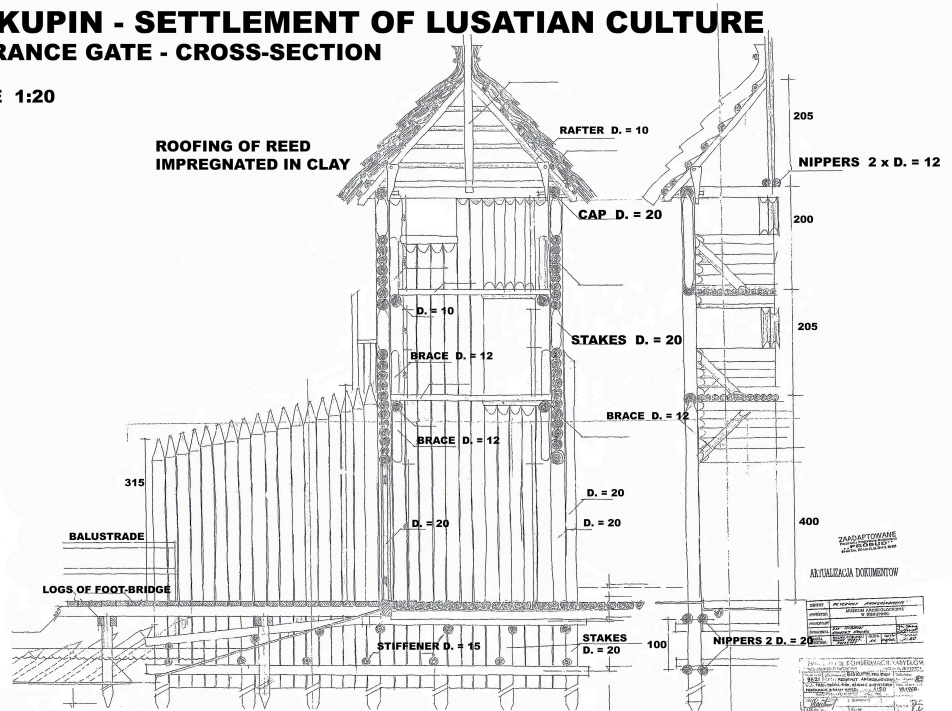


BISKUPIN - SETTLEMENT OF LUSATIAN CULTURE ENTRANCE GATE - CROSS-SECTION

SCALE 1:20



NetConnect: Project Concept

NETConnect is a consortium of 7 academic institutions from 5 countries, funded by the European Union within the theme of Cultural Heritage. The broad aim of the consortium is to deploy emerging information technologies to make accessible to a wide cross section of the public the richness and connectivity of important archaeological sites in Europe. The three year project will focus on the three sites: Biskupin in Poland, Glauberg in Germany and Magna Graecia in Italy.

The team, headed up by Prof. Piero A. Bertacchini of the University of Calabria, comprises three archaeological institutions and four technology institutions. The project runs from October 2006 to September 2009.

NetConnect: Partners

The University of Calabria

Prof. P.A. Bertacchini and A. Tavernise
(netconnect@unical.it)

The Evolutionary Systems Group, drawn from the Departments of Mathematics and Linguistics in the University of Calabria in Italy has expertise in educational technology and the deployment of ICT in Virtual Museums. Prof Bertacchini, co-ordinator of the NETConnect consortium, has published many papers relating to the Magna Graecia archaeological sites in southern Italy

University of Warsaw

A. Bursche (abursch@yahoo.com)

The Institute of Archaeology Warsaw is part of the History Faculty at the University of Warsaw, Poland. Staff and students are involved in many archaeological field works not only in Poland but more widely in Eastern Europe. Particular expertise exists on the Celtic settlement of Biskupin, which features in the NETConnect project. IAW also produces multimedia educational material.

Fondazione Graphitech

G. Conti (conti@graphitech.it) and
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Graphitech – Centre for Advanced Computer Graphics Technologies - is located in Trento in northern Italy. Research interests include digital technologies for media and streaming, digital media content engineering, mixed reality and networked audio, new generation internet, augmented reality, and knowledge management.

Roman German Commission

R. Buensing (buensing@rgk.dainst.de),
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The Roman-Germanic Commission was founded by the German Archaeological Institute and is located in Frankfurt, Germany. RGD carries out research on prehistory and early history and to promote and publish research relating to Europe in the Middle Ages.

The team has special expertise in the fortified settlement on Glauberg hill.

Fraunhofer IGD

M. Etz (Markus.etz@igd.fhg.de) and
D. Holweg (Daniel.holweg@igd.fhg.de)

Fraunhofer IGD, based in Darmstadt, Germany, focuses on the development of h/w and s/w product prototypes and the realization of concepts, models and solutions in the field of computer graphics. Major projects are industrial applications, animation and image communication as well as graphical information systems, with a focus on spatial and geographic information systems.

Glasgow School of Art

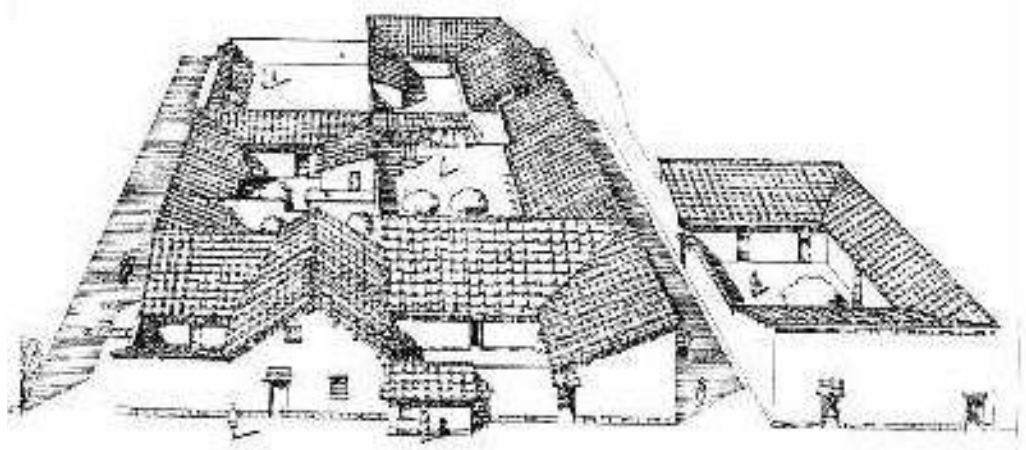
T Maver (t.w.maver@strath.ac.uk) and
D. Pritchard (d.pritchard@gsa.ac.uk)

The Digital Design Studio is one of four Departments within Glasgow School of Art in Scotland. DDS holds a number of research and development contracts funded by the EU, UK Research Councils, and Industry. The expertise of staff relates to 3D visualization systems, haptic interaction with virtual models and environments, and production of 3D urban models.

VICOMTech

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VICOMTech is a Centre for Visual Interaction and Communication Technology located in San Sebastian, Spain. Current research includes applications in interactive TV, semantic web processing, medicine, and 3D multimedia environments for Geographical Information Systems.



NetConnect: Project Objectives

The objectives of the NETconnect consortium are as follows:

Many visitors can not access the information available on archaeological sites due to the lack of interoperability or proper media. NETConnect will work to overcome such a gap by providing:

- Internet and desktop-based virtual environments, mobile and GIS applications representing three archaeological sites across Europe. Harmonization and spreading of know-how and successful benchmarking cases on the use of ICT in Cultural Heritage in order to address the impelling need to control the physical impact of mass tourism on cultural assets.
- Low-cost and wide access to cultural content by the broad public, including young, elderly and disabled people, aiming at mutual understanding between cultures.
- Advertisement and promotion of tourism in the archaeological sites and the cultural scenarios areas.

Based on three archaeological sites and their surrounding landscape, the project will develop a sustainable methodology for connecting the sites as a basis of a European network. In fact, the results of the project will be initially applied to three major EU archaeological sites: the Magna Graecia of Calabria, in the south of Italy, Glauberg in Germany and Biskupin in Poland. These three sites will thus become the main core of a network of interconnected cultural scenarios.

Throughout the project, archaeologists will ensure historical accuracy of the virtual reproductions of the scenarios working in close collaboration with the technological partners during the virtual reconstructions. The three archaeological sites will provide audiovisual content and will assess the effectiveness of prototype applications by setting the requirements and by providing relevant feedback during test phases. Moreover, the formalization of the interconnection between scenarios will become the base of the technological experts work.

The main objectives of NETConnect can be summarized as follows:

- Sharing and highlighting common Cultural Heritage of European significance, promoting mutual knowledge of culture and history of European people.
- Using state-of-the-art technology to make European heritage more visible and accessible to all.
- Improving access and experience of culture using new technologies for European citizens, including young, elderly and people with physical impediments.
- PR initiatives and cooperation activities between cultural operators and technological experts in order to disseminate European culture through the newly established International network.

NetConnect: Archaeological Sites

The three scenarios to be addressed are as follows:

Scenario 1

Magna Graecia (Italy)

One of the aims of the project is to design and develop a virtual journey through archaeological sites of the ancient Magna Graecia. The virtual journey will support many and significant archaeological sites, offering innovative products for the exploitation and promotion of the Magno-Greek Cultural Heritage, with particular reference to the Calabrian poleis, as Lokroi, Sybaris, Skilleton, and Kroton.

The archaeological site of Lokroi has been chosen as a first validation scenario by the implementing of its several environments (theatre, agora, house, temple, etc.): regarding the digital reproduction of public or sacred buildings, such as theatres or temples, documentation is very rich, because almost intact monuments of the same age are present in the Magno-Greek area (for example Paestum and Agrigento). The documentation for this kind of modelling consists of a database (images, texts, paintings)

obtained through an extensive bibliographic research. The data has been categorized for easy location according to the archaeological site, historical age, and bibliographic source. Moreover, they have been analysed by historians and archaeologists to obtain a congruent and organic overall composition. In fact, the activity of virtual reconstruction of an archaeological site requires a close collaboration between technological experts/researchers in multimedia environments and cultural operators in order to design and develop a realistic and historically correct virtual representation.

For the Lokroi settlement documents depict an archaeological site (founded between the VII and the VIII century B.C.) of about 230 hectares (Figure 1), and surrounded by 7 kilometres of walls. These walls, still present in many parts, have a rectilinear course, from the plain to the fortifications on the hill tops of Castellace, Abbadessa and Mannella, and draw a rectangle that reaches the coast. They are 6 meters high and 3.5 meters wide, consisting of sandstone or limestone blocks, superimposed without binding substances.

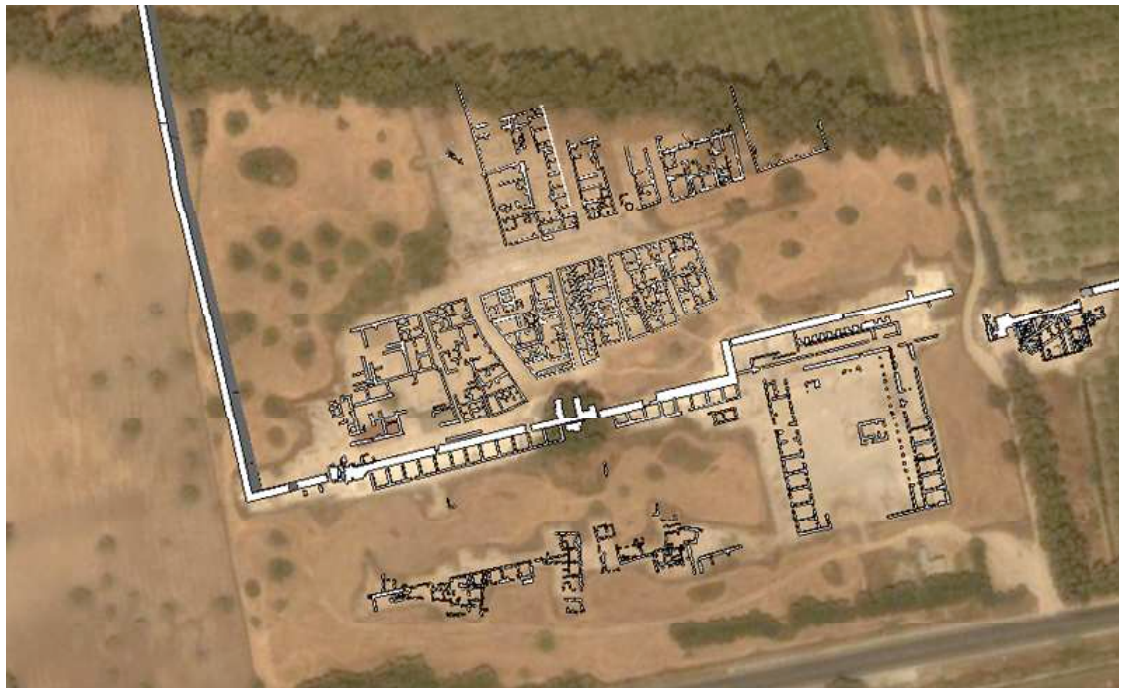


Fig. 1: The archaeological site of Lokroi (Magna Graecia).

Scenario 2

Early Celtic culture, "Glauberg" (Hesse, Germany)

The Iron Age Glauberg is one of the most known Celtic monuments in Germany. It is a typical place of empowerment of a certain Celtic social group, which shows similarity to other places in the middle of Europe. It is articulated in a combination of fortified, mostly hilltop settlements together with richly endowed tombs, often associated to an impressive grave mound, sanctuary or other monuments demonstrating some kind of political power and influence. Imported goods from distant regions like Italy or the Baltic Sea could be interpreted as wide range contacts and trading activities. These sites can be addressed as an example of early complex and highly elaborate structuring of landscape and defining larger territories. Nowadays the Glauberg site is under archaeological and environmental protection. Traces of archaeology can be found in the landscape. Though many questions are still in preparation and some will never be answered, enough information is refined to give ideas of the Celtic Glauberg to the public.

All over Europe in early Celtic Age (in the mid-1st millennium B.C.) we can see developments of centres associated with some kind of social change. In Early Celtic time sites like the Glauberg in Hesse, the Heuneburg in Baden-Württemberg or the Mont Lassois in Burgundy – apparently concentrate administrative, economic and cultural functions. To explain all the change in landscape and in the archaeological sites within, connected to this social change, is a complicated process, even with archaeologists as addressees. It of course is a much greater challenge when addressing the public. NETConnect is enhancing the reconstruction and its intelligibility through the use of VR and GIS techniques.

The main goal for the Glauberg scenario is to visualize the ancient landscape of the Wetterau, Hesse with its archaeological sites (settlements and graveyards) with the main focus on the central site of the Glauberg (hill fort and grave mound). The user will be able to find information about the sites in their environments in different phases of the development and to understand growing and decline. Next to this the Celtic sanctuary with its calendar function and the tombs of local leaders will be visualised explained.

Scenario 3

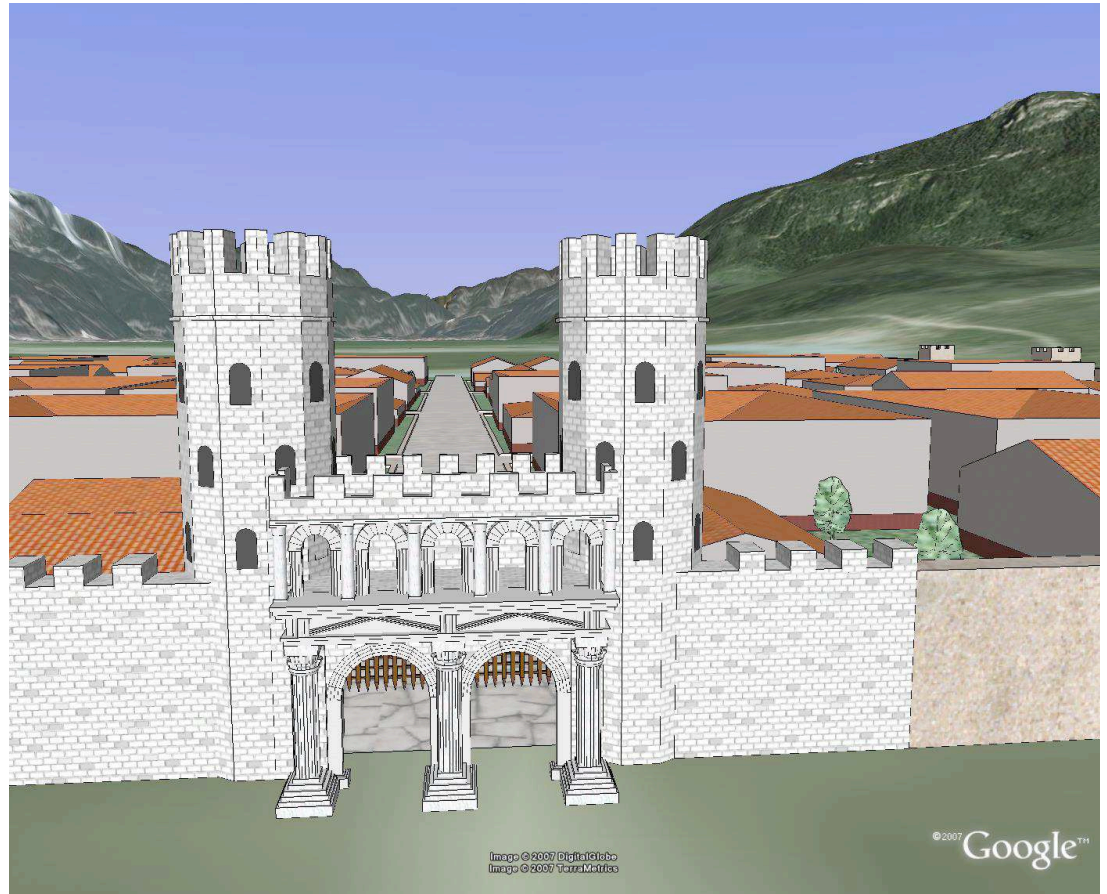
Lusatian culture, Biskupin (Poland)

The Iron Age fortified settlement in Biskupin is the most famous settlement in Central Europe, belonged to the so-called Lusatian culture, which appeared on the huge territory of Europe in the Bronze Age and developed until the Early Iron Age. The settlement was placed on a peninsula of the Lake Biskupin, located in central part of Poland. The site is dated on the ground of dendrochronological analyses. Most of the wood constructions were built during one winter, in 738/737 BC and existed more than one hundred years. The settlement was surrounded with wood rampart with breakwaters. Inside, there were 13 rows of huts, together about 102-105 houses, which were situated along 11 streets. Biskupin had about 800-1000 inhabitants. Biskupin was discovered in 1933 by Walenty Szwajcer, young teacher of local school, who saw, during an excursion with his pupils to the Lake, some stakes at the side of the lake.

The idea to present archaeology to the public on big scale began in Poland together with the Archaeological Festival in Biskupin, more than ten years ago. The Festival was organized by staff from the Archaeological Museum in Biskupin and the Institute of Archaeology Warsaw University. The developing Museum carries many conservation projects for which has been recently honoured with Europa Nostra Medal.



Fig. 2 A view of Biskupin site



NetConnect: Technical

The use of VR techniques will be key in order to achieve high quality visualization and interactivity between the user and the 3D models. VR gives the user the possibility to explore new means of expression and cognition, through innovative ways to interact with content and to learn in informal scenarios. NETConnect will use standard desktop set-ups instead of immersive and expensive virtual environments encouraging low-cost robust approaches, usually more suitable for large number of visitors as in the case of archaeological sites.

Internet technology will be used to remotely access content both for expert and non-expert users. Therefore, it will be possible from one archaeological site to browse material and content about the other related sites. GIS technology will be used as new means to present cultural content to European citizens in a more engaging way, stressing intercultural aspects at the territorial level at the same time. GIS technology has become a widespread tool for the management of information in authorities responsible for the administration of cultural heritage as well as for scientific research especially in archaeology. For this reason, the project will explore the combined use of GIS systems and mobile technologies to allow in-situ access to GIS-based information. Due to the rapid development of mobile technologies and the increasing capabilities of mobile devices, this information will not only be available for experts but be intuitively accessible for the laymen on the own mobile phone, thus bridging technical obstacles in the access to cultural information.

NetConnect: Contact Information

A more detailed account of the objectives and work-to-date of NETConnect is given in the paper "Netconnect – Connecting European Culture through New Technology" presented at the EVA 2007 London Conference, 11-13 July 2007.

See also <http://netconnect.unical.it.net-in-tech>

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