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E-tourism through Cultural Routes

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1. Introduction

The Ename Center has developed a concept for the implementation of large cultural routes, that are supported by ICT technology. This paper presents these concepts and explains the rationale behind the proposed structure.

The concept proposed here allows to improve the integration of tourism and cultural heritage, by improving the way cultural heritage information is provided to the tourist. In this concept, information delivery is divided into pre-visit, visit and post-visit actions.

In the pre-visit phase, the visitor looks for information that fits with his interests and tries to plan his visit once he has decided where to go. Here we need to offer the right tools to prepare this visit in a personalised context. In the pre-visit phase we also target the random visitor, who goes to a tourist information office, and asks advice for local visits, according to his interests.

In the visit phase we try to improve the the content delivery to the visitor by using personalisation, by offering tools to get more post-visit information and digital souvenirs that create an emotional link with the site visited.

In the post-visit phase, the visitor receives automatically extra information on the sites visited, which can be linked with personal photographs and received digital souvenirs in a travel journal. Through this blog like system, the visitor can share his experiences, thoughts, tips or remarks on the route and its sites with family or friends, or with the entire world. In this way, we create a two way communication in cultural heritage, where the visitor not only receives information, but also gives his views and comments. We hope that in this way, a community will build around the route, where cultural heritage visitors feel co-owner of that heritage.

To implement large cultural routes, we propose to create local micro-routes, implemented and maintained by local authorities, and linked together by an Internet portal, that is maintained by a central organisation. This approach has several advantages. First of all, we need to integrate the CH sites in the existing touristical offering and make sure that there is continuous support and funding for this local micro-route without extra costs. In other words, these micro-routes will be supported by regional tourist organisations or provinces. Secondly, this allows to have a very light central organisation that does not put a financial burden on the local authorities, but can operate and coordinate the portal structure.

2. The Portal Website

The portal website has a central theme and aims to reach all tourists that are interested in this theme. For example, 2005 is the Don Quichote year, and a large cultural route will be opened in Spain, based on this Don Quichote theme.

The portal is build and maintained and hosted by a central organisation that takes care of the concept and promotion of the central theme. This organisation is responsible for the editorial aspects of the portal and supervises the global structure of the overall route. In other words, it takes care of the overall description of the theme and the route as such, and of the available micro-routes, provides maps and global information. The central organisation promotes the theme in all local routes, and stimulates them to find links between the local routes based on the central theme. In this way, the portal creates mutual promotion between the local sites and routes. The central organisation maintains

also contacts with the responsible organisation for each microroute and promotes and supervises the creation of new micro-routes.

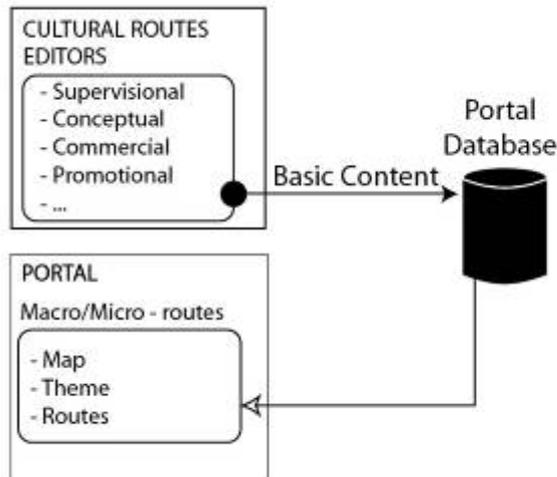


Fig. 1 : editorial structure of the cultural route

Museums, archaeological sites, local authorities, communities and tourist organisations are the partners in a local route. Each of these partners provides information on the local route, by entering data into a local database. This information contains a description of the local route, news, practical information on the opening hours and availability of the services of the partners, related information such as publications, etc. This also includes post-visit information on sites.

The visitor will see his involvement in the cultural route as a membership, which can be sold as a package with a normal ticket in all the cooperating sites and institutions. This will ensure the wide use of the route.

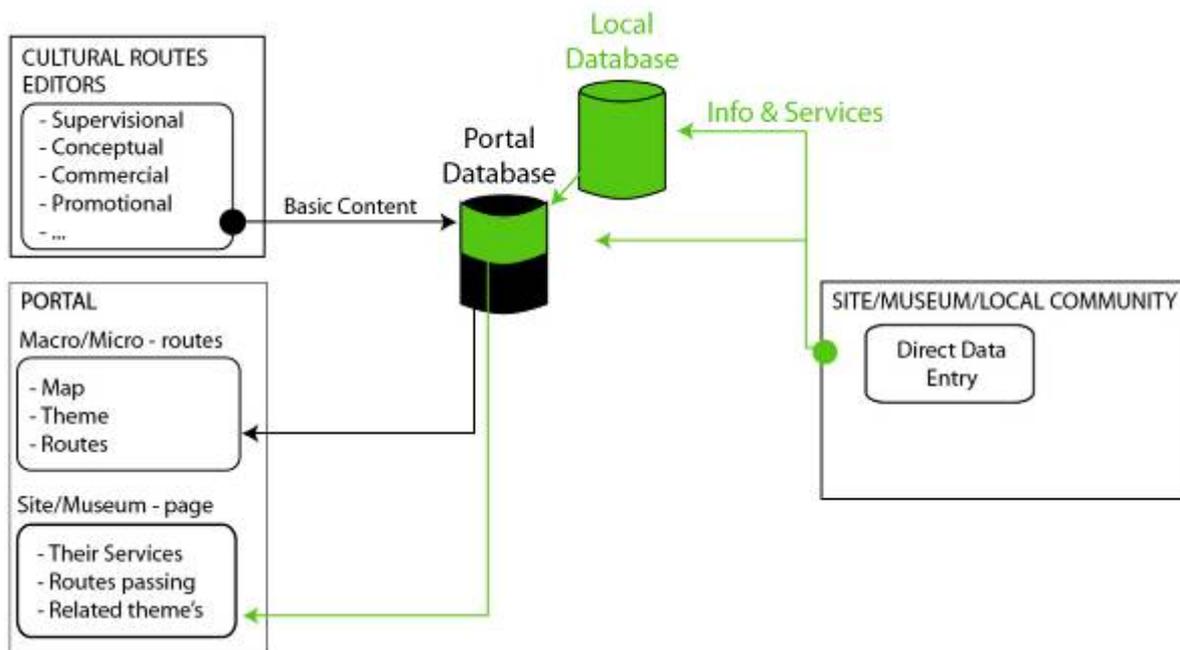


Fig 2 : Database feeding by partners

Service information is copied automatically into the portal database (green part of the central database in fig. 2), through schemes based on metadata, while texts goes through a redactional review before becoming available on the portal. In this way, the portal remains up to date but consistent with a minimal amount of effort and overhead.

In this way, the portal becomes also a backup of the information of the local database, so that any problems at the local database level would not propagate to the portal level.

Visitors that want to become member of the cultural route, log in on the portal and provide some personal information, email address and information about their interests. This user profile is stored on the central user database (red part in fig. 3) and will be used during the pre-visit, visit and post-visit uses of the portal or local systems. By using the portal and the local systems, extra personalised information will become available on this central user database (see also local routes). This personalised information contains bookmarks, digital souvenirs, a travel journal, personal webspace, ... that can be made available to a limited group of people (friends, family, ...) or to all portal visitors. The travel journal can contain also photographs that the visitor has taken during the travel on the route. There will also be a forum on the central server to discuss the route and the personal experiences of the visitors. In this way, a community can grow around the theme, that stimulates to exchange practical tips and personal thoughts about the route and the sites.

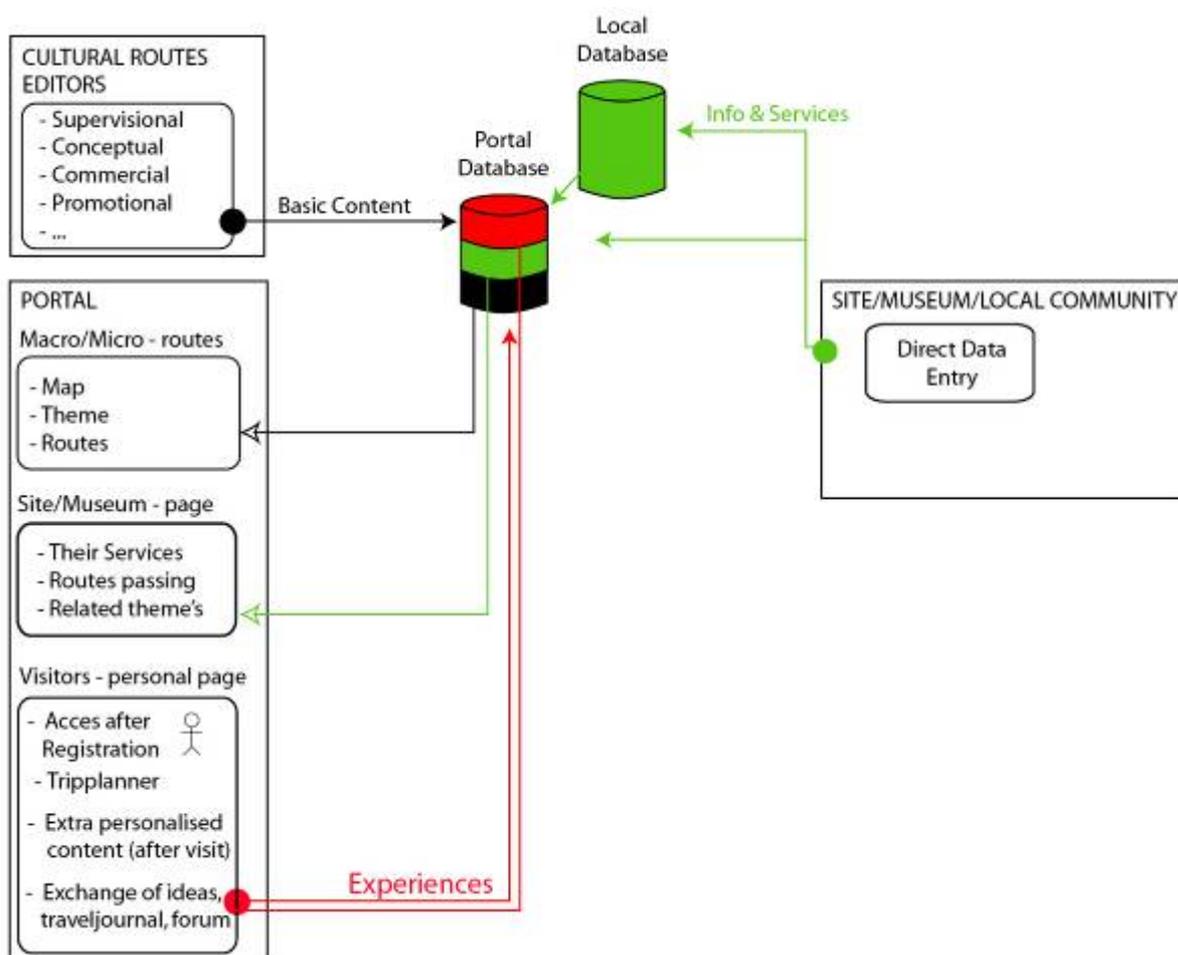


Fig 3 : Database feeding by visitors

A typical portal page will look as follows (see fig. 4). We use the Cultural Route on Francia Media as example (see <http://www.franciamedia.org/>). On the left hand side, we will find global information about the theme and the overall route, on the right hand side all personal information is grouped together. This concerns community information and news, personal travel journal and webspace, sites of interest to be visited, ... An important item is that post-visit information is made available to the visitor as soon as a local visit is detected (see local routes). In this way, the visitor is rewarded for visiting the site and gets a valuable documentation on the sites visited. This site documentation is updated regularly (see above) so that the visitor is kept informed about the evolution

of the sites visited. Another item in the personal spaces are the digital souvenirs (see below) that can be integrated in the travel journal or personal webspace, and made available to a wider audience by sharing this (see above).

The top part of the page contains the user profile which consists of sets of themes that represent interests of the visitor. These themes can be archaeology, history, landscapes, nature, ... but also local gastronomy, music, fine arts, ... or the preferred transport medium (car, bike, on foot, ...). The initial settings of this user profile are made through the login procedure (see above) but changes can be made at any time.

The middle part contains a map of the route region, where the local micro-routes are indicated. Through colour coding, the map shows how much each micro-route fits with the user profile (a darker colour shows a better match).

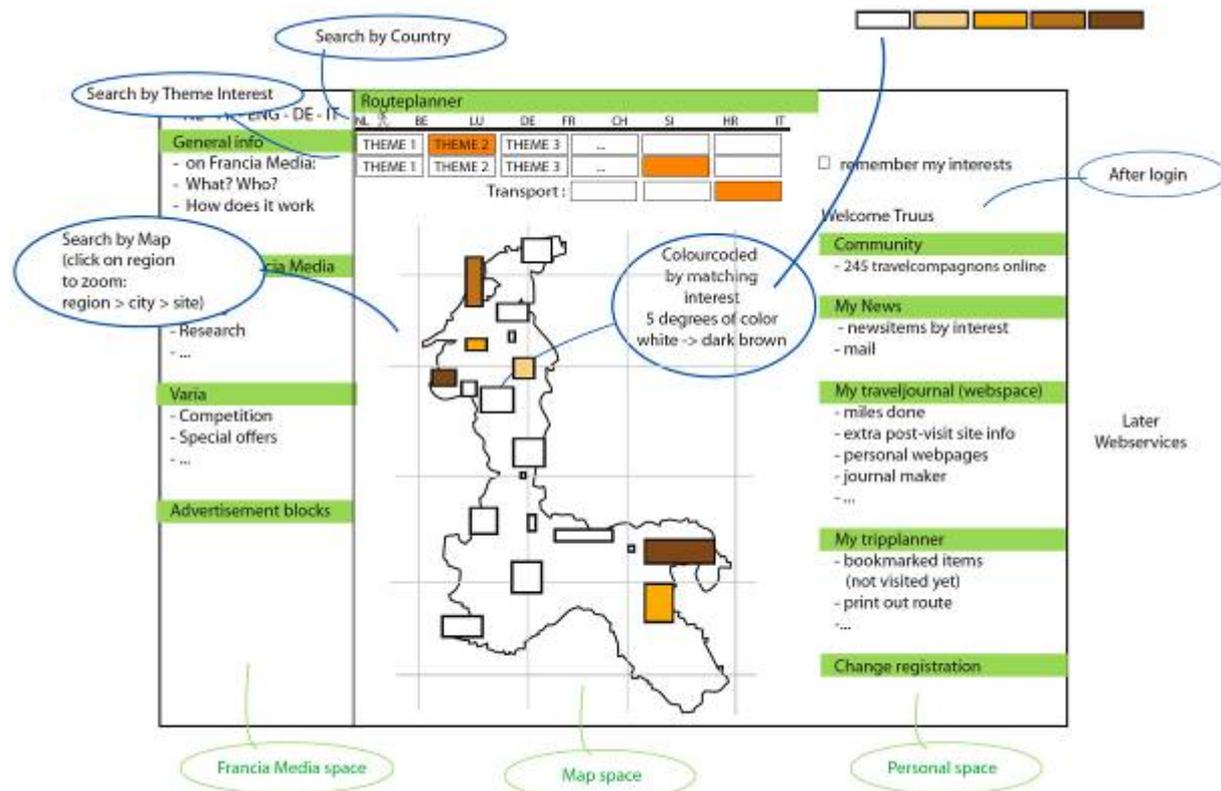


Fig 4 : Portal design

As the portal promotes the local routes, through direct promotion and through the stimulation of mutual promotion between local routes, it increases the cultural heritage tourism to these regions. As the mutual promotion creates a win-win situation for the local routes, we believe that this system will work, although the regions are competing with each other for tourists. This system of co-opetition - i.e. combined cooperation and competition - is one of the basic elements of this portal.

As the portal system promotes the cultural heritage tourism, it is logical that the local organisations provide the funding for the central organisation that organises and maintains the portal. As most of the costs of the central organisation are variable (i.e. depending on the number of local routes), the system will allow to start up easily and reach break-even with only a small amount of local routes.

3. Local Micro-routes

When clicking on a local route in the central map of the portal, the local micro-route will become visible (fig. 5). The micro-route will show all different points of interest in the

local route, and the optimal connections between them (this can depend on the transport medium that the visitor chooses).

MACRO-ROUTE: Theme

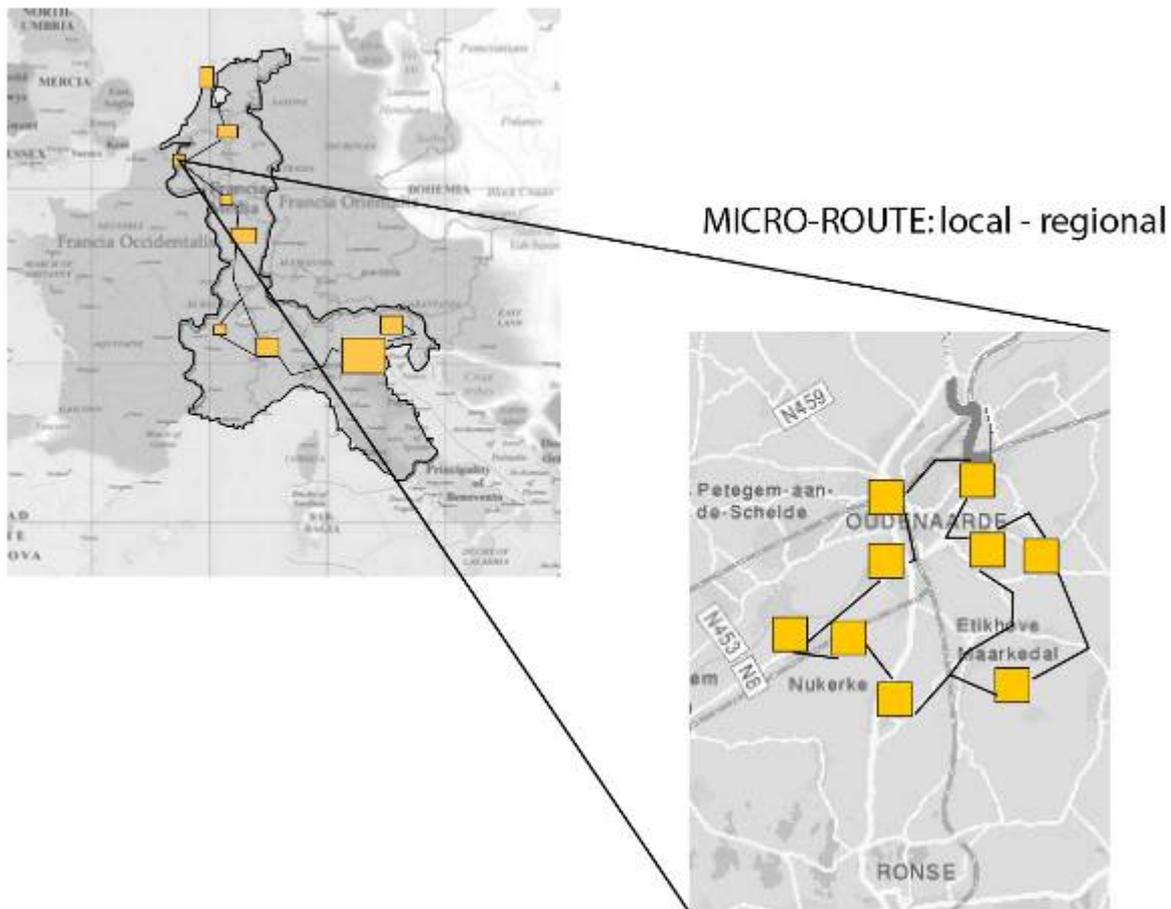


Fig. 5 : From macro-route to micro-route

Local points of interest can be supported by a wide variety of tools (fig. 6): brochures, panels, signs, up to kiosks, PDA or mobile phone based systems or high end CH presentation systems in monuments or museums. Between them, walking tours or bike routes and car routes can be defined. In this way, existing elements can be introduced in a new local route, which makes the implementation of the route much more feasible and cost effective.

These points of interest do not need to be ICT based. There should at least be one point in the local route that allows an internet connection. This can be a simple PC in a museum, where the museum staff records the presence of the visitor by registering his name or cultural route id. Current mobile phones and PDAs on the other hand allow to make internet connections so that the visitor can register himself without any additional staff or equipment.

The connections between the points of interest can be defined by brochures (to be downloaded from the portal or to be obtained from the local tourist information office), sign posting, PDA's or mobile phones. As the micro-route is maintained by a local authority, these local connections will remain up to date and integrated in the local touristical offering.



Fig. 6 : Points of interest of a local route

The content of local systems is provided by the local authority, or organisations that are linked to the local authority, such as museums, sites, monuments or local communities. If it is possible to network such systems (for example in a museum), then the content of the systems can come from a central server (yellow part of local database in fig. 7). If not, other ways of updating the systems can be used (CD-ROM, Flash memory, ...).

If a visitor uses a local route system that is connected to the Internet, several actions take place (fig. 7). First of all, the visit of the user is registered and the user is identified from the user database at the portal server. The user profile is used to personalise the presentation to the visitor.

The user can be identified in several ways. The most simple way is to have the user identify by typing in his ID, or have the barcode of his membership card scanned. A more sophisticated system is to use RFIDs, where first of all a link is made (by museum staff) between the visitors ID and the number of the local RFID card. Such a system is useful when multiple systems are networked. Once this simple identification operation is performed, the visitor can identify himself by just holding the card next to the reader at each system. In this way, the systems can be unlocked for example to those visitors that have paid before at the central visitor registration point.

The personalisation of the content delivery can take many forms. We prefer personalisation that remains subtle and gives hints to content that fits with the user profile. Other ways of personalisation are bookmarks and digital souvenirs.

A visitor can put a bookmark when there is more information available that interests the visitor but he does not want to see the information right away (for example because of time constraints or because the information is not suited to be presented on the spot, such as an article or website or book). In that case, an automatic email will be sent to the visitor (as he is identified and his email address is known) with the article or website or reference to the book.

Another form of personalisation is the digital souvenir. This can be as simple as a photograph of the visitor at the site or monument, taken by a camera connected to the system. More sophisticated forms of digital souvenirs are virtual reconstructions with seamless integration of a picture of the visitor or digital greeting cards. These digital souvenirs are stored on the central portal server in the personal webspace of the visitor, or can be sent to an email address chosen by the visitor.

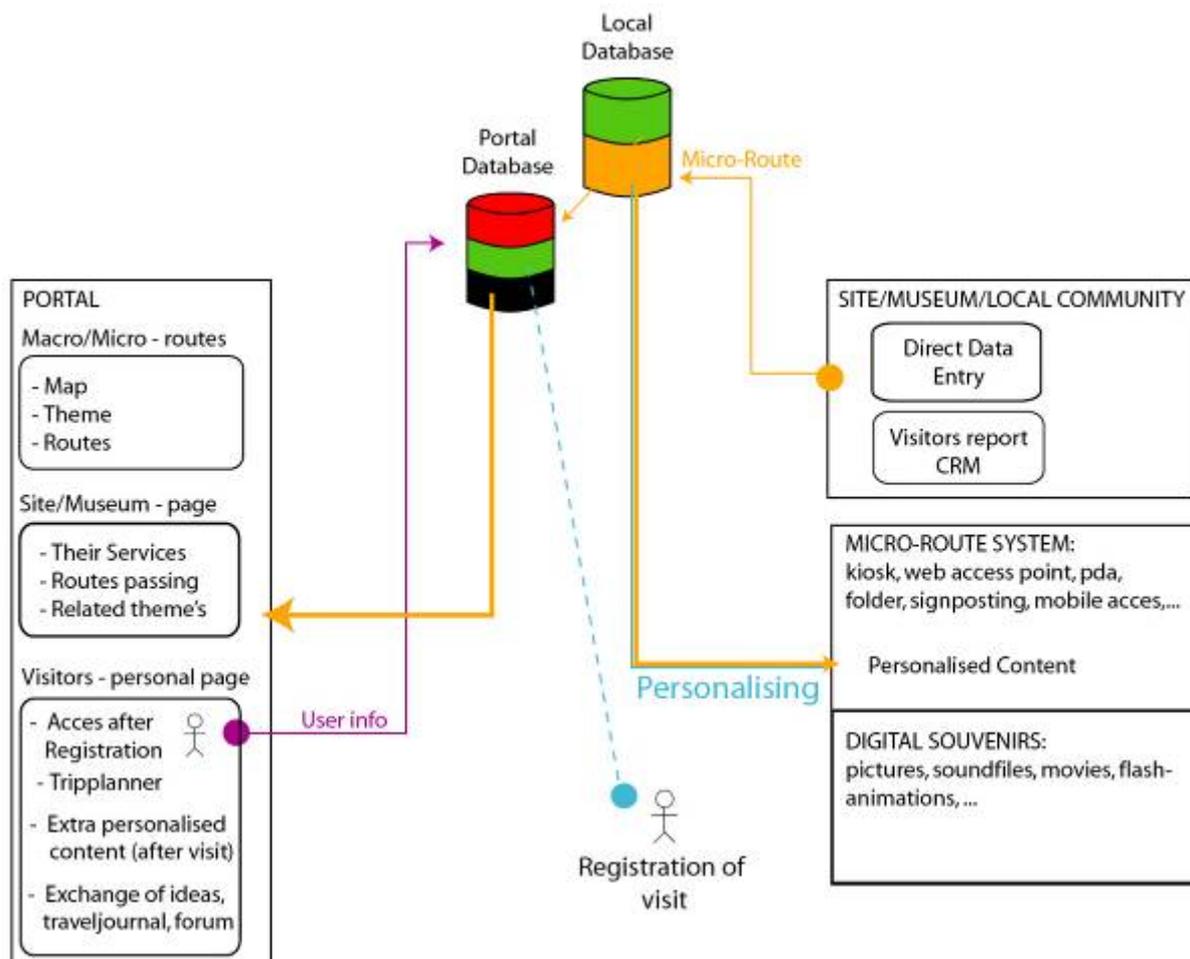


Fig. 7 : Visiting a digital point of interest

Identification of the user in a local route yields much more information about the behaviour of a visitor throughout the site or route (fig. 8). Automatic visitor reports can be generated for the decision makers, marketing department and touristic information offices, and allow them to do customer relation management (CRM).

Another main advantage for the visitor is post-visit information. As each local route should have at least one point to identify the visitor, it is possible to give the visitor access to detailed information on the local route, or parts of it, after the visit. The appropriate links to this post-visit information appear in the right hand side of the portal screen (see above).

This approach has several advantages. First of all, it rewards the visitor for paying a visit to the local route. Secondly, it allows the visitor to concentrate on experiencing the site, while he can absorb the detailed information about the site later on, in the comfort of his home. Thirdly, it gives an enormous potential to school groups to visit a place or region, and continue the discussion and study later on in the classroom.

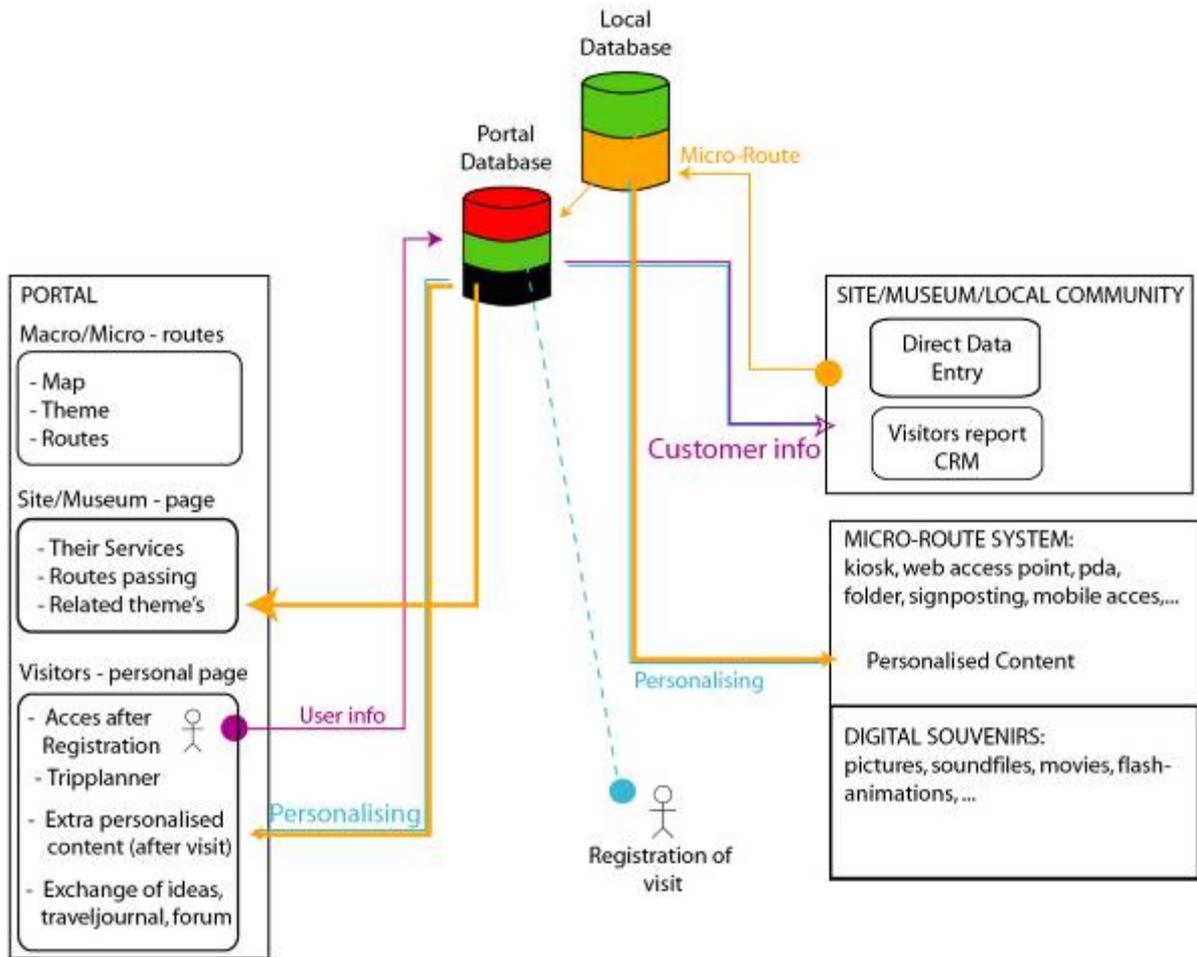


Fig. 8 : Post-visit actions

By mutual promotion, connections can be created between the micro-routes (fig. 9). The problem is that these connections do not fall under the responsibility of a local authority, therefore are prone to get outdated or lack good description. If possible, these connections can be documented by the central organisation with the help of the local authorities.

MACRO-ROUTE: Theme

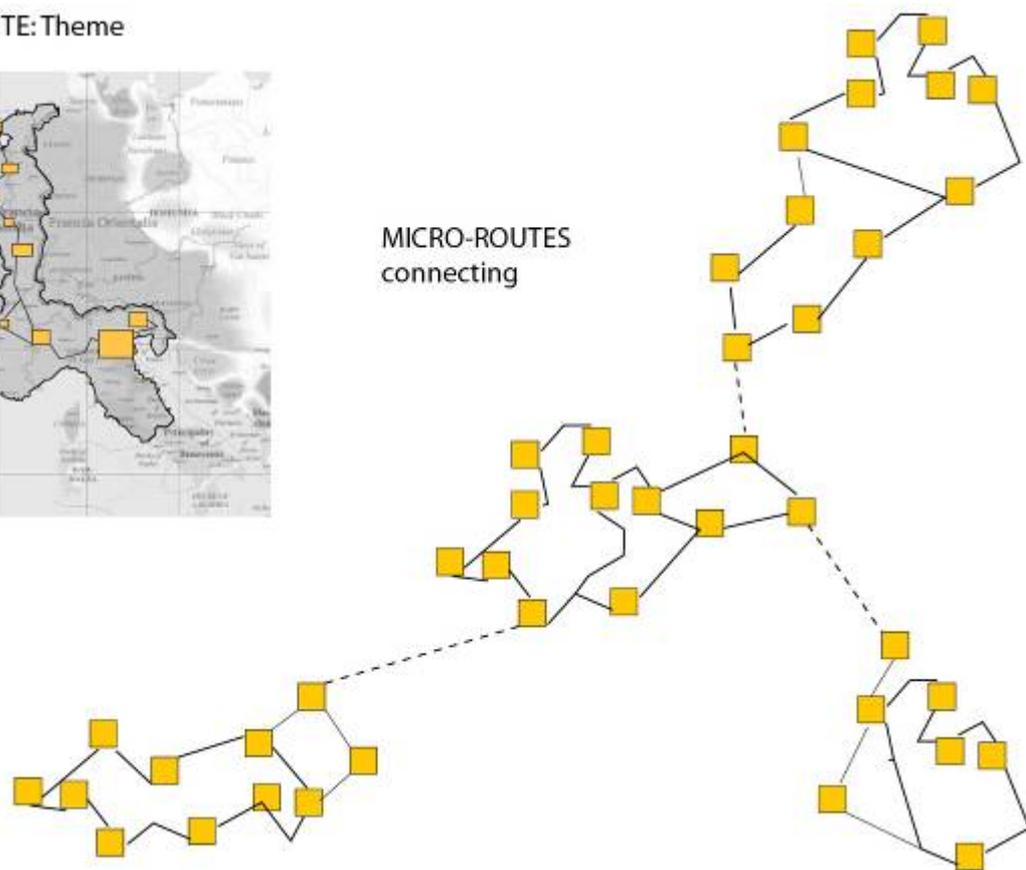
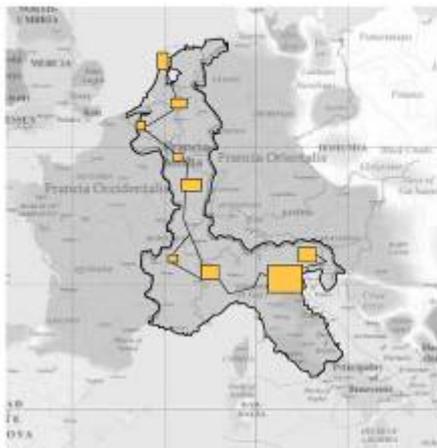


Fig. 9 : Connecting micro-routes to a cultural route

4. The implementation of a local micro-route

A first implementation of a local micro-route in Oudenaarde, Belgium was realised. It is part of a prototype implementation of the Francja Media Cultural Route, and will be complemented by other systems in Ename, Belgium, at a few kilometers from Oudenaarde.

This system is implemented on an indoor kiosk and is situated in the tourist information office, or at temporary exhibitions in the same building. This system will be described in a separate paper.

Funding will be sought to continue to develop this cultural route and its application towards the Francja Media project.

Francia Media Cultural Route

The Case of Oudenaarde as Micro-Route

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1. INTRODUCTION

The General Context: : e-Tourism through Cultural Routes

A cultural route is a kind of thematically based tourism, where an itinerary connects sites that have a certain theme in common. Successful cultural routes exist already today, but this e-tourism proposes an Internet based way to promote, support and exploit a cultural route, through an Internet portal and a network of local presentation systems.

Rather than focusing on the replacement of on-site visits by virtual web presentations, the focus is on IT enriched site visits, linked with e-business (digital souvenirs) and based on virtual communities, where visitors can register their experiences on this cultural route and share this with other visitors, friends and family.

The proposed system allows a distributed implementation with local servers, maintained by local authorities.

The Theme: Francia Media Cultural Route

The Francia Media project seeks to stimulate international interest in the historical legacy of the "middle kingdom" of medieval Europe that extended from Friesland to Slovenia and Italy. Even though the political history of Francia Media was brief, its cultural and economic importance endured. This area contained early medieval Europe's most important North-South route of trade and communication. As a "middle" region of vibrant cultural contact and creativity, it continued to play a significant role in the development of European culture, technology and economy.

The project aims at creating a network of communities in the historical core of Francia Media (the Netherlands, Belgium, Luxembourg, France, Germany, Switzerland, Italy, and Slovenia), encouraging local economic development and bringing heritage and pride in heritage to people of European local communities.

The Case: Oudenaarde at the borders of the River Schelde

The historical origin of the city of Oudenaarde is directly linked to the history of Francia Media. After the treaty of Verdun the river Scheldt became the border between Francia Occidentalis and Francia Media. Three important fortifications were built: Antwerp, Valenciennes and Ename. After the destruction of the stronghold of Ename in 1033, Oudenaarde was founded a few kilometres upriver.

The archeological site of Ename played a pioneering role in the use of virtual reality to enrich the on-site visit experience. TimeScope technology is used at the archeological site itself, but also in the village church, as well as in the Provincial Museum of Ename. By installing a TimeScope window in the city hall of Oudenaarde, a local network of IT enriched sites is beginning to grow.

2. DESCRIPTION

Purpose of the project

Oudenaarde is the most important city in the region of the 'Vlaamse Ardennen'. Due to its rich cultural heritage, the city is also an important tourist centre. The purpose of installing a TimeScope window in the city hall – which is itself recognized as 'world heritage' – is to promote local tourism by way of : (a) providing a better service for the visitor of the tourist information desk; (b) providing background information about the major cultural and tourist sites of the city in an accessible way; (c) providing information about local tourist tours to which the historical background information is linked in a convenient way; (d) building a local network of IT enriched sites.

Rather than giving in depth information about the routes from which the visitor can chose, or the history of the sites which can be visited, the digital information is conceived as a 'teaser'. However, we would like to emphasise that in a second phase the application will be extended by other features which should enrich the visit experience, such as digital cameras, e-mail connectivity, web browser applications, etc.



Figure 1: Infokiosk at tourist information office Oudenaarde

How is the project integrated in Francia Media Cultural Route?

Francia Media Cultural Route is a huge project that cuts across Europe. However, by using a consistent set of themes, the route can easily be recognised as a unit. What differs on each locality, however, is the way in which these themes are translated and adapted to the local situation.

This means to say that the local IT application can be seen as either a stand alone application, or as part of a bigger information network, depending on the needs and the background of the customer and the provider.

Description of the technology

The information and navigation tools are presented on a touch screen. The framework within which the user can navigate is simple and easy to use.

The begin screen offers the choice between 7 different themes. These are the themes of Francia Media Cultural Route.

For each theme, there are two layers which are connected to each other. One can choose between either historical information or route information.

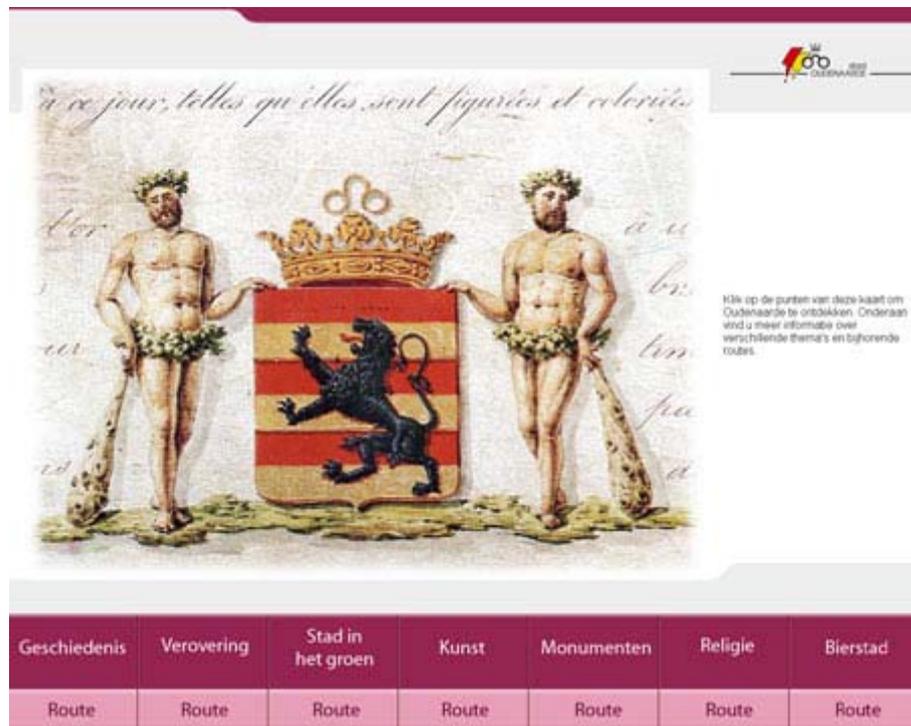


Figure 2: opening screen

Technically, each theme is conceived as a separate “story” and each story consist of different ‘nuggets’. A ‘nugget’ contains the information which the user gets on the touch screen: images and text. The navigation tools (going forward, backward or jumping back to the begin screen) are part of the framework.

Basically the user has two options: he can follow the historical trail for each theme and watch the nuggets of information one after the other. At the end of each ‘story’ the begin screen appears which allows the user to make a new choice.

If the user is not interested in the historical background of the city, he can opt for the route-information which can be navigated independently from the historical information.

The biggest advantage of the application, however, is that both layers, the historical information and the route information, are linked which allows the customer to jump from one layer to the other. These links are made for each ‘nugget’, which means that for each information item, the user can jump from one layer to the other.



Figure 3: Info item in the historical layer

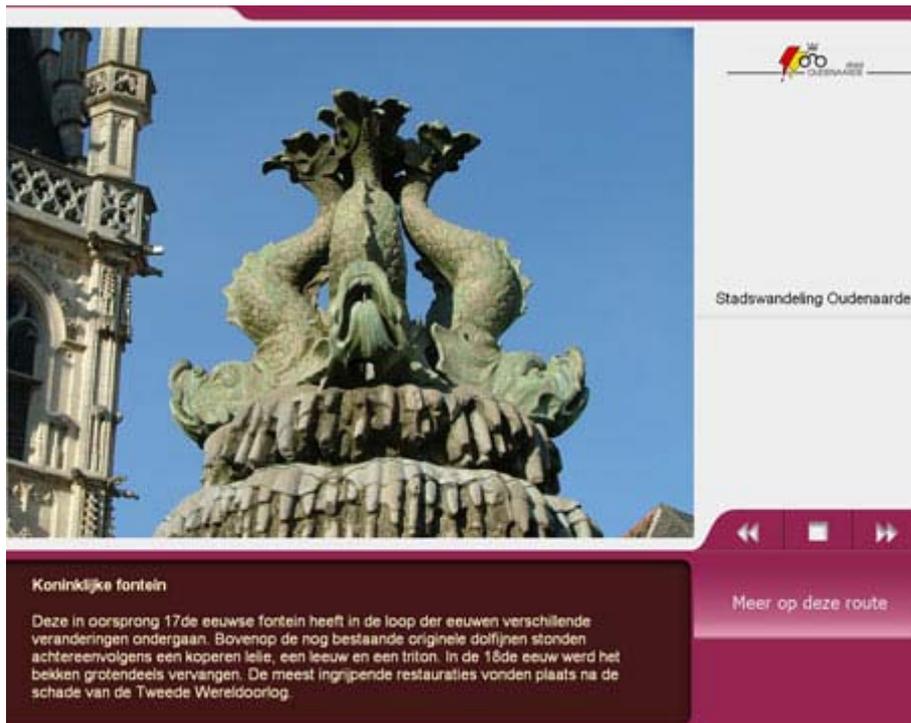


Figure 4: Info item on the route layer

The Route information provides a map at the opening screen of each theme. It indicates the tourist sites and gives a general impression of the location and the distance from the city hall. The actual information consists of recent photographs and practical information, including telephone numbers, existing brochures, etc.

The historical information gives the user an impression of the general historical evolution of the site. Sometimes the destination of a site changed radically. For example what is now known as the "Liedtspark" used to be a bastion of the vestiges of Oudenaarde constructed by Vauban in the 17th century.

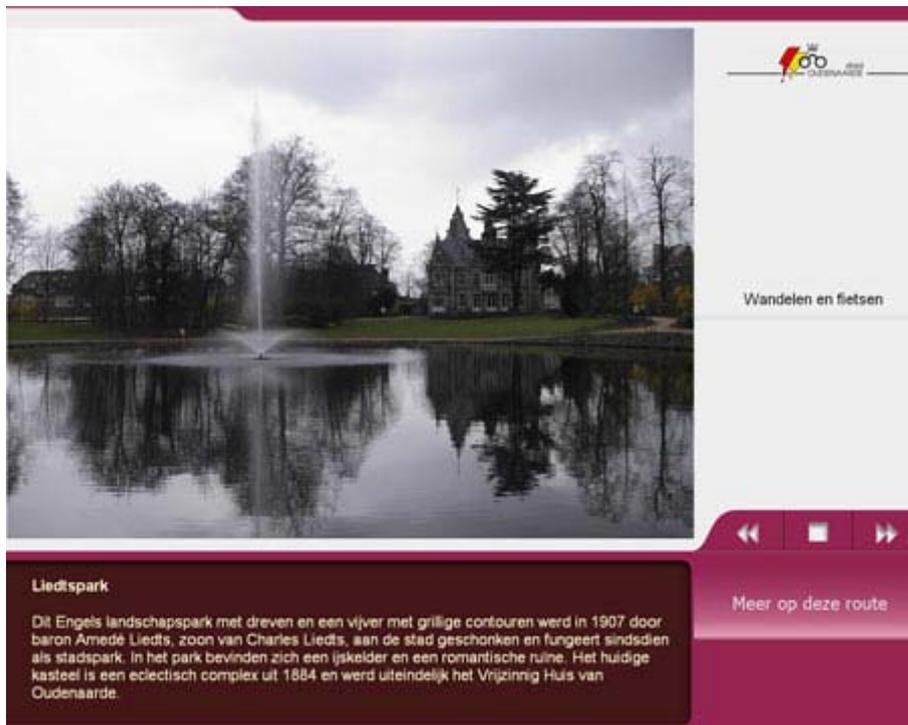


Figure 5: Liedtspark in Oudenaarde



Figure 6: The former vestiges of Vauban at Oudenaarde

Towards a local micro-route of e-tourism

The added value of the info kiosk at the city hall of Oudenaarde, apart from the information and functionality that is provided, rests on the fact that it becomes part of a local micro-route of IT enriched sites. In the town of Ename, now a district of the city of Oudenaarde, IT-infrastructure, similar to the one used in the town hall, is set up at the archaeological park, the provincial museum and the church. Contrary to the application installed in the tourist office, in-depth information is provided on these sites. Cross-references will be installed on the running applications in order to invite the customers to visit the other sites.

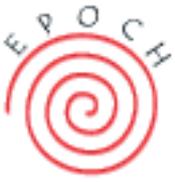
As the Francia Media Project develops, a clearer awareness of the local micro-route as part of this cultural route should be possible. A consistent use of logos on the applications, brochures, flyers, information boards, etc. should be an important step.

3. FUTURE DEVELOPMENTS

If applicable, other kiosks could be installed at major hotspots, such as the *Center Tour of Flanders*, or Kerselare. Apart from the detailed information on site, the network of linked locations within the local micro-route should become more visible to the occasional local visitor. This could be achieved by cross-referencing on the info kiosk, a consistent use of logos on the applications, brochures, maps, etc. The 'local visitor' is still the major 'customer' of tourist locations in the vicinity of Oudenaarde.

As described in the general outline of E-tourism through cultural routes, other user facilities should be added to the existing applications, such as digital souvenirs, customer identification, information on profile, etc.

Further development of the concept of the web portal should promote the integration of the local information of the micro-route into the general framework of Francia Media.



E-TOURISM THROUGH CULTURAL ROUTES

E-Cultural Routes can offer unique variations of the traditional cultural route as complex and fascinating mosaics of regional and local culture. They can provide visitors and local inhabitants alike with new understandings of the past and a meaningful vision of modern cultural diversity in a region long characterized by active geographical, social, cultural, and economic interaction. The main objectives of an e-cultural route are:

- Valorisation, promotion, presentation and preservation of cultural sites and regions
- Preservation and enhancement of cultural heritage as a means of improving the surroundings in which people live and as a source of social, economic and cultural development for the local authorities participating to the route
- Development of new technologies and virtual exhibits on the life, peoples, and cultures that can be simultaneously held in urban and rural communities along the cultural route and that are linked with each other through an Internet portal
- Create a two way communication in the presentation of Cultural Heritage, where users of the cultural route can express and share their personal feelings and experiences regarding the cultural heritage that they have visited

Themes An e-cultural route has a certain theme and/or historical period and a confined territory. The cultural route partners will reflect the domain of Cultural Heritage, its architectural styles, and artifacts — and no less important — their



The Town Hall of Oudenaarde (UNESCO World Heritage)

continuing tangible and intangible legacy. The partners propose sites that creatively express the traditions and patterns of life that characterized the theme or period and which still play an important part in contemporary life. This connection between past and present is of prime importance for the potential development of tourism and other community activities. The associated partners in the implementation of this route will then be heritage site managers and museum curators, local authorities, community groups, and relevant SMEs. In addition to the presentation of immovable heritage, the route will highlight intangible culture, such as cuisine, art, music, customs, holidays, and festivals that provide the bridge between modern life and a shared historical legacy. The sustainable development of local communities will also be the centre core of establishing criteria for the design of this e-cultural route.

As a test case an e-cultural route will be developed for the Francia Media area that extended from Friesland to Slovenia (www.franciamedia.org). This cultural route will link and promote sites with early medieval heritage that provided the kernel of a distinctive identity that



The Landscape of Wieringen (Netherlands)



The St.-Laurentius Church in Ename at the River Schelde

has developed and evolved over the centuries. Rather than just linking sites along a macro-route within this geographical area, a molecular structure will be built with micro-routes extending locally and reconnecting at due time. Local Route-Systems can take many different forms, ranging from marked walking tours with PDAs to car routes with brochures. This molecular structure gives each city or region the freedom to develop and maintain their own route as a part of the bigger cultural route concept, a common database structure however binds these different micro-routes together and provides the central portal website with the necessary information.

Visit at own pace. "Allow visitors to experience Cultural Heritage at own pace" is one of the principles of the ICOMOS International Cultural Tourism Charter ('99). This e-cultural route application makes the users experience this right abundantly. Within the personalized portal each user can discover Cultural Heritage his own way even before or after the visit. Prior to a visit, users can easily plan their own route, they can search for routes and sites that match their interests, they can fully plan their trip by adding sites, museums, events etc. to a personal and printable

route-program... During the visit, the can acquire digital souvenirs and content that are added to their portal. After the visit users can publish a personal travel journal and share their experiences and ideas about certain routes and sites with other visitors, friends and family, creating a digital community around the route theme.

This way the portal will be a unique two-way communication medium that lives from constant input by museums, local authorities, communities, tourist professionals as well as involvement from visitors, schools, families ...

Technical specifications

The e-cultural route application consists of two technologies: a personalised portal website and a network of micro-route systems that will be managed locally.

For this showcase the Hogeschool van Utrecht developed a graphical and HTML based prototype based upon the conceptual design of the portal by the Ename Center. As an example of a micro-route the Hogeschool van Utrecht also developed a local system for the region of Wieringen (Netherlands). This micro-system is based upon the TimeScope 3 software, developed by the Ename Center and IBM. This content management system is an Open Source XML and Java environment, build upon an Apache Tomcat server.

The completely distributed nature of the application allows to create networks of musea, monuments and sites, cooperating around a central theme, while every museum, monument or site remains responsible for its content. The integration requirements for a museum or site are very low, only an Internet connected PC is required

Partners

This showcase is being realized with the support of :

- ▶ Ename Center for Public Archaeology and Heritage Presentation, Belgium
- ▶ Hogeschool van Utrecht, Netherlands
- ▶ The University of Surrey, UK
- ▶ Gewest Kop van Noord-Holland, Netherlands



Interested?

Are you interested in this showcase? Do you think that this approach can help you in creating effective Cultural Heritage presentation projects or can be integrated in new research projects? Please contact Heidi Tency (heidi.tency@enamecenter.org) of the Ename Center at +32 55 232445.

EPOCH is a Network of Excellence on Intelligent Cultural Heritage within the IST (Information Society Technologies) section of the Sixth Framework Programme of the European Commission. EPOCH showcases demonstrate innovative solutions and technological integration for target application areas in the Cultural Heritage domain. As they are created with real world content, they stimulate creative thinking about the use of the technologies in Cultural Heritage, and are used to validate new technological approaches with key stakeholders in the Cultural Heritage domain. For more details, visit the project web site:

www.epoch-net.org

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