The Katholikon of the Monastery of Antiphonitis in Kalogrea, Cyprus (16th century)

Don’t miss the Hi-tech Story…

8th–13th of November 2010
Limassol, Cyprus

Edited by
M. Ioannides, D. Fellner, A. Georgopoulos, D. Hadjimitsis
Christ Antifonitis near Kalogrea in the Kyrenia district in Cyprus is another church, which was built and decorated with wall paintings in approximately 1200 AD. In the early 16th century, the north and south wall of the church proper and the northwestern squinch were decorated with wall paintings from the life of the Virgin, the Stem of Jesse, the Last Judgment and the standing saints, while the cupola was decorated with Christ Pantocrator, the Deesis-Supplication, the Apostles seated on thrones and the Prophets. Unfortunately, after the Turkish invasion in 1974 and the occupation of the area by the Turkish army, the systematic destruction and removal of the wall paintings from the monument began. The faces of Archangels Michael and Gabriel in the conch of the apse were barbarically destroyed, while the wall painting of the Birth of Christ was removed. These wall paintings are dated from the end of the 12th or early in the 13th century. The great wall paintings of the Stem of Jesse and the Last Judgment (early 16th century) were fragmented into small pieces and removed from the south and the north wall on which they were painted. Several fragments from the wall paintings (in yellow outlined), which had been exported by Turkish smugglers to Germany from where they were repatriated, are on display on the second hall of the Byzantine-Museum (BM.321-356) in Nicosia, Cyprus. Others are in Germany and it is hoped they will be returned to Cyprus. When all the pieces which have been found are gathered, an effort will be made to restore these two large wall paintings using different modern applications from the area of Digital Heritage.

Photos: Eliades Ioannis, Curator, Byzantine Museum in Nicosia, Cyprus

This work is subject to copyright. Permission to make digital or hard copies of portions of this work for personal or classroom use is granted without fee, provided that the copies are not made or distributed for profit or commercial advantage and that the copies bear this notice and the full citation on the first page. Copyright for components of this work owned by others must be honored. Abstracting with credit is permitted. To otherwise reproduce or transmit in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage retrieval system or in any other way requires written permission from the publisher.

© 2010 by the individual Authors and Archaeolingua Foundation

ISBN 978-963-9911-16-1

Published by ARCHAEOLINGUA
Printed in Hungary by PRIMERATE
Budapest 2010
VALORISATION OF THE DESIGN PROJECT. DIGITISATION AS A MEANS OF CONSERVATION AND KNOWLEDGE

M. Ceconello a,*, D. Spallazzo a

a Politecnico di Milano, INDACO Department (Industrial Design, Art, Communication and Fashion), Via Durando 38/A, Milano, Italy – mauro.ceconello@polimi.it, davide.spallazzo@mail.polimi.it

KEY WORDS: Digital Archives, Industrial Design, Digitisation, Cataloguing

ABSTRACT:
The paper describes the ongoing project of digitization of the archive of the famed Italian modeller Giovanni Sacchi. The main idea that drives the project is to create a digital archive that links heterogeneous data – sketches, technical drawings, images, physical models – referring to a single product in order to create an overall view of the design process and creative thought performed by various designers. Six renowned industrial products, of which Triennale di Milano conserves a wooden model of Giovanni Sacchi, have been chosen as case studies and all the related material has been retrieved, digitized and catalogued following the current Italian standards. The project of digitisation and the first results of the testing procedures are encouraging: the methodology has allowed to obtain high quality digital outputs and the Regional archiving system (SIRBeC) offers a great basis to build scenarios of access for the exploitation of data. The objective is to make the complete archive available at Triennale di Milano and in selected reference points for the off-line consultation, allowing to browse through the archive with technological and innovative devices: a pioneering system of consultation through the use of handhelds, table pc and the exploitation of augmented reality as a tool to enhance the comprehension of the digital data and to involve the visitors into an immersive experience.

1. INTRODUCTION

1.1 Context

Industrial design is certainly a result of the excellence of Made in Italy and is being pointed as one of the leading sectors of the Italian economy, where many interests are focused not only in terms of production and turnover but also for exploitation and promotion.

Furthermore industrial design can be intended as cultural heritage, witness of the industrial production and of the creative thought and meets nowadays the need to be shared with a wider audience, conveying not only the intrinsic value of the product but also the system of values in which that product was generated.

Many institutions have been creating culture for years around industrial design, promoting exhibitions and debates on the topic and offering spaces to showcase the culture of making. Triennale di Milano maybe represents the best outcome of this process with Triennale Design Museum that is together showcase, point of interest for visitors and tourists and means of learning for future designers.

The exhibition of industrial products is certainly the starting point for making culture on industrial design but it is also useful to analyze the context in which the product was created. In fact if it is true that the product of design is a work of art is equally important to analyze the mental process that generated it.

The acquisition by public institution, such as Regione Lombardia, of important collections and archives of designers makes today available a great number of documents, models, prototypes and drawings that can tell the story of a product: just to name a few, the Studio Museo Achille Castiglioni, filled with drawings, models and objects that inspired shapes and ideas, or the collection of wooden models of Giovanni Sacchi, that is testimony of the most significant products of Italian design.

The path, linear or less, which led from the first ideas to the final product remains today in the memory of those who collaborated with the great masters of design and is witnessed by the production of sketches, drawings, models and more or less detailed prototypes: on this richness of documentation it’s possible to build a structured analysis of the design process, intended as useful advancement of the knowledge on design, learning tool for future designers and subject to dissemination to the wide public.

The digitisation of this documentation can be useful to allow the access to a broad audience, taking advantage of the great progress of information and communication technologies (ICTs) that are modifying the way in which people create, deliver, accumulate, and use data: digital libraries nowadays are enhancing the traditional ones, giving access to the information they preserve in a ubiquitous way, through the web and mobile devices.

The project we describe benefits by the great experience Italy has acquired in the last years into this field (Minerva, Minerva Plus, Minerva eC, Michael, Michael Plus, Athena) combining it with the excellence of the Italian design.

1.2 Aims of the Project

The project started with the assignment to Politecnico di Milano of the digitisation of some of the 312 wooden models of the large collection of the modeller Giovanni Sacchi, property of Regione Lombardia and now in custody at Triennale di Milano. These models are stored but not exposed to the public because of lack of space, and the digitisation was intended as a way to show them.

From this first step, grew the idea to implement the project, collecting and digitising also drawings, photos, transparencies and models related to the analysed products, looking for them at the design offices and at the societies involved in the process of development and production.
The ongoing project we describe aims at reconstructing the development of these selected industrial products, designed by famed architects and designers, through a process of digitisation and cataloguing of all the related material to make them available to a broad public and to preserve the originals. The aim is to allow the browsing among the digitised data that refer to a single design product, providing information related to the process of development as well as to the single document. The expected result of the project is the creation of an interactive system of visualisation of the digitised material, able to link heterogeneous data in reference to various products in order to produce an overall view of the design process performed by the designers.

A similar approach has been tested by Perseus Project (Crane, 1996), started in 1985 with the purpose to construct an “hypertext” (images, maps, Greek texts and videos related to locations and artefacts) for the study of the “ancient world and beyond” (Marchionni, 2000). This goal will be achieved through two main steps: the first is the digitisation and cataloguing of the material, that while writing is almost completed, and the second is the creation of an interactive system of visualisation of data.

In addition to this main purpose we can also list others of equal importance that we aim to achieve in the project development. First of all the collection and rearrangement of all the documents that relate to the design process of the products, that often are forgotten in warehouses and drawers, bringing them to light. The second is the digitisation of all this material, using the suitable technology, to create a digital copy useful for dissemination and conservation of the originals. The third objective is the cataloguing of the documents into the database for cultural heritage of Regione Lombardia, SIRBeC, that is a very useful tool to maintain a record of them and a great basis for the creation of a consultation system. The last aim, and perhaps the most challenging, is the definition of an innovative way of browsing among these digital data, taking advantage of the advancements in the technological field to allow an immersive experience of consultation.

2. FROM SKETCH TO THE PRODUCT

2.1 Methodology

2.1.1 Choice of the Objects: The ongoing pilot program we describe in this paper is limited to 6 out of the 312 wooden models of the collection of Giovanni Sacchi. The choice of these products has been agreed with Triennale di Milano and is based upon two different motivation: first the ease retrieval of documentation concerning the products and second the value that they acquired in the history of industrial design.

Among the industrial products modelled by Giovanni Sacchi, we have chosen those for which a quite large amount of documents is available and useful to retrace the path of product development. In particular, it is important to find documentation related to the assignment given by the companies to designers, objects used for inspiration, the first definition sketches of the product and all the drawings that were created with increasing level of detail until the final technical drawings. Furthermore we look for intermediate models and prototypes.

The objects we identified are:

1. Gibigiana Lamp, by Flos, designed by Achille Castiglioni (1980)
2. Tama Lamp, by Valenti, designed by Isao Hosoe (1970-1975)
3. 4870 chair, by Kartell, designed by Anna Castelli Ferrieri (1984)
4. 4822/44 Stool, by Kartell, designed by Anna Castelli Ferrieri (1977-1979)
5. Trattopen marker, by Fila, designed by Design Group Italia (1975-1976)

Figure 1: Images of four of the analysed objects

2.1.2. Process and Approach: The project has been structured through three main sequential steps to be followed for all the design products and in particular:

1. Retrieval of documentation from the designers (or from the owner of the designer’s archive) and from the companies that still produce or produced the product.
2. Digitisation of all the retrieved material following different methods according to the characteristics of the documents
3. Cataloguing of the digitised material into the Regione Lombardia cataloguing system for cultural heritage SIRBeC.

To these three main steps we can add the fourth activity that is the implementation of an interactive system of visualisation of the data, based upon the database used for the cataloguing. The first step is the retrieval that, as stated before, is limited to the documents that testimony the process of development of the design project and, at this moment in time, it doesn’t take into account all the documentation that relates to the commercial product (i.e. advertising, showrooms...); indeed the aim is to allow the reconstruction of the mental process that generated the final industrial products and this kind of documents is not relevant and if needed can be attached later.
The digitisation step requires the definition of different approaches because of the heterogeneous material that need to be acquired. We are speaking about large and small size drawings, photos, slides and transparencies, models and prototypes that need different technologies to obtain a digital copy.

With the due flexibility, the approaches we use are:

- digital photography for wide size drawings (technical drawings, wide posters, big sketches...)
- scanning of small size sketches and documents, slides and transparencies
- digital photography for models and prototypes
- 3D laser scanning of Giovanni Sacchi wooden models
- 360° photography of one significant prototype.

The digitisation follows the current Italian standards defined by ICCD (Auer, Cavallini, & Giffi, 1998), overtaking the top level A, required for large prints and conservation as a high-quality digital copy of the original. The specification of the parameters of digitisation will be given later while describing in detail the above mentioned approaches.

Furthermore, in order to assure a correct colour calibration and a useful dimensional reference every document is digitized with Kodak gray-scale and colour targets.

The third step requires that all the digitised material is catalogued according to current cataloguing standards and stored into the database for cultural heritage of Regione Lombardia, SIRBeC, that provides different records for any typology of document to be catalogued, distinguishing between drawings, photos, models and final prototype (in detail in chapter 4). The scheme below summarizes the described steps and the different approaches to digitisation and to cataloguing.

For only four of the six identified objects, that anyhow count the greatest amount of available documents.

### 2.2.1 Gibigiana Lamp

The first product to be analyzed is the well-known lamp Gibigiana, designed by Achille Castiglioni for Flos in 1980 and still in production. Gibigiana is a table lamp that allows to concentrate an adjustable lecture light thanks to a movable mirror.

The choice of this lamp as case study is encouraged by the presence of a great amount of heterogeneous documents and material of different type that describe the process of development.

Studio Museo Achille Castiglioni, that is now part of Triennale Design Museum, stores original drawings of different size, slides and intermediate models, while Triennale di Milano preserves a precious wooden model of the lamp realized by the model maker Giovanni Sacchi, worthily considered today as a work of art and property of Regione Lombardia.

The exact amount of drawings, slides and models is described in the table below.

<table>
<thead>
<tr>
<th>N°</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Technical drawings</td>
<td>A1 – A0</td>
</tr>
<tr>
<td>25</td>
<td>Technical drawings</td>
<td>A3 – A4</td>
</tr>
<tr>
<td>64</td>
<td>Sketches</td>
<td>A3 – A4</td>
</tr>
<tr>
<td>6</td>
<td>Slides</td>
<td>24x36 mm</td>
</tr>
<tr>
<td>7</td>
<td>Slides</td>
<td>6x6 cm</td>
</tr>
<tr>
<td>4</td>
<td>Colour transp.</td>
<td>10x12 cm</td>
</tr>
<tr>
<td>4</td>
<td>Colour transp.</td>
<td>13x18 cm</td>
</tr>
<tr>
<td>18</td>
<td>Models</td>
<td>Various</td>
</tr>
<tr>
<td>1</td>
<td>Wood model - Sacchi</td>
<td>Real size</td>
</tr>
<tr>
<td>2</td>
<td>Prototypes</td>
<td>Real size</td>
</tr>
</tbody>
</table>

Table 3. Digitized documents for Gibigiana lamp

### 2.2.2 Tama Lamp

The second product to be analysed is the Tama Lamp, designed by the renowned Japanese designer Isao Hosoe in 1970, for the company Valenti and still in production. Tama is a so called “ready made” lamp that is constituted essentially by a small tank for transporting liquids and a light bulb that produces a diffuse light through the polyethylene.

The lamp has been chosen as second product because Triennale di Milano in addition to the valuable wooden model in real size created by Giovanni Sacchi conserves also the product in the collection of Triennale Design Museum.

Furthermore the designer Isao Hosoe is still working and it was very easy to find material related to the lamp, created by the designer himself or by his collaborators.

The table below describes the amount of drawings and models that we retrieved.

<table>
<thead>
<tr>
<th>N°</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Sketches</td>
<td>A4</td>
</tr>
<tr>
<td>2</td>
<td>Technical drawings</td>
<td>A3</td>
</tr>
<tr>
<td>1</td>
<td>Sketch</td>
<td>A1</td>
</tr>
<tr>
<td>1</td>
<td>Technical drawings</td>
<td>A0</td>
</tr>
<tr>
<td>1</td>
<td>B/W Photo</td>
<td>13x18 cm</td>
</tr>
<tr>
<td>2</td>
<td>Models</td>
<td>Real size</td>
</tr>
<tr>
<td>1</td>
<td>Wood model - Sacchi</td>
<td>Real size</td>
</tr>
<tr>
<td>1</td>
<td>Prototype</td>
<td>Real size</td>
</tr>
</tbody>
</table>

Table 4. Digitized documents for Tama lamp
2.2.3 4870 Chair and 4822/44 Stool: The 4870 is a famed stackable plastic chair designed by Anna Castelli Ferrieri for Kartell in 1984 and that won the Italian price for industrial design Compasso d'Oro in 1987. Designed by Anna Castelli Ferrieri for Kartell between 1977 and 1979 is also the series of stools 4822/44, that brought a strong formal innovation and an innovative use of polypropylene. Thanks to the Kartell Museum that exposes all the production of the brand and conserves a great amount of documentation it was easy to retrieve material useful for the project. In particular we digitised 13 drawings and a wooden model for the 4870 chair.

<table>
<thead>
<tr>
<th>Nº</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Technical drawing</td>
<td>A0+</td>
</tr>
<tr>
<td>4</td>
<td>Technical drawing</td>
<td>A0</td>
</tr>
<tr>
<td>1</td>
<td>Technical drawing</td>
<td>A3</td>
</tr>
<tr>
<td>1</td>
<td>Technical drawing</td>
<td>A2</td>
</tr>
<tr>
<td>1</td>
<td>Technical drawing</td>
<td>A1</td>
</tr>
<tr>
<td>1</td>
<td>Wood model - Sacchi</td>
<td>Real size</td>
</tr>
</tbody>
</table>

Table 5. Digitized documents for 4870

While for the series of stool the amount of documents is bigger:

<table>
<thead>
<tr>
<th>Nº</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Technical drawing</td>
<td>A0</td>
</tr>
<tr>
<td>7</td>
<td>Technical drawing</td>
<td>A1</td>
</tr>
<tr>
<td>3</td>
<td>Technical drawing</td>
<td>A2</td>
</tr>
<tr>
<td>6</td>
<td>Technical drawing</td>
<td>A3</td>
</tr>
<tr>
<td>22</td>
<td>Technical drawings</td>
<td>A4</td>
</tr>
<tr>
<td>31</td>
<td>Sketches</td>
<td>A4</td>
</tr>
<tr>
<td>1</td>
<td>Wood model - Sacchi</td>
<td>Real size</td>
</tr>
</tbody>
</table>

Table 6. Digitized documents for 4822/44 stools

3. DIGITISATION, DETAILS AND PARAMETERS

3.1 Digitisation of Big Size Documents

The wide size technical drawings (A0 and A1 formats) have been acquired with a digital camera Canon Eos 5D MarkII (5616 x 3744 pixels), in RAW format, with a resulting horizontal and vertical resolution of minimum 240 dpi. The choice of digital photography is due to two different motivation: the first is of economical order, in fact the relatively small amount of documents to be digitised, does not justify the purchase of a large high resolution scanner; secondly the originals to be digitised are frequently technical drawings that doesn’t require a very high resolution as needed for example for precious ancient big size maps or similar. The previous experience of the involved Photo Lab at INDACO department (Gaiani & Beltramini, 2003) has played a relevant role in the definition of the photo set that has been professionally designed to guarantee a correct and diffuse illumination and a perfect perpendicular angle between the drawings and the camera. The high efficiency production of digital images has also been guaranteed by the well designed workflow that allowed to reduce idle times. Gibigiana’s 43 big size documents have been acquired in approximately 4 hours, with an average time of acquisition of 5 minutes, comparable to the time needed for the acquisition of the 4 documents related to Tama.

In the second day of digitisation, the acquisition of the big size drawings of Kartell products has been even faster with an average acquisition time of 3 minutes, thanks to improvements to the workflow and the presence of four persons, one more in respect to the first day of acquisition.

3.2 Digitisation of Small Size Drawings

The biggest part of the documents associated to Gibigiana Lamp and Tama Lamp and to Kartell products are small size drawings and sketches, usually not bigger than A3 paper size. This type of documents have been digitized with a flatbed scanner in not-compressed TIFF format at a range of resolution from 300 dpi to 600 dpi, according to the real dimension of the original and to the complexity of the drawing. Gray-scale and colour targets and a frequent colour calibration of the scanner has guaranteed high quality images and an accurate correspondence between the originals and the digital copies. The small size originals of Gibigiana lamp have been digitised mainly at Studio Museo Achille Castiglioni to minimize the risks that might arise from the moving of the originals to the Photo Lab while the drawings related to Tama lamp and Kartell have been digitised at Photo Lab, guaranteeing a greater homogeneity of the digital outputs. The time of digitisation of the small size drawings is very hard to be calculated because the acquisition has been conducted in different places and in different moments.

3.3 Digitisation of Slides and Transparencies

Only among the documents related to Gibigiana lamp we have retrieved 21 slides and transparencies that have been acquired at very high resolution with a flatbed scanner in not compressed TIFF format. The resolution chosen for the slides 6x6 and 24x36 is 4800 dpi while the transparencies (usually 10x12 cm and 13x18 cm) have been acquired at 2400 dpi.

3.4 Digitisation of Models and Prototypes

The aim of the digitisation of the models and prototypes is to reconstruct the process of development of the product from the first ideas to the final one. The 3D scanning is without any doubt the best way to digitise a physical model but the process is still long and quite expensive: for this reason we have decided to limit the 3D scanning only to the precious wooden models of Giovanni Sacchi and to digitise all the other through digital photography. In particular all the intermediate models have been photographed with a digital camera in a devoted photo set while the final prototypes have been photographed from different angles to obtain a 360° degree Quick Time VR image. The above mentioned wooden maquettes of Giovanni Sacchi have instead been digitized at Virtual Prototyping and Reverse Modeling Lab at INDACO department as a 3D model with a laser scanner Minolta Vivid 910 and the clouds of points acquired have been processed to obtain a correct polygonal mesh.

The models have been successively texturized with the correct image to enhance the realism: the model of Gibigiana Lamp is a fully wooden model while the other models have also insertions of plastic components and electrical wires.
The obtained models have successively been exported as VRML (standard format for 3D) to allow a fast visualization with a common web browser with free plug-in.

As stated above the process of cataloguing of the documents related to Gibigiana is concluded and the regional database now contains 180 records all linked to the record of the product (Design record).

The records created are linked together to allow browsing between them, following step by step the process of development of the design project or selecting the images according to the desired criteria.

Through the browsing of all the acquired material it is now possible to follow the development of the design path related to the product and to explore its evolution, or identify rethinking of the author, particularly in the large amount of sketches.

The cataloguing is a long process that requires long amount of time to be completed and in particular the creation of the 180 records related to the first object required about 90 hours of works of a trained person.

5. FIRST RESULTS AND CONCLUSIONS

5.1 First Results and Remarks

The project we have described is not concluded but the first results are encouraging: the methodology has allowed to obtain high quality digital outputs in a short period of time and the Regional archiving system (SIRBeC) offers a great basis to build scenarios of access to digital images, 3D models and to connected descriptions.

The 180 records created for Gibigiana Lamp now allow to browse into the database, following the process of development of the product or to browse searching by typology or following other criteria.

Sometimes it’s even possible to detect Castiglioni’s attitude to draw on existing object and his ability to integrate them into a coherent and harmonious shape that makes him a *bricoleur* designer (Levi-Strauss, 1962), half way between artist and designer. By the way the user could identify hints and recalls to other objects that the designer would have developed later in his career.

This opportunity is useful not only for researchers and scholars that are conducting researches on Castiglioni’s work but also for future designers who can profit by a *mind-on* and *hands-on* approach towards the culture of design project.

A similar result will be obtained for Kartell objects that count a great amount of documents and allow an interesting browsing between the drawings.

For the other three objects the condition is quite different because the amount of material available is considerably less and all the drawings and related material are not conserved into a museum or museum-like office, but in a still operating design office.

It’s important to remark that the project we discuss is not only a digitisation and cataloguing project but it is an attempt to go beyond the mere digital acquisition, shifting the attention from the availability of the material related to the last two objects.

4. CATALOGUING OF DIGITAL DATA

The process of digitisation is maybe the most important part of the project but is also useful that all the digital data acquired are catalogued to be easily retrieved and visualized by potential users.

Every image has been indexed according to original labelling system of the studios and companies and while writing the process of cataloguing of the material related to Gibigiana Lamp is completed while the cataloguing of the material related to the other objects is in progress.

The informative system of Regione Lombardia (SIRBeC) is the basis of this process and allows the description of each digital image according to the typology.

SIRBeC (Sistema Informativo Regionale dei Beni Culturali della Regione Lombardia) is the cataloguing system for cultural heritage of Regione Lombardia (Degiarde, 2007) that allows the creation and management of databases, the description of the digitised documents and the visualization of the stored information on-site and on-line.

In particular the digital data acquired respond to two typologies: works of art (paintings, drawings, sculptures, fabrics and furniture) and photographs (photos, slides and transparencies).

All the drawings, the intermediate models, and the final prototypes have been catalogued according to the record OA (Opera d’Arte - Works of Art) that describes all the handmade production with an artistic value, while photos, slides and transparencies have been catalogued with the record F (Photographs).

The SIRBeC system provides also a record Design (DES R.L.) that describes the overall project behind an industrial design product, the related documents, the subsequent restyled editions and the information about the author. This record has been recently created by Regione Lombardia and the project represents a good opportunity to test it.

As stated above the process of cataloguing of the documents related to Gibigiana is concluded and the regional database now contains 180 records all linked to the record of the product (Design record).

The records created are linked together to allow browsing between them, following step by step the process of development of the design project or selecting the images according to the desired criteria.

Through the browsing of all the acquired material it is now possible to follow the development of the design path related to the product and to explore its evolution, or identify rethinking of the author, particularly in the large amount of sketches.

The cataloguing is a long process that requires long amount of time to be completed and in particular the creation of the 180 records related to the first object required about 90 hours of works of a trained person.

5. FIRST RESULTS AND CONCLUSIONS

5.1 First Results and Remarks

The project we have described is not concluded but the first results are encouraging: the methodology has allowed to obtain high quality digital outputs in a short period of time and the Regional archiving system (SIRBeC) offers a great basis to build scenarios of access to digital images, 3D models and to connected descriptions.

The 180 records created for Gibigiana Lamp now allow to browse into the database, following the process of development of the product or to browse searching by typology or following other criteria.

Sometimes it’s even possible to detect Castiglioni’s attitude to draw on existing object and his ability to integrate them into a coherent and harmonious shape that makes him a *bricoleur* designer (Levi-Strauss, 1962), half way between artist and designer. By the way the user could identify hints and recalls to other objects that the designer would have developed later in his career.

This opportunity is useful not only for researchers and scholars that are conducting researches on Castiglioni’s work but also for future designers who can profit by a *mind-on* and *hands-on* approach towards the culture of design project.

A similar result will be obtained for Kartell objects that count a great amount of documents and allow an interesting browsing between the drawings.

For the other three objects the condition is quite different because the amount of material available is considerably less and all the drawings and related material are not conserved into a museum or museum-like office, but in a still operating design office.

It’s important to remark that the project we discuss is not only a digitisation and cataloguing project but it is an attempt to go beyond the mere digital acquisition, shifting the attention from the availability of the material related to the last two objects.
5.2 Future Works

At the moment a new campaign of digitisation is being carried out, including into the project the last two objects mentioned at the beginning of this paper. The expertise developed during the first part of the project will certainly allow a faster implementation of digital data, developing a wide and complete database of images and related descriptions.

Following the current European Copyright Directive (European Commission, 2001), the digital images would be partially published on line on the regional portal Lombardia Beni Culturali and on the Italian portal Cultura Italia (Caffo, 2008) that refers to the Europeana European system. In particular it’s important to operate a distinction between the documents that are conserved into a museum, as in the case of Studio Museo Achille Castiglioni, that can be easily identified as cultural heritage, and the documents that are property of still operating design studio.

The complete archive will be available at Triennale di Milano and in selected reference points for the off-line consultation, allowing to browse through the digital images with technological and innovative devices: the ambition is to create a pioneering system of consultation through the use of handhelds (smart phones, booklets and slate pc), table pc and the exploitation of augmented reality as a tool to enhance the comprehension of the digital data and to involve the visitors into an immersive experience.

The exploitation of the acquired data with advanced technological devices is still an aspiration and it will depend on several issues: first of all the final quality of data, secondly possible future funding to support the use of advanced and expensive technologies, and finally the interest that the project will arouse among the design community and the stakeholders.

REFERENCES


ACKNOWLEDGMENTS

We thank Triennale di Milano and Regione Lombardia for having entrusted us of the project of valorisation of Giovanni Sacchi archive and for having supported its development. We want also to thank studio Museo Achille Castiglioni for the kindness and for having made available a rich documentation, Isao Hosoe and Masaya Hashimoto, Museo Kartell and its curators. A special thanks to the Photo Lab of Indaco Department: Corrado Crisciani for the great professionalism and expertise in digitisation of big format drawings, Matteo Bergamini and Dario Sigona for the digital photos. We also thanks the Reverse Modelling group coordinated by prof. Gabriele Guidi for the 3D laser scanning of Giovanni Sacchi’s wooden model. And finally a very special thanks to Cristina Bruzzi for the precious work of cataloguing and to dott.ssa Alessandra Vertechy for the support with SIRBeC system.