhydra" as reference model for REGNET. The potential of the whole "infrastructure" will be evaluated based on the assumption that the REGNET-Publishing component can be considered as a kernel of a "media production centre".

8 PMs will be dedicated to a research report which will be included in this deliverable and titled: "**Cultural Heritage and eBusiness: A Standards Framework**". The work is carried out within task 1.3.

Del. no.	Deliverable name	WP no.	Lead participant
D3	REGNET - Enterprise Engineering and Market Analysis	1	VALT
Estimated person-months	**Del. type**	**Security**	**Delivery (proj.-month)**
19	report	Pub.	6

Specification:

This deliverable contains the results of Work Area C (Enterprise Engineering) related to Work Package 1. It has three different chapters related to task 1.5-7 of WP1. The first chapter will describe and elaborate the legal framework on which the operation of the REGNET network of service centres is based on. The second chapter provides input to the development activities and will describe the business layer of the REGNET system, and the last chapter is related to markets and user groups.

The tasks covered by this deliverables are:

Task 1.5: Set up of the Legal Framework and Partnership Model.

This section is divided in two main paragraphs:
- Legal framework (E.g. Copyright, etc)
- Partnership Model (Based mainly on actual experiences like AMICO, MOSAIC, etc).

The deliverable will include a set of agreements on international level and recommendations for national implementations thereof.

Task 1.6: Definition of Supported Business Functions.

This chapter contains a general overview of business processes and functions relevant to the Cultural Heritage sector. But it is also structured according the different domains (libraries, museum, archives, …) relevant to REGNET. The business processes will be grouped into blocks related to the REGNET concept: data entry, data management, media production, etc. As input to work area B "business objects" will be defined. Any processes and/or functions specific to a region will be described separately.

Task 1.7: Identification of Market (Segments) and User Groups.

This chapter of deliverable D3 includes an outline about market engineering relevant to REGNET and what methodology will be applied to market research. This will be based on practical experiences eventually made within other projects (e.g. COVAX). The chapter is divided into paragraphs related to different domains, especially what user groups, services and products are important within a domain. This might also affect the instantiation of a service centre dedicated to a domain. Specific issues relevant to a region will also be addressed.

Del. no.	Deliverable name		WP no.	Lead participant
D4	Available Content and Products		2	IMAC
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
42,5	status report		Rest.	12

Specification:

This deliverable contains the results of Work Area A (Content Engineering) related to Work Package 2. It describes the actual work done in this area following the results included in deliverable D1. It is related to task 2.1:

Task 2.1: Preparation of content and products.

The deliverable is divided according to the REGNET application domains (libraries, archives, museums, …) and describes the work done by the content providers – with the help of the technical partners – to generate content and products used within the REGNET demonstration phase. There will be an overview concerning content and products as well as related to services which can be offered to the REGNET user community. The deliverable in addition will include an outline about the potentials of each content provider and technical partner regarding to the extension of the services and achieving best quality of services. Special attention is made to dedicated assets of the REGNET network. For example the provision of special thematic topics which are addressed by data, services or products will be described (e.g. Habsburg area). In two sectors the availability of scientific and cultural data is described as well as the availability of services and products, especially being accessed by museum shops. A specific chapter of this deliverable is dedicated to the generation of (multimedia) products.

Del. no.	Deliverable name		WP no.	Lead participant
D5	The REGNET-System, Version-1		2	ZEUS
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
70	prototype		Rest.	12

Specification:

This deliverable contains the results of Work Area B (Platform Engineering) related to Work Package 2. It describes the actual work done in this area following the results included in deliverable D2 and is related to task 2.2:

Task 2.2: System Implementation (1.Version).

The deliverable is divided according to the REGNET system architecture which consists of the REGNET nodes as outlined in the attachment. It will contain the code developed within this WP including all documentation (Installation, User Hand Book, etc) needed to install and run the system. There will be a description of the functionality of the REGNET system developed in this phase of the project and titled as "first version" of the REGNET system, and there will also be a description of further functionalities which will be included later on in the second version of the REGNET system. A detailed description of technical requirements (hardware, operating system, system software, middleware) will be included in a separate chapter giving an outline how the REGNET system can be deployed. Necessary training on different levels (<u>system</u> – operator of the REGNET system, <u>user</u> – user of the REGNET system) will be described and the relevant material included into this deliverable.

Del. no.	Deliverable name		WP no.	Lead participant
D6	System Services and Business Processes		2	VALT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
24	status report and Guidelines		Pub.	12

Specification:

This deliverable contains the results of Work Area C (Business Engineering) related to Work Package 2. It describes the actual work done in this area following the results included in deliverable D3 and is related to tasks 2.3-5:

Task 2.3: Set up of the legal framework.

The deliverable contains in a section relevant to this task all the contracts and agreements necessary to run the REGNET network. It lists and includes the documents which have been set up on international and international basis and will point to all other contractual issues related to REGNET (e.g. Copyright).

Task 2.4: Business process (re-) engineering.

This chapter of D6 describes the business processes which are being supported by the REGNET technical, organizational and contractual infrastructure. It also describes processes at the different partner sides which had to be introduced or re-engineered (e.g. Integration of REGNET ordering facilities into the museum shop business of a content provider).

Task 2.5: Market preparation.

This chapter describes all actions which have been undertaken to market the REGNET system regionally, on a national, international and world wide basis. It includes advertising material and measures (WEB promotion) and identifies the potential customer base.

9 PMs will be dedicated to a research report titled:"**Cultural Heritage and eBusiness: Doing Business in the Global Market**". Necessary resources are covered by: 6 PM from task 2.2 and 1 PM each from tasks 2.3 to 2.5.

Del. no.	Deliverable name	WP no.	Lead participant
D7	Validation of the REGNET System operation & Preparation of the REGNET - Demonstration Phase	3	IMAC
Estimated person-months	**Del. type**	**Security**	**Delivery (proj.-month)**
51	technical report	FP5	15

Specification:

This deliverable includes the validation report of the REGNET system version – 1 and the description of the preparatory work which was necessary to carry out the REGNET-demonstration. The work relates already to work area D (domain specific adjustments) and E (demonstration and regional adoptions) of the project which means that the REGNET system will be tailored according to domain (library, museums, archives, etc) specific needs and regional requirements. This report is related to tasks 3.1 and 3.2 of work package 3.

Task 3.1: Validation of the REGNET-Demonstrator.

One chapter of this deliverable is dedicated to the validation process and the results of this process related to the first version of the REGNET demonstrator. It includes the description of the user groups inside and outside the REGNET consortium, the methodology of the validation process and recommendations for further developments. The validation is described on different levels (technical, organisational, legal, etc).

Task 3.2: Preparation of the Demonstration Phase.

This chapter includes the description of all actions in preparation of the demonstration phase:
- Set up of the legal framework.
- Set up of the technical infrastructure (service centres).
- Set up of data bases, services, products.
- Test of relevant business processes.
- Training of a core user group, technical personnel, expert users.
- Marketing efforts.

Del. no.	Deliverable name		WP no.	Lead participant
D8	The REGNET-System: Version 2		3	VALT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
34	prototype		Rest.	15

Specification:

This deliverable describes the continuation and the results of the system's extensions from version-1 to version-2 of the REGNET system. It describes the work done in Task 3.3 of work package 3.

Task 3.3: Implementation of the version 2 of the REGNET system.

The structure of the deliverable follows the structure of deliverable D5. Since this task is in parallel with the validation of the version-1 it includes also measures already known and undertaken to improve the REGNET system. The report describes mainly the additional functionality integrated into the system with respect to version-1.

A research study will be carried out (8 PMs out of task 3.3) and titled: "**Cultural Heritage and eBusiness: The impact of modern access technology**" This research work will be have a special focus on wireless access (eg WAP/UMTS) to CH related data and services.

Del. no.	Deliverable name		WP no.	Lead participant
D9	REGNET-System operation		4	TARX
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
55	technical report		Rest.	24

Specification:

This deliverable describes the REGNET service centres, the operations done at these centres and their contributions (services, data, products) to the REGNET network. It is related to task 4.1 of work package 4 and represents the activities of work area E.

Task 4.1: Execution of the demonstration phase (trial service).

The report contains different chapters each related to a service centre. The domain (libraries, museums, archives) and region specific issues are described for each centre in addition to the REGNET "generic operations" common to the Cultural Heritage domain as total. The deliverable will also describe the clientele addressed by the trial service as well as the human and material resources needed to perform the demonstration. The description of marketing activities will also be included.

Del. no.	Deliverable name		WP no.	Lead participant
D10	REGNET – Demonstration (Trial Service)		4	VALT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
20	report		Rest.	24
Specification: This deliverable includes the final version of the REGNET prototype. It includes the changes and extensions based on the result of the validation activity (deliverable D7) as well as the modifications needed to improve the trial service. It refers to task 4.2 of work package 4. Task 4.2: Refinement of system and services where appropriate and necessary. The deliverable will contain the code developed within this WP including all documentation (Installation, User Hand Book, etc) needed to install and run the system. There will also be a Q&A part to specify problems and solutions resulting from the trial phase. A tutorial for service centres ("Installing and Running a REGNET System") and users ("Using REGNET services") will also be included.				

Del. no.	Deliverable name		WP no.	Lead participant
D11	REGNET trial service and recommendations		4	IAT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
6	Evaluation report		Pub.	24
Specification: This deliverable includes an analysis of the trial service, an assessment and an evaluation of the system. It refers to task 4.3 of work package 4. Task 4.3: Analysis of the trial service, assessment and evaluation of the system. The deliverable contains a description of the methodology on which analysis, assessment and evaluation is based on. In three sections the: - analysis of the trial service, - the assessment of the system, and - the evaluation of the REGNET system is included.				

Del. no.	Deliverable name		WP no.	Lead participant
D12	Technology Implementation Plan		5	MOT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
20	report		Rest.	24

Specification:

This deliverable includes the Technology Implementation Plan. The plan is detailed according to the different actors within the REGNET project (developers, system operators/service centres, and content providers). There are two phases in the development of the TIP which refer to task 5.1 and 5.2 of work package 5. A special chapter will be dedicated to the potential of job creation, especially in less favoured regions.

Task 5.1: Development of a technological implementation plan (draft).
This chapter of deliverable D12 contains a first version of the TIP based on the version-1 of the REGNET system. It describes in detail not only the potentials of the overall system, but also the exploitation possibilities of REGNET components. This version of the TIP will be delivered as "draft deliverable" as attachment to a bimonthly report.

Task 5.2: Development of a technological implementation plan (final).
Based on the final version of the REGNET system and the experiences made during the REGNET trial the final TIP will be developed and included in deliverable D12.

Del. no.	Deliverable name		WP no.	Lead participant
D13	REGNET – Information Dissemination Activities		6	SPAC
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
17	report		Pub.	5
Specification: This deliverable includes the description of the information dissemination activities of the REGNET project. Different activities like publication, attendance and organization of events (conferences, workshops, seminars, symposia, etc) are described and outlined in the attachment part. It refers to task 6.1 of work package 6. Task 6.1: Information Dissemination. The deliverable is structured according to the type (publication, event) of dissemination activities and work area (A-E) to which an activity belongs.				

Del. no.	Deliverable name		WP no.	Lead participant
D14	REGNET - Quality Assurance System		7	MOT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
6	report		Rest.	6
Specification: This deliverable includes the description of all activities related to Quality Assurance (QA). It refers to task 7.2 of work package 7. <u>Task 7.2: Quality Assurance.</u> The deliverable contains two chapters. One describes the QA Plan and the procedures on which it is based on, the other how the QA-Activities are carried out within the REGNET project. It includes the form sheets used during the QA-process. QA-activities will be reported as attachment to bimonthly reports as appropriate.				

Del. no.	Deliverable name		WP no.	Lead participant
D15	Final Report		7	AIT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
6	report		Pub.	24

Specification:

This deliverable includes the description of all activities related to the REGNET project. It includes the activities related to the project management (task 7.1) as well as activities to project related information management and project presentation activities.

Task 7.1: Project Management.

One chapter of the report is dedicated to all management activities within the project.

Other chapters are dedicated to work areas and will be subdivided according to the work plan of REGNET.

A special chapter will be dedicated to the cluster activities especially to the relation with the Open Heritage Project.

Del. no.	Deliverable name		WP no.	Lead participant
D16	Project Presentation (WEB Presence)		7	AIT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
6	WEB-Site		Pub.	3
Specification: This deliverable includes the project presentation in the internet. It consists of the WEB-site which is located at http://www.regnet.org . The pages will be delivered as html-files. Connected services like a discussion list will be described and the usage and participants will be documented.				

Del. no.	Deliverable name		WP no.	Lead participant
D17	Project Presentation (Fact Sheet)		7	AIT
Estimated person-months	**Del. type**		**Security**	**Delivery (proj.-month)**
3	Fact sheet		Pub.	3
Specification: This deliverable includes the "project fact sheet". It is of high quality and dedicated for distribution via different channels (events, mail, personal). Updates of the fact sheets will be attached to bimonthly reports.				

REGNET exploitation

To identify the real potentials of the REGNET systems different activities are carried out: Identification of the market relevant to different types of organisations. Since REGNET partners are coming from twelve European states the different studies carried out for the partner's states cover nearly the whole European market. There will also be investigations done what clientele can be addressed using the REGNET system functions. A rough estimation would deliver that the number of cultural institutions (libraries, museums, archives) located in regions spanned by the REGNET network might be beyond 50.000. Potential users will be millions. To prepare the final marketing activities a methodology how to do the marketing will be done within a market engineering activity. The marketing activity will be carried out within the framework of the trial service (demonstration phase).
The market analysis performed within the REGNET project will be based on already available material (previous studies like being done within the RAMA project) and on the study of the user requirements data gathered in the preparation phase of the project and the correlation of the knowledge gained from that study with the broad and deep industry and market knowledge available within the large consortium.

An Exploitation Committee nominated to deal with specific issues on exploitation will give consideration to the exploitation of the results from a fairly early stage in the project. It is eventually expected that the exploitation plan would have an influence on the REGNET system functions..
Commercial potential justifying the commercialisation of project results will be qualified and quantified in the form of a Business Plan to be developed by the industrial partners. This Business Plan will be presented for discussion and agreement as soon as the successful delivery of the REGNET Demonstrator has been assured.

The exploitation plans of some partners, especially from the Service Supplier Group, (might be applicable to other partners in that group) are:

Exploitation plan VALT.
When the REGNET framework will be available, VALT will have a first version of tools dedicated to e-business in the field of cultural heritage which allows VALT to penetrate the significant add-value market of cultural heritage Internet systems. REGNET will be distributed in the market of museum portals in order to develop both B2B and B2C business. Moreover, REGNET will allow VALT to strengthen its market position in the field of e-business. The development of the REGNET system will enable VALT to penetrate in the wide market of Internet tools for B2B application.

Exploitation plan TARX.
TARX, being involved already in a number of cross-domain initiatives in art, culture, tourism and information communications technologies, wants to boost the competence centre activities in these areas. Through the Regnet-project, TARX wants to gain access to a portfolio of technologies (licences) that makes it possible to bridge the gap between culture (content) and e-commerce (economy) and to deliver solutions within this area. The market TARX is targeting for is twofold: Flanders (Belgium) and European cross-cultural realisations. After the realisation of the Regnet-part, especially in collaboration with the Museum of Mechlin, TARX aims to realise the same for a number of other Flemish Museums and Archives in the year following the end of the project. A rhythm of a series of three per year is envisaged. Another activity line of TARX is setting up the cross-cultural content for different European regions, e.g. Flemish heritage tracks in South East England and vice versa.

This fits completely with the underlying theme of the Regnet-project and can be repeated for a lot of other European regional combinations.

The pay back of the investments will mainly reside on two components: consultancy/realisation and operations/maintenance/quality control. Consultancy and realisation are one shot income sources but the operational side, maintenance and quality control, definitely needed in this rapidly changing technology and content world, will provide a more continuous income. One can expect that the exact mechanisms to achieve this will evolve over time and will be dictated de facto by the market (fixed fee based, percentage on volume, etc.).

Exploitation Plan CERT.

CERT, as a research institute, does not have at present a commercial interest in the exploitation of the REGNET results. The research and development objectives of REGNET fit perfectly into the general orientation of the research group of CERT and will help to further deepen its scientific excellence. Part of the business plan of CERT, is to produce in 2-3 years a spin-off commercial company capable of exploiting its research.

Exploitation Plan IMAC.

IMAC will distribute information on the REGNET project:
- in German mailing lists within the cultural heritage community
- provide information on the website www.arte24.net
- publish several reports and papers

IMAC will offer cooperation within the REGNET project to other parties:
- provide project results to the EU-Interreg II - Project Habsbourg
  Tourism and invite them for participation (connection
  tourism, museums shops into the REGNET project)

IMAC will build the REGNET platform for the cultural heritage community in Germany and Switzerland and invite all German institutions in the cultural heritage area to participate in the commercial operation of the REGNET platform.

Exploitation Plan GRAN.

Granollers city council, as a public institution, does not have at present a commercial interest in the exploitation of the REGNET results. However, part of the activities of the city council is related with promotion of star-up companies and one of the areas of work is the development of new economy companies related with exploitation of possibilities of NTICs. At a city council level related with the exploitation of the REGNET results the city council has the intention to create a REGNET user group – especially with other Spanish local public authorities and institutions. In addition to the creation of these group we undertake a series of dissemination activities to promote at a national level the project, specially through local authorities forum, cultural heritage forums, and NTIC forums.

Exploitation Plan ICCS.

- promotion/dissemination activities, undertaken to promote on national basis the REGNET project: publications in journals, newspapers,
- participation in conferences;
- support of a REGNET node, storing samples of Bulgarian culture heritage;
- cooperation with the Bulgarian Union of Artists, which will be the general content provider of the Bulgarian REGNET node;
- promotion of e-business services with culture heritage goods;
- gathering a critical mass of prospective users as tourist agencies, museums, private galleries.

Exploitation plan MECH.

The Municipal Museum of Mechlin is the driving force behind the disclosure of the cultural patrimony of the city of Mechlin. The newly appointed management has set out a strategy to increase the number of accessible buildings, houses and churches, of which many are officially classified and protected. The city wants to realise this by a museum-axis or -network within the city whereby the physical aspects are synchronised with the content aspects. The introduction of new technologies will act as an enabler. At the same time, partnerships with players in the leisure and tourist sectors are envisaged in order to end up into fruitful alliances. This is exactly the area that REGNET is focussing on.

Mechlin is an exemplary city for the development and growth of a certain kind of Western cities with a tradition reaching till the early Middle Ages. Because of the different foreign influences in the past of most of the Flemish cities, an interesting multi-cultural patrimony can be put at the disposal of citizens, researchers and scientists from all over Europe with interest in discovering and studying this type of cultural history. Multilingualism plays a primary role in this disclosure process.

Through the results of this project, the city of Mechlin wants to attract a substantial higher number of visitors. As a direct result, this will generate more income via entrance fees and the standard merchandising channels for the museums. At the medium and longer term the e-oriented aspects will offer new opportunities and play an increasingly important role. The funds generated via all these channels will be used for opening to the public other buildings and to create more up to date cultural content especially in digital form.

Exploitation plan TINC.

Terra Incognita Europa is a British company providing business services and strategy support to key players working in different but related domains such as culture, education, tourism, publishing, audio-visual and new media. The interest in Regnet project is mainly based on the opportunity of further developing its presence in the culture sector providing high-level professional advice and consultancy to public institutions and enterprises operating within the culture heritage field.

TINC will aim at becoming a reference point for market and business process re-engineering and for strategic decision-making support in the field. Public bodies (cultural institutions, local and national administrations, tourist offices), in collaborating with IT companies to promote innovative culture services, are more and more demanding strategic advise to achieve some form of "market" consensus on their initiatives. It is worth noting that, in the 2000 edition, the international conference "Museums and the web", promoted by A&MI, has dedicated a whole section on the issue of how to integrate information and functions between data, cultural institutions and business processes. The REGNET project has enormous potentialities in this area, and TINC will collaborate with key players to define strategies to improve museum/libraries and archives business processes discussing how data warehousing, e-commerce, and knowledge management can be used to further improve and refine their functional processes and ultimately benefit museum visitors.

TINC will have an especially strict collaboration with two technical partners (i.e. Valtech and Motorola) for the definition of successful business models for e-commerce and WAP services for the culture sector. TINC will exploit the REGNET results extending its consultancy services to related target markets and application sectors also relevant to a broader international audience.

Exploitation plan AIT

AIT, as project co-ordinator, will establish an English *web site (continuation and extension of the existing project web)*, that will give free access to information about the project and about

the consortium members, as well as to deliverables defined as public use. It also will permit controlled access (through a password) to other project information and deliverables (under prior agreement by partners) to all organisations potentially interested in future developments of the programme, in order to encourage their involvement in it once the pilot stage is concluded. Besides this different means for the dissemination of information related to the REGNET project will be offered: discussion lists, printed and electronic information material, etc.

The consortium, through its partners, will take part in general or specialised forums, both national or international, in which it could be of interest to participate for the dissemination of problems and solutions posed all along the programme, in order to assure the awareness among potential users.

Besides, it will assure dissemination of project results in most important international normative forums or international associations of involved professionals (such as IFLA, ICOM, UNESCO, Cultivate accompanying measure, OMG, CEN/ISSS, ZIG, ebXML, DLM-forum, etc), especially with regard to standards that must be applied in the project, in order to assure the awareness of relevant bodies that might have an influence on the adoption of those technologies.

The REGNET Portal

Comparison to ‚Baseline Portals'.
WEB-Portals provide access to different functions provided to a user/client of IT-services
offered by an organisation. In the field of Cultural Heritage most commonly used WEB-
presentation provide general information like this:

The REGNET System will provide - besides this 'generic' entry – access to dedicated
functions which are grouped by:

- Data Generation
- Search System
- eBusiness

Examples of portals supporting these functionalities are:

Data Generation
For example: Data Entry to the Document Server within the Cultivate Project:

Harvesting functions for example are provided by the system "DC-DOT" like this:

Another option for generating metadata is the 'Reggie' Meta Data Editor:

Search Systems

Examples of portals enabling access to search systems (MOSAIC Project; "Cultural Online Browser"):

Or (http/z39.50 protocol gateway based on the YAZ/ZAP system):
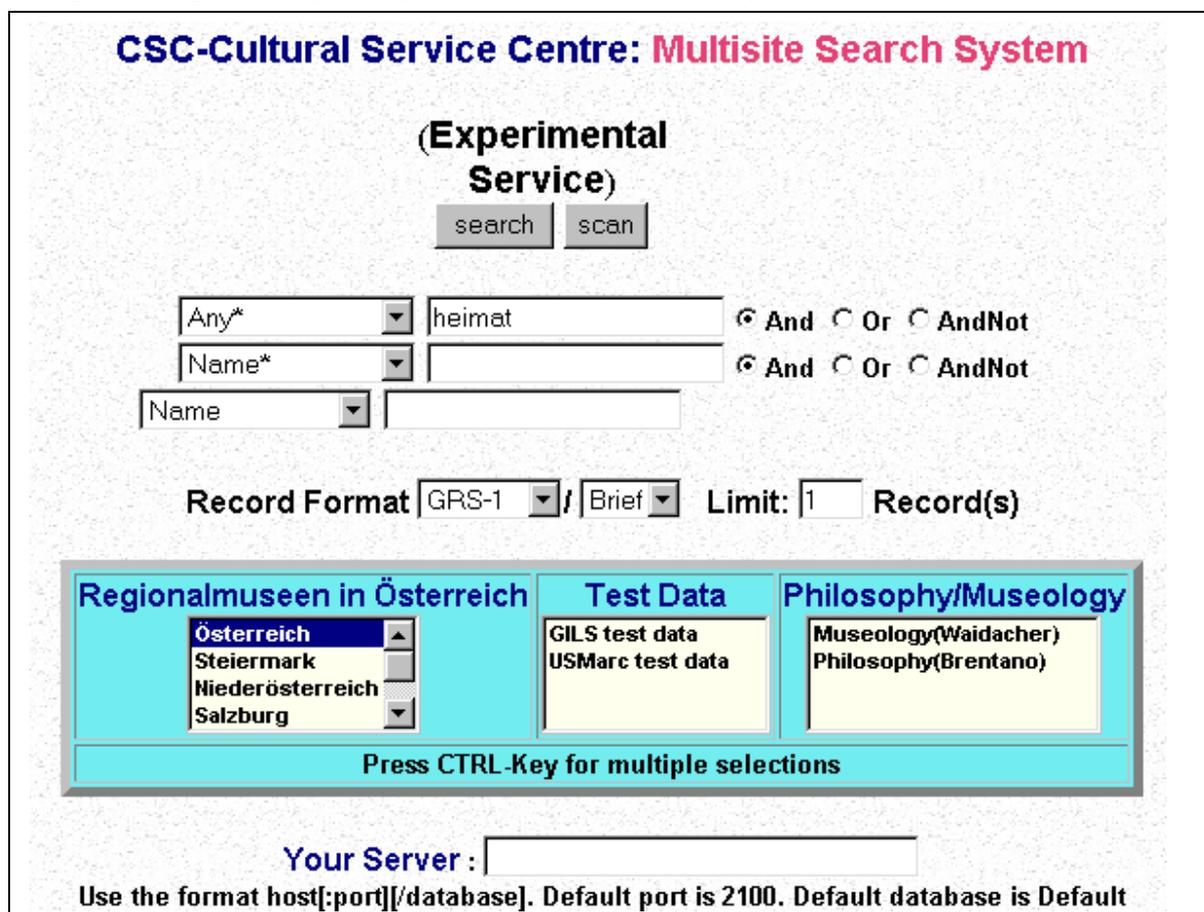
A query and order process using the REGNET-WAP search access mode will look like this:
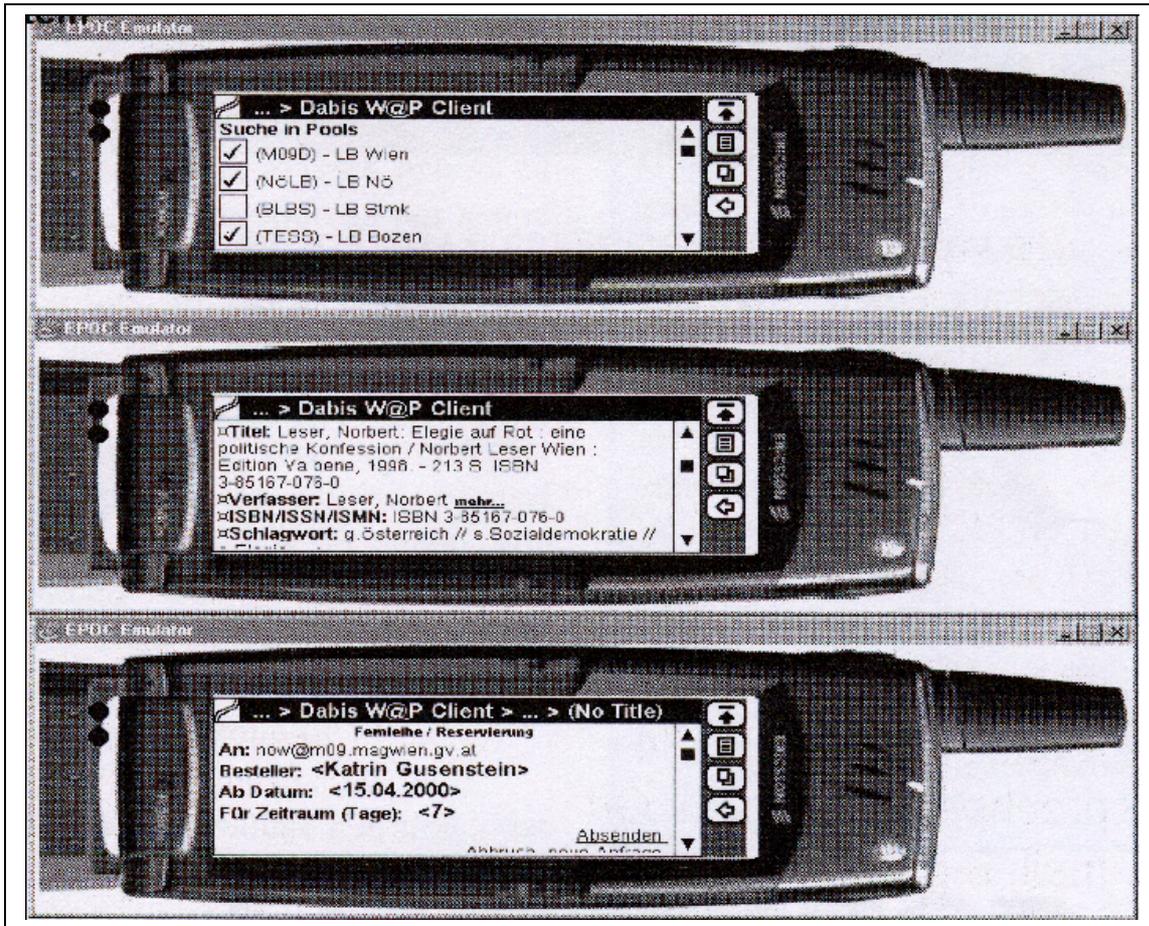
eBusiness

Portals providing access to B2C functionality look like:

http://www.museum-shops.com/

left side.

Another example (http://museumstuff.com/):

An ecommerce solution based on a software from the public domain (minivend) looks like this:

An auction activity looks like this:

| Item 13 | Ting Shao Kuang, *Ashima at Sunrise,* limited edition handsigned graphic, 40" x 40".
Opening bid: US$3,000.00
retail: US$6,000.00. |
| Item 14 | Hart, *Cross of the Millennium,* limited edition acrylic resin sculpture, 1995 14 inches height.
Opening bid: US$2,000.00
retail: US$3,000.00 |
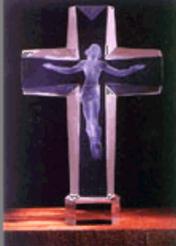
Auction Rules.

Duration. An item for auction will last for 30 days, unless specifically stated for that particular item.

Bidding. To make a bid, simply select the item number from the list below and press the bid button below the list. Fill up the interactive form with the item number you selected and the maximum amount you are willing to pay for that item. Fill out the rest of the fields, which are required. If you want to bid on another item, simply press the reset button and fill out the blank form.

Notice. At the end of the bid duration, you will be informed by e-mail of the results of the bid. If you won the bid, you will also be notified of the payment and delivery arrangements.

Payment. By placing a bid, you signify your commitment and ability pay for the item you selected at the amount you entered.

Please don't forget to place your bid.

There is no appropriate example showing the functionality of REGNETS B2B solutions (eg: electronic publishing component).

REGNET provides not only these functionalities via a unique portal but also implements the necessary technical infrastructure (set of servers located on the REGNET nodes; see REGNET System Architecture). The REGNET system will be scalable to the needs of cultural heritage organisations also in term of functionality not only in terms of presentation on the portal. This will be done by the introduction of a flexible middle ware component (application server).

OpenHeritage provides these functionalities on the portal but concentrates on the implementation of a CM (collection management) component which is a small functional subset of components provided by REGNET.

REGNET-Cultural Service Centre   vs   OpenHeritage-Territorial Service Centre

Both terms CSC (Cultural Service Centres) and TSC (Territorial Service Centre) could be used in exchange if, and only if TSC relates to specific services for cultural heritage organisations. TSC as outlined in the proposal is based on several dedicated and manufacture dependent hardware and software component (eg. Oracle RDBMS, Application Servers). The service infrastructure is a standard IT-infrastructure with no dedication to cultural heritage application (eg ontology related component).
REGNET is based on and committed to Open Software solutions, dedicated to Cultural Heritage related applications. REGNET distinguishes different application domains (museums, libraries, archives, …) and dedicates a special work area (D) to domain specific questions. REGNET also recognizes region based differences by having introduced also a special work area (E).
Furthermore REGNET takes as baseline the concept of the CSC-Austria which is a spin off of the MOSAIC Project.
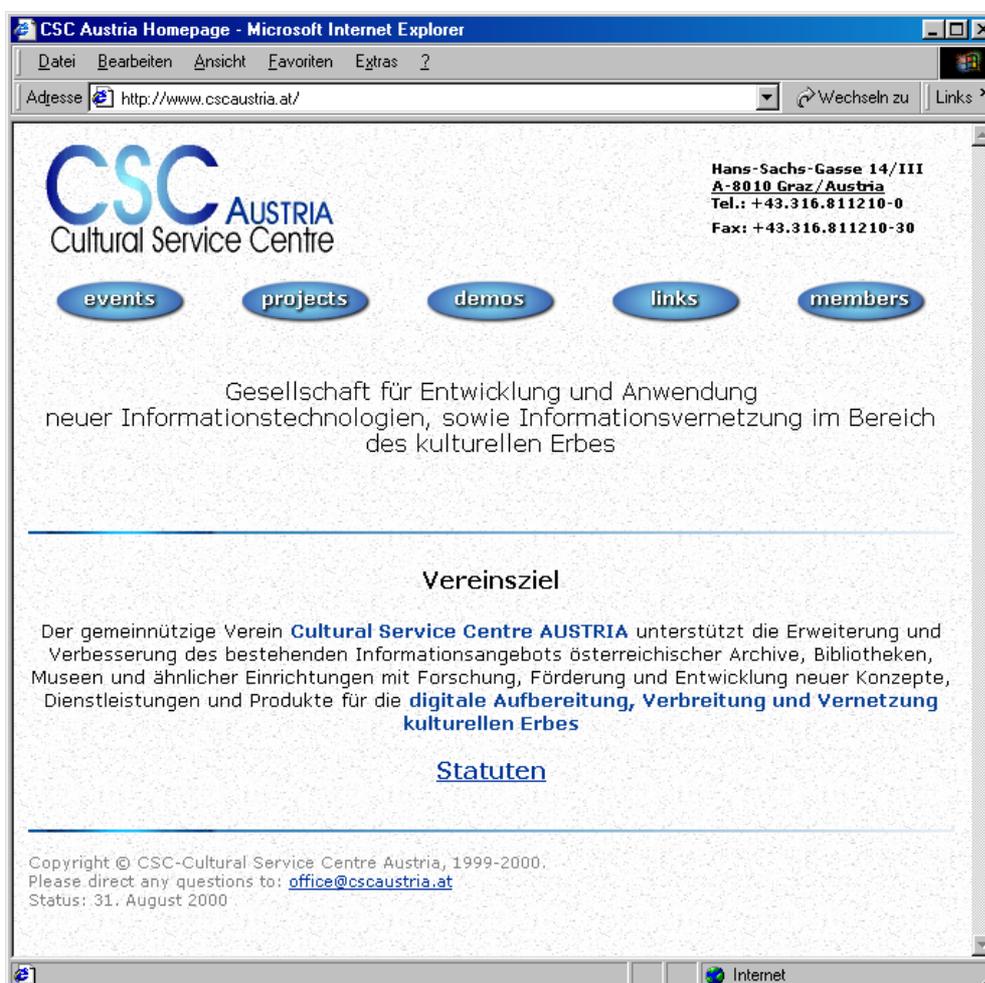
This CSC is already established and called: **"Enterprise for develop-ment and application of modern Information Technology as well as Information Networking in the Cultural Heritage domain**."

It is "**a non for profit enterprise (Verein) and its mission is targeted to support the improvement of existing data services of Austrian Archive, Libraries, and Museums or similar organisations by doing research, support and development of innovative concepts, offering services and products in the field of digitisation, distribution, and networking of Cultural Heritage related data**."

The constitution ('Statuten') of this Cultural Service Centre can be accessed via the CSC-Austria Homepage (http://www.cscaustria.at/ above).

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T2.2.12	Core System	5		T3.3	Territorial Service Centres	51
T2.2.13	System Integration	4			???	
T2.3	Contracts&Partnerships	5			???	
T2.4	Business Process	8			???	
T2.5	Market Engineering	7			T4.2	
WP3	**Validation and Preparation**	**52**				
T3.1	Validation of demonstrator	19		T2.4	Technological validation of the CM solution	25
T3.2	Preparation of demonstration	33				
WP4	**Demonstration**	**77**				
T4.1	Demonstration	57				
T4.2	System Modification	12				
T4.3	Analysis	8		T2.5	Validation of territorial and thematic testbeds	26
WP5	**Development of an exploitation plan**	**12**		**WP04**	**Exploitation and dissemination**	**80**
T5.1	Dev.of Exploitation Plan	12		T4.1	Business planning	17

WP6	**Information Dissemination**	**12**		T4.2	Promotion campaign	25
T6.1	Information Dissemination	12		T4.3	Dissemination	38
WP7	**Project Management**	**80**		**WP01**	**Project Management**	**48**
T7.1	Management	72		T1.1	Project management	22
T7.2	Quality Assurance	8		T1.2	Consortium relations	26

Comparative Table: REGNET – OpenHeritage

Background

The preparation of the REGNET project started already mid 1999. There was interest of several cultural organisations located in a member state of Austria. The first intention was to issue a proposal in response to the 2nd IST-Call (Action line: III.2.4 Digital preservation of cultural heritage). Due to time problem it was decided to postpone a proposal to the 3rd call. The box below shows the basic ideas at this stage.

Project:

DIgital Repositories in REGional NETworks (DIR@REGNET)

Ideas:

- Creation of digital goods (domain: Cultural Heritage, including libraries, museums, archives, galleries, etc) with emphasis on contents of local and regional importance.
- Establishment of a network of regional networks based on sound technologies and standards.
- Interconnection with international and regional networks especially in the fields of tourism, research, administrations, and housholds.
- Establishment of an e-commerce system enabling income to all players (content providers, service providers, etc) having roles within the organizational framework of **DIR@REGNET**.

After several visits to regional museums, archives and libraries in the region done by AIT it was decided to issue a proposal to the 3rd IST Call and to do a partner search via 'ideal-ist' (February 2000, attachment). This reflects to a big extent the content of the project as it is now. Due to the enormous interest (over 80 organisations in total) it was decided to extent the project and to set up a European wide network with initial 6 demo regions. In response to the idal-ist partner search the OpenHeritage partner entered the consortium. (Atlantis was changed afterwards to Space). At this time REGNET partners have not been aware of the OH project. AIT was informed about OH at the occasion of the "2.Project Preparation Meeting", Vienna (Austria), which took place on 14 April 2000. At this time CSC-Austria was invited to enter the OH project.

After the positive evaluation of both projects the project officer suggested to think about a clustering or merging possibility of both projects. AIT developed a comparison table which is included in the attachments. The basis for this table were not the objectives of both projects but the real development work of the projects. Out of this table it can be seen that the main development effort of OH consists of the development of a collection management (CM) system based on the developments of two OH partners MuseumWare & MUSIMS (RN: 24 PMs; OH: 74 PMs) and the development of a portal (RN: 18 PMs; OH: 39PMs). Besides this no other concrete development work can be recognized within the OH project. This relates only to a part of the REGNET development work which was already based on a decomposition of the REGNET architecture to make the R&D effort transparent (detailed descriptions of the REGNET components/nodes in the attachment).

Due to the lack of a detailed decomposition (functional and architectural) of the OH system, the comparison table worked out by the PO and distributed attached to the minutes of the first

negotiation round had to be based on more general statements. A sound comparison can only be done based on detailed specifications based on a commonly approved terminology.

To do this exercise anyway, AIT is following this principle:
WHAT will be done by **WHOM,** and **WHY** and **HOW** this will be done using **WHICH** resources.

WHY:
Since both proposal are issued in response to a specific action line a lot of general statements are in common. This is necessary otherwise the proposals might have not fulfilled the thematic requirements of the 3rd IST call (eligibility). But there from it cannot be deducted that there are identical or similar proposals.

WHAT:
OH is concentrating on CM and a portal which provides access to a wide range of functions (ebusiness, etc); REGNET has made concrete technical specifications what functions will be implemented (eg. B2B workflows related to electronic publishing, integration of an ontology subsystem, query subsystem, etc). A detailed analysis will eventually turn out that the existing comparison are not valid to a certain extent. For example within the paragraph "ACCESS TO STANDARDS" the term 'gateway' is used in both projects. The concept used in OH refers to a 'protocol gateway', within REGNET it refers to 'subject gateway', that's quite different; OH refers to a small piece of a technical implementation meanwhile REGNET addresses a whole range of functions (supported by Subsystem-5). This cannot be equalized by 'SAME'.

HOW:
A portal per se leaves it open how and by using which subsystem a system function will be implemented. REGNET is concentrated on functions which are targeted by the REGNET development effort. REGNET will base its development on open software.

WHICH:
Looking into resources dedicated to development work shows that on a technical level REGNET is putting twice effort into a much broader set of system functions.

WHO:
REGNET has introduced a series of developers of different competencies to cover the broad functionality of the REGNET system on a high level of qualification. OH relies on two players which are primarily committed to CM and portal development.
Based on these introductory remarks the comparison table prepared by the PO is commented where appropriate.