

GILT-TELLER: A NOVEL MULTIMEDIA TOOL FOR OUTREACH IN CONSERVATION AND HERITAGE SCIENCE

Irina Crina Anca Sandu¹

¹ Hercules Laboratory, Evora University, Portugal

Abstract

The paper focuses on an innovative bilingual multimedia tool designed within the research project funded by the Portuguese Foundation for Science and Technology (FCT) – Gilt-Teller, an interdisciplinary multiscale study of gilding techniques and materials in Portugal, 1500-1800. The tool was designed with the help of the company Take the Wind Lda. (Coimbra) and is based on an online platform (www.gilt-teller.pt). It has different components, from documents of general description of the project, its team and outcomes in terms of publications and conference presentation or workshop organization to the historical background of the project and short characterization of the main stylistic *époques* considered under study. The three innovative components are: the bilingual glossary on gilding materials and techniques (<http://www.gilt-teller.pt/index.php/glossary/index>); a movie with the data on laboratory documented reconstructions of gilded composites based on Portuguese recipes (<http://www.gilt-teller.pt/index.php/site/historicalReconstructions>) and 11 case studies with gilded decoration from the European heritage (<http://www.gilt-teller.pt/index.php/site/additionalMaterials>)

For the first time in Portugal an open access bilingual database including the most representative altarpieces and polychrome sculptures studied within the project was made available to larger and specialized public. For the first time this multimedia tool will bring together knowledge from three different scientific areas, all related with the topic of the project: Art History (with a component of Technical Art History), Conservation and Heritage Science.

Keywords

Multimedia, tool, gilding materials and techniques, Portuguese woodcarved decoration.

Gilt-Teller: uma Nova Ferramenta Multimédia Ao Serviço Da Divulgação Da Ciência Da Conservação

Resumo

O presente trabalho apresenta uma ferramenta multimédia inovadora desenvolvida no âmbito do projeto de investigação financiado pela Fundação para a Ciência e Tecnologia (FCT): "GILT-Teller, um estudo interdisciplinar multiescala das técnicas e dos materiais de douramento em Portugal, 1500-1800".

A ferramenta desenvolvida com a contribuição da companhia Take the Wind Lda. (Coimbra) é baseada numa plataforma *online* (www.gilt-teller.pt) e contém vários componentes entre quais se destaca a base de dados constituída por vários casos de estudo do território nacional abrangendo diferentes estilos de talha dourada no período 1500 e 1800. Além dessa base de dados a plataforma *online* inclui também outras três componentes inovadoras, nomeadamente um glossário bilingue sobre materiais e técnicas de douramento (<http://www.gilt-teller.pt/index.php/glossary/index>); um filme sobre as reconstruções históricas de provetas douradas realizadas em laboratório com base em receitas portuguesas (<http://www.gilt-teller.pt/index.php/site/historicalReconstructions>) e 11 casos de estudo de objectos com decoração dourada do património cultural europeu (<http://www.gilt-teller.pt/index.php/site/additionalMaterials>).

Pela primeira vez na história do património religioso português, esta ferramenta reúne o conhecimento de três áreas científicas diferentes: História da Arte (com uma componente de História da Arte Técnica) Conservação e Restauro de Talha Dourada e Ciências da Conservação e do Património Cultural.

Palavras-chave

Ferramenta multimédia, materiais e técnicas de douramento, decoração em talha dourada portuguesa.

GILT-TELLER: UNA NUEVA HERRAMIENTA PARA LA DIVULGACIÓN DE LA CIENCIA DE LA CONSERVACIÓN

Resumen

Este artículo presenta una innovadora herramienta multimedia desarrollada dentro del proyecto de investigación financiado por la Fundación para la Ciencia y la Tecnología (FCT): "GILT -Teller un estudio interdisciplinario multiescala de las técnicas y materiales de dorado en Portugal, 1500-1800" .

La herramienta desarrollada con la colaboración de la empresa *Take the Wind Ltd.* (Coimbra) se basa en una plataforma en línea (www.gilt-teller.pt) y contiene varios componentes entre los que destaca una base de datos con varios estudios de casos del territorio nacional cubriendo diferentes estilos de dorado en el período de 1500 hasta 1800. Además de esta base de datos, la plataforma en línea también incluye otros tres componentes innovadores, a saber, un glosario bilingüe de materiales y técnicas de dorado (<http://www.gilt-teller.pt/index.php/glosario/index>); una película sobre las reconstrucciones históricas de las muestras realiza en el laboratorio basadas en recetas portuguesas (<http://www.gilt-teller.pt/index.php/site/historicalReconstructions>) y 11 estudios de caso de objetos con decoración dorada del patrimonio cultural europeo

Por primera vez en la historia del patrimonio religioso portugués una herramienta combina el conocimiento de tres diferentes áreas científicas: Historia del Arte (con un componente de la historia del arte Técnico) Conservación y Restauración de oro Talha y Ciencias y la conservación del patrimonio cultural.

Palabras clave

Herramienta multimedia, materiales y técnicas de dorado, decoración en talla portuguesa.

Introduction

The Gilt-Teller project (www.gilt-teller.pt) is a research project funded by FCT (Portuguese Foundation for Science and Technology) dealing with historical, technical and analytical study of gilding materials and techniques [1] in the gilded woodcarved decoration (“talha dourada”) from Portuguese churches during 3 centuries (ca. 1500-1800).

“Talha dourada” is a singular type of gilded decoration on wooden support developed in Iberian Peninsula and that in Portugal knew its outermost expression during the Baroque époque. This decorative phenomenon has been adopted and spread together with other artistic techniques such as “azulejos”, in the form of a complete work of art and a national mark for this country, expressing also the religious faith and a catechetical message [2-5]. Although subjected to intensive historical research, “talha dourada” decorations all over the Portuguese territory were not systematically investigated from the material and technical points of view and many churches and museums house today altarpieces, retables and other wooden and gilded decorations, never studied. Thus, the Gilt-Teller research was meant to fill this lacuna and launch a pilot-project on the territory [6]. Due to the limited amount of time versus the huge amount of altarpieces and other woodcarving typologies of artefacts (ecclesiastic furniture, sculptures etc.) spread all over Portugal, the project focused on some geographic areas (Algarve, Aveiro, Coimbra, Evora, Guarda, Lisbon and surroundings, Miranda de Douro, Portalegre, Santarém, Viseu and Funchal in Madeira island) and on three typologies of objects: *main, lateral and collateral altarpieces* from churches and chapels, *gilded choir stalls* and *polychrome sculptures* with gilded decoration. The main criteria considered for selecting the altarpieces and sculptures were: *historical and artistic values*, pointing out the esthetical and cultural relevance of the case studies in close relationship with: *presence of historical documentation* (work contracts and other documents from the same époque), *presence or not (better if not) of past interventions*, *their conservation state*, *prediction of future treatments* (sampling campaign organized before the start of restoration intervention or during it).

Within this study the fifth task was focused on the design of an innovative multimedia bilingual (Portuguese/English) tool in the form of a website supporting a database of open access. This task involved several members of the working group (the PI being responsible and coordinator of the design and compilation of the components of the database) and the

consultants from abroad and Portugal (http://www.gilt-teller.pt/static/pdf/2_instituicoes.pdf). Their work and interaction provide also a model for interdisciplinarity and multidisciplinary in the field of conservation and heritage science.

The website was created in the form of a virtual trip into gilding materials and techniques, illustrating the historical, artistic and scientific background of the studies performed during the project (covering 5 research tasks and one of dissemination and Outreach activity).

Conceived as an interactive map of Portugal (Fig. 1) on which several points were marked to indicate the location of important gilded objects studied in the project, the tool shows the complexity of “talha dourada” from three perspectives: *the historical and stylistic one* (the classification of the altarpieces being done based on the historical-stylistic attribution), *the conservation one* (each object taken into study was provided with technical sheets resuming its conservation state and other technical data), and *the scientific perspective* from various scales of characterization (from Macro to Nano) [7-9].

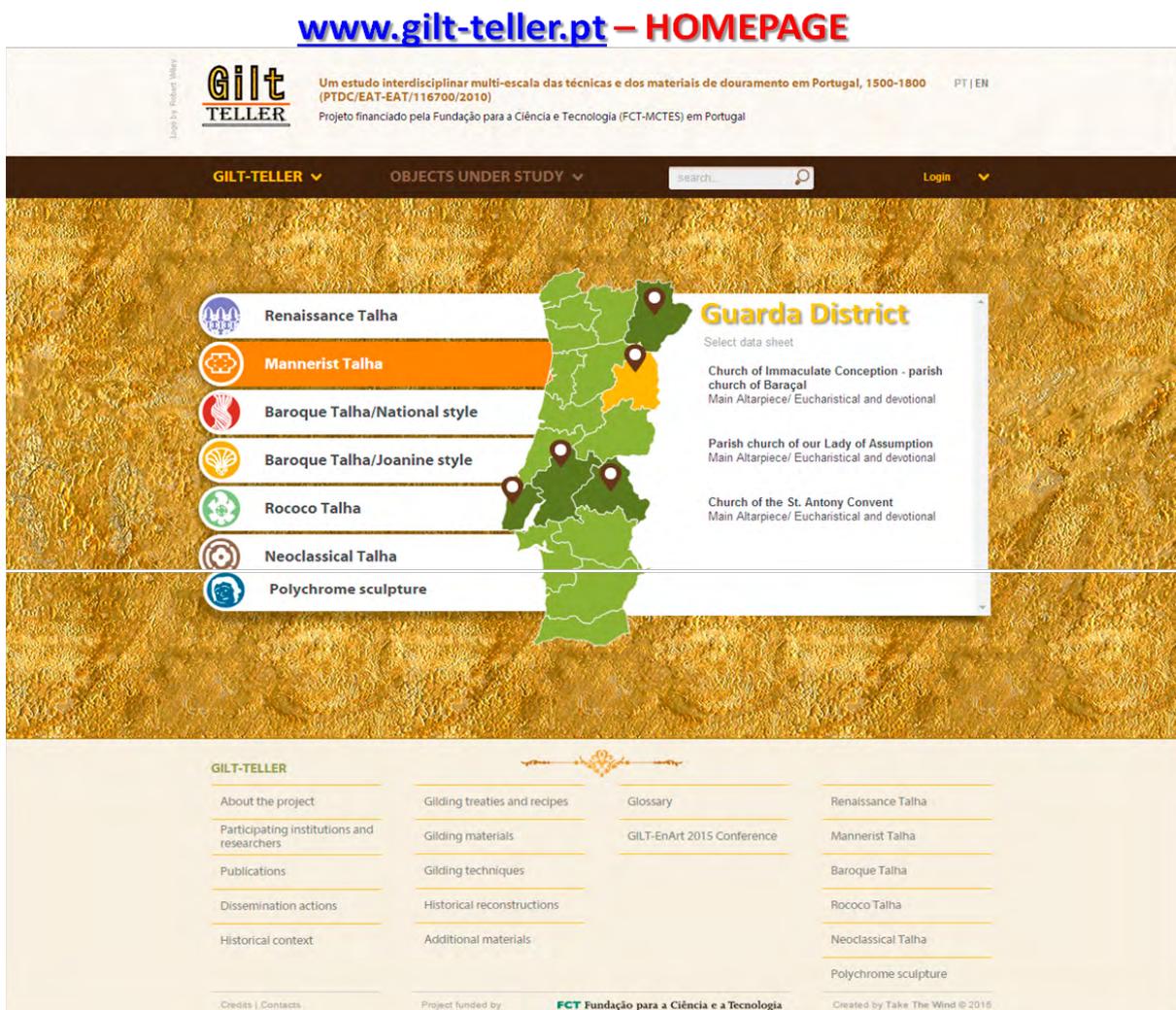


Figure 1 – English version Homepage of the website and online database with a case-study (Mannerist style) pointed on the map.

Functions of the tool

The Gilt-Teller tool has several functions: database structure, comprising various typologies of documents (texts, static images, graphs, movies etc.); easy and friendly-accessible, available online and also on a magnetic support (DVD) or pendrive in the form of a movie explaining how to access and search the information; experimental and virtual instrument, allowing real-time multi-level interaction with the fruiterers/public; capability to be transferred and integrated in an alternative, unconventional system of training (e-learning); capability to be applied and up-dated to/with similar case studies or research topics (technological transfer), allowing also comparative studies; capability to apply it for monitoring the preservation state of the studied artifacts (gilded surfaces and composites) and to evaluate in time the effects of restoration treatments; capability to offer the basis for the creation of an international network/forum for research and knowledge/know-how transfer.

Applications of the tool

The applications of the GILT-Teller are various and incorporate an Outreach dimension that conservation field can adopt for better dissemination of its activities, covering a wide range of end-users from the general public to the students in conservation of ecclesiastic heritage.

The tool was designed as a milestone from the research activities of the project but at the same time its functions makes it available as an innovative instrument for didactic activities in e-learning systems in the fields of Art History, Conservation and Heritage Science. The database stored on the online platform represent also a mean to draw the attention of the wide public on these particular typologies of heritage (comprising their material and techniques) and their problematic (from the lack of documents testifying the authorship or posterior interventions to a precarious conservation state and lack of strategy in monitoring and preserving this heritage). The database content, although limited for now to several case-studies, can offer the background for further comparative studies on gilding materials and techniques in Europe (and not only, if we consider that Portuguese Baroque Art was spread on five continents during the Portuguese expansion) and can be subject to upgrading the information with other case-studies from the Portuguese territory, for the moment not included in the study. As the database contains sheets with reports on the conservation state of the investigated altarpieces/sculptures, it can also be useful in monitoring campaigns of their state over time.

Components of the online tool

Based on the collaboration with Take the Wind Lda. from Coimbra, a layout of the online bilingual (Portuguese and English) tool and database was built up [9]. Texts and images were provided by the involved members of the project in order to create a series of pdf documents

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that describe the project, its objectives, participants, milestones and the typologies (styles of “talha” or sculptures) of studied artworks.

The structure of the tool (Figure 1, layout of the Home page and example of the case study) is based on a **Bottom Menu** (Fig. 2), where general and specific information on the activities and components of the project are provided and an **Upper Menu** with types/styles of “talha dourada” (in fact this menu is the *database* of case studies designed as a map of Portugal).

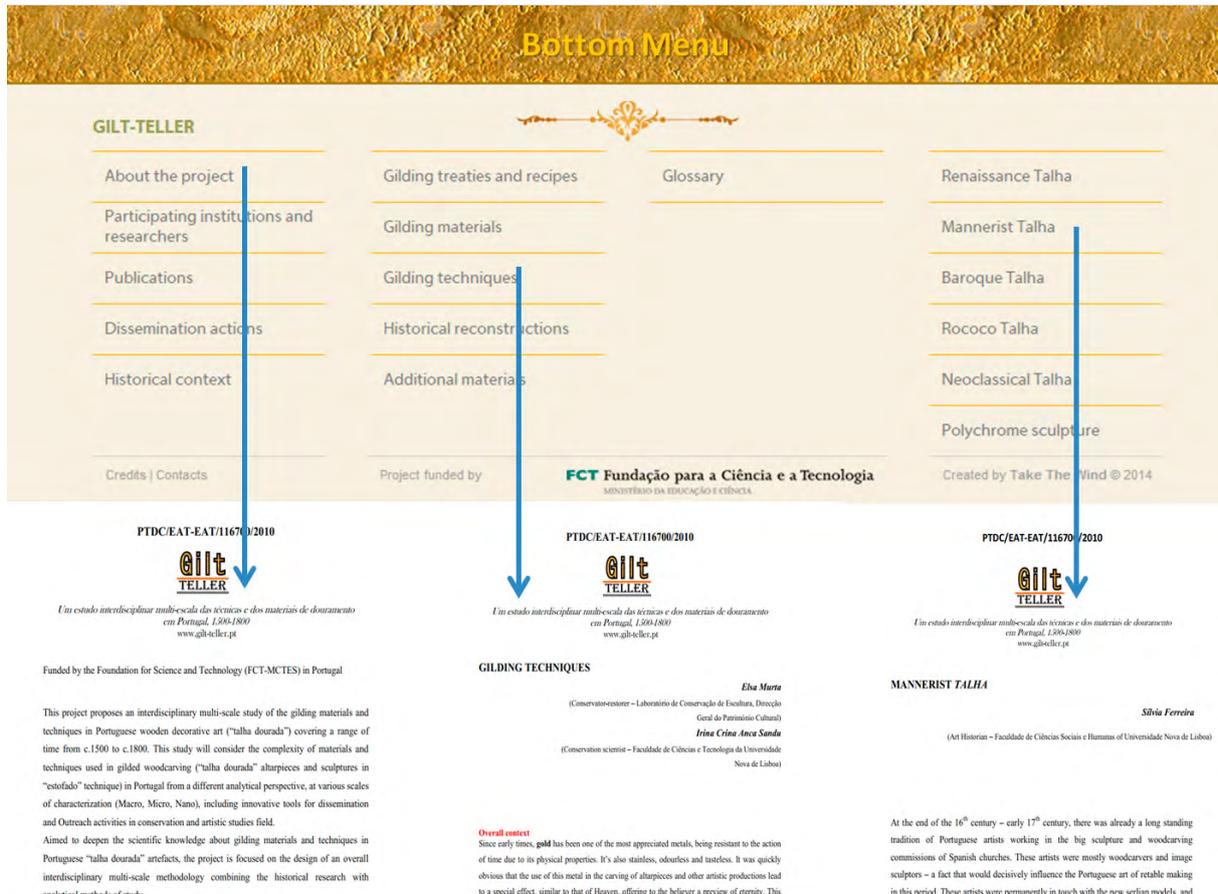


Figure 2 – Bottom menu of the website – examples of pdf documents accessed for different sections.

The first column of the Bottom Menu contains *General information* on the project, its *members* and participating *Institutions*, *Publications* and *Dissemination actions* (participation to conferences, workshops etc.) and the *Historical background* of the project.

The second column contains more technical data, on *Recipes and treatises on gilding*, *Historical reconstructions of gilded composites*, *Gilding materials*, *Gilding techniques* and *Additional Materials*. The *HISTORICAL RECONSTRUCTIONS* (task 4) of four recipes of gilding (two of watergilding and two of mordant) from XVIIth (Filipe Nunes) and XVIIIth (José Lopes Baptista de Almada) century treatises [10] were video and photo-recorded

and the final results were uploaded on the website as a movie with 10 chapters (Fig. 3). In the *ADDITIONAL MATERIALS* section, collaborations with specialists from Czech Republic, Italy, Germany, Romania, Portugal and Spain, led to the compilation of 11 technical sheets with analytical data on gilding materials and techniques from samples taken from foreign artefacts (icons, sculptures, frames and panel paintings) (Fig. 4).

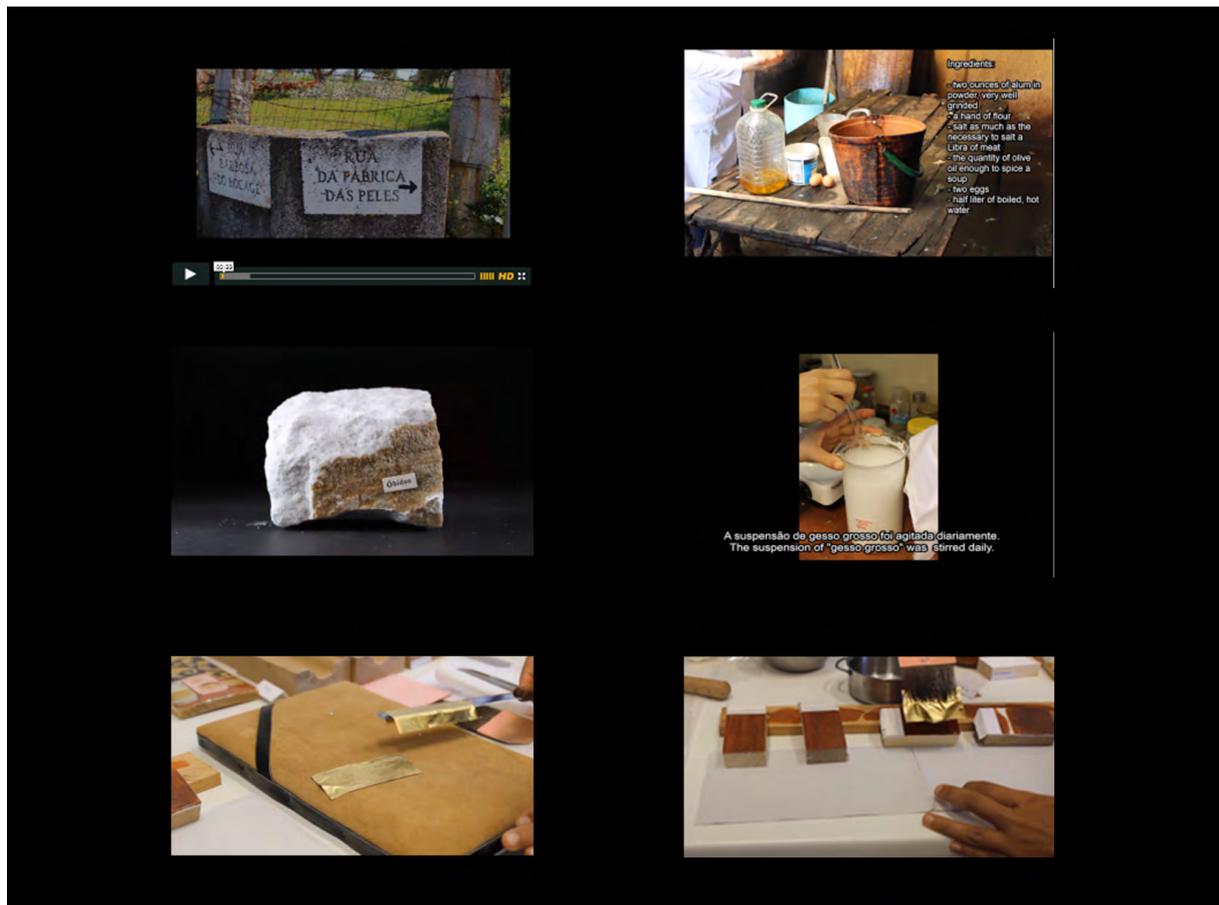


Figure 3 – Different frames from the Historical reconstructions movie.

The third column contains the *GLOSSARY* and a *link to the website of the final conference* of the project, *GILT-EnArt2015*, held between 25th and 27th of May 2015 in Evora, Portugal. The Glossary has a complex and innovative content, illustrating through texts and static/dynamic images the terminology related with all three components of the project: History, Conservation and Science (Fig. 5). The Glossary was built up in 7 chapters: first one from Art History on altarpiece structure and decorative elements according each historical and artistic style, second and third chapters describing techniques and materials for gilding, fourth and fifth chapters focusing on terminology from Conservation and Restoration field on gilded artefacts and the sixth and seventh chapters dedicated to scientific analytical techniques used in the project and basic terms from the scientific field.

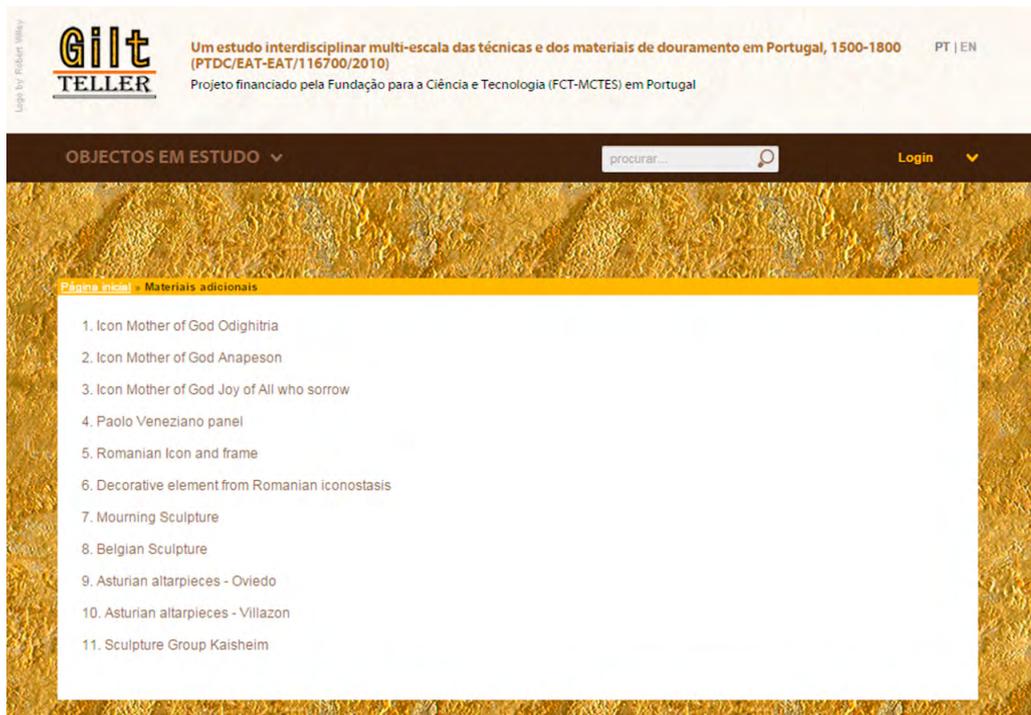


Figure 4 – Additional materials menu.

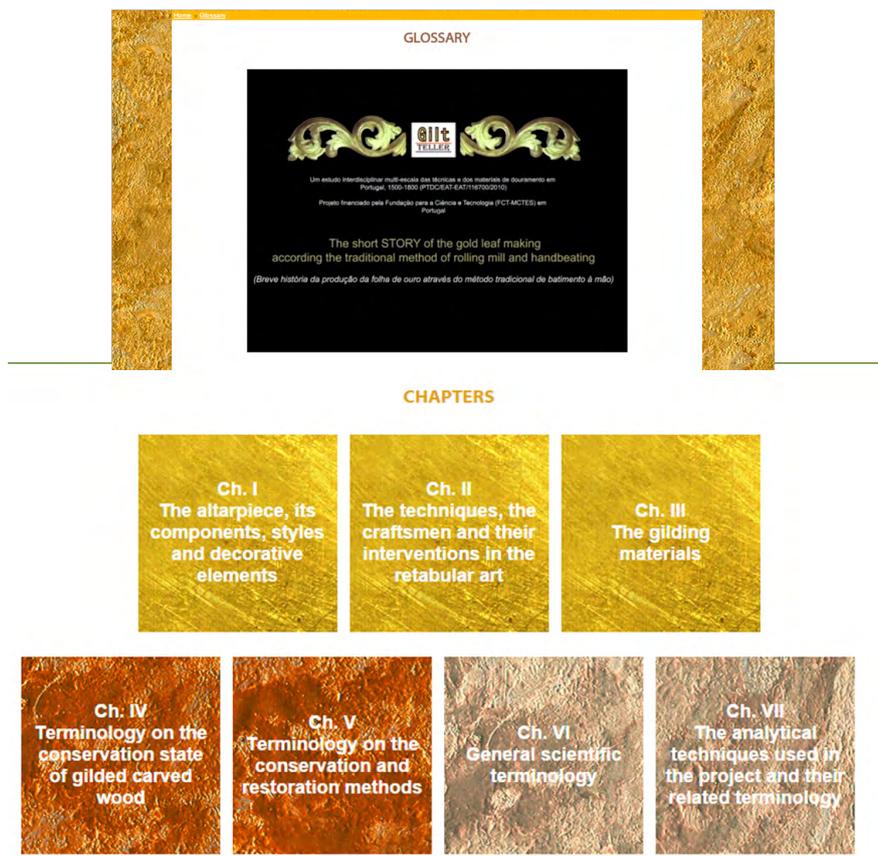


Figure 5 – The bilingual interdisciplinary glossary components.

The fourth column includes the short description, from a historical perspectives, of the main styles of talha (*Renascentist, Mannerist, Baroque, Rococó, Neoclassical*) and the *Polychrome sculpture* typology of objects.

The **Database** (Fig. 6) was organized in technical sheets structuring the main information obtained from the research activities undertaken during the first three tasks of the project. At the present the database include **1** case study (choir stall) for *Renascentist*, **8** *Mannerist*, **18** *National Baroque* (including *1 Proto-Baroque*), **9** *Joanine Baroque* (1 is choir stall), **3** *Rococó* and **1** *Neoclassical* altarpieces and **2** polychrome and gilded *Sculptures* [8, 11-15]. The components of a case study will be illustrated using the **Main Altarpiece of the Church of Sorrow in Lisbon** [15] (Figures 7-10). The first document contains *GENERAL* data about the altarpiece including a general view on it (image). The following data sheets are organized according the main categories of information provided by the analytical methodology of study: *SAMPLES*, *LAYERS* of gilded structures from each sample, *MATERIALS* of gilding, *TECHNIQUES* of gilding. This part can be considered a first level of access, for general public, as contains texts and images that everyone can basically read and understand.

The second level is recommended for specialists and students in conservation field as it contains more detailed data about the *CONSERVATION STATE* of the objects, the samples and their *characterization* using several conventional and unconventional *ANALYTICAL TECHNIQUES*. Each sample is identified using an acronym derived from the acronym of the object/case-study (e.g. for our case-study: PT-AM-NSPLx = Portugal - Altar Mor - Nossa Senhora da Pena Lisboa).

Traditional analytical techniques (optical microscopy, spectroscopy, X-ray diffractometry) together with innovative tools, such as time-of-flight mass spectrometry (MALDI-TOF-MS), imaging microFTIR, immunological assays (ELISA), fluorescent dyes (Sypro Ruby), atomic force microscopy (AFM) and micro-computerized tomography (μ -CT) were used to study the gilding materials and techniques of more than 45 altarpieces and sculptures all over Portugal. The summary of the scientific results obtained during the analytical campaign were elaborated within the sections of the database, from the more general to the more specialized such as: *Objects and analytical techniques* (simply a table with analyses performed for each sample of a studied object, Figure 9) and *Analytical Techniques* (here, according the list of techniques provided in the previous table/section, a description of the operational conditions of each instrument and of the results obtained for the analyzed sample is given, Figure 10).

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Figure 6 – Database and styles description of “talha dourada” in the Bottom menu.

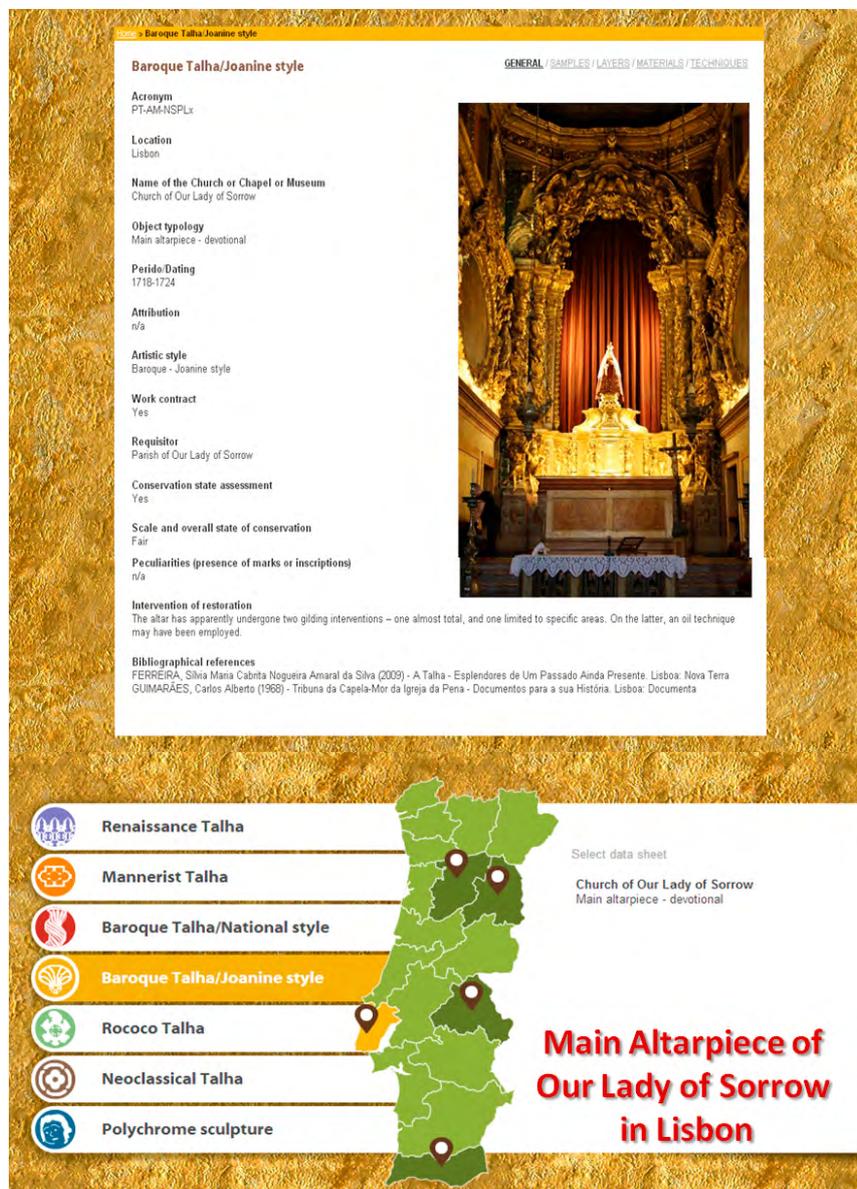


Figure 7 – The general data sheet of the altarpiece (English version) with the Menu (upper right side) showing the main sections for this case-study and the localization on the map (database).

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Figure 8 – The data sheet with the description of the conservation state of the altarpiece (English version).

Figure 9 – Data sheet (table) with analytical techniques by samples (English version).

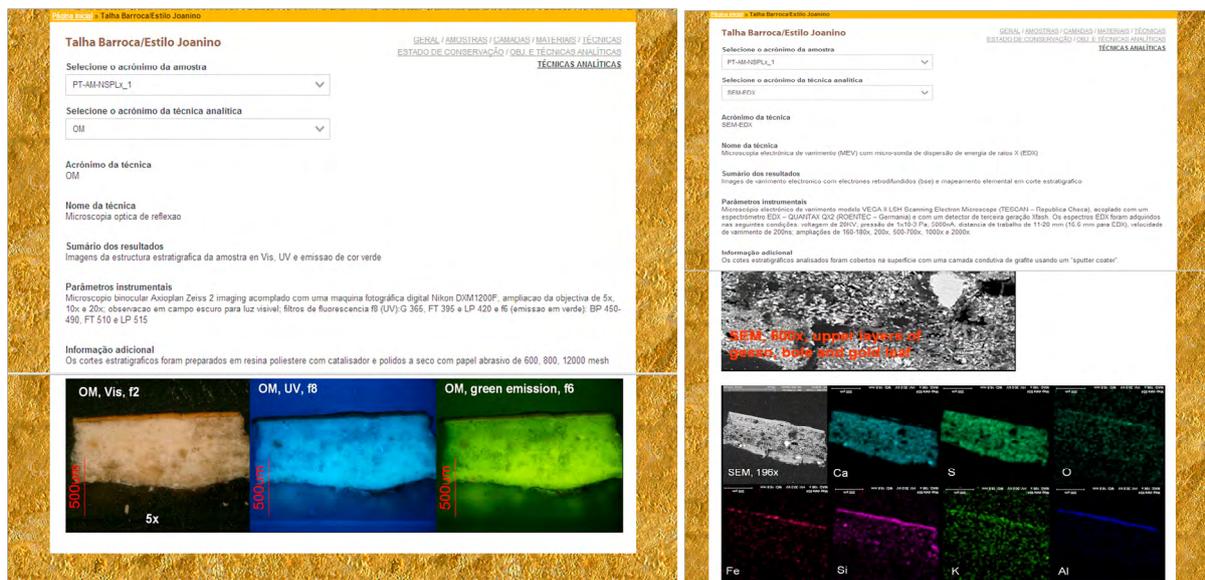


Figure 10 – Examples of description of analytical techniques for one sample (OM and SEM-EDS for sample 1, English version).

Conclusions

The structure and the content of the bilingual Gilt-teller tool described here, show the potential and functions of this online and open access platform and database for research, didactic and dissemination purposes. The Gilt-teller multimedia content facilitates the easy access to the available information to general and specialized public.

The innovation that the tool and database bring into the field of Cultural Heritage research is the cross-bridging of three components of the project: History, Conservation and Science both at the level of how the information is structured and presented (using technical sheet with data on the history of the studied objects, the gilding materials and techniques, their conservation state etc. but also multimedia components such as the videos on Historical reconstructions and the Introduction to the Glossary) and as far as the terminology is concerned (organized in the form of a bilingual multimedia Glossary).

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Author's curriculum vitae

Irina Crina Anca Sandu is a Researcher - Conservation Scientist with 18 years of experience (12 of post-doctoral activity, PhD in chemistry) in the field of investigation, diagnosis and authentication of cultural heritage. She is author or co-author of 12 monographs, 2 book-chapters, more than 100 papers in peer-reviewed journals and conference proceedings (corresponding author for 19 peer-reviewed papers in ISI indexed journals with H factor 11 and more than 360 citations).

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Since the period of her university studies she has been involved in research projects and international collaborations dealing with movable and immovable heritage. She is the coordinator (PI) of the project Gilt-Teller: um estudo interdisciplinar multi-escala das técnicas e dos materiais de douramento em Portugal, 1500-1800” (PTDC/EAT-EAT/116700/2010) funded by FCT in Portugal.

Contact: IRINASANDU@UEVORA.PT