VIRTUAL ANASTYLOSIS FOR THE PULPIT OF THE CHURCH OF SAN BARTOLOMEO IN PANTANO IN PISTOIA

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Abstract

This paper aims to reflect on methods and applications of digital technology in the field of art history, specifically on the topic of the medieval sculpture's reuse in the modern age. We present as a case study the pulpit of the church of San Bartolomeo in Pantano in Pistoia, whose 13th-century sculptural and architectural apparatus has undergone, over time, numerous alterations and relocations that have compromised the interpretation of its original configuration. The goal is to reconstruct a 3D digital model of the medieval artefact, based on specific and commonly accepted historical-artistic hypotheses. The digital model becomes essential for the analysis and study of the monument, as well as a tool to increase the understanding and appreciation of the artwork by a non-expert audience.

Keywords

Virtual anastylosis, medieval pulpit, digital photogrammetry, virtual reconstruction, digital representation

1. Introduction

The present research[1] aims to contribute to the project "Memory and Identity. The reuse, reworking and repurposing of medieval sculpture in the Modern Age from historical research to new technology" funded by the Ministry for Universities and Research - *Fondo Integrativo Speciale per la Ricerca* FISR, duration 2021-2023.

The case study proposed is the pulpit of the church of San Bartolomeo in Pantano in Pistoia, a Tuscan example of particular relevance upon the question under consideration. The history of the Pistoiese pergamon, like that of other medieval artworks (Cavazzini, Di Fabio, & Vitolo, 2021), is conditioned by repeated disassemblies and reassemblies that, over the centuries, have compromised its original configuration. The sculptural remains of the Middle Ages, however,

unlike the artefacts of antiquity, have often survived, although in their fragmented nature, and accompanied by a substantial documentary *corpus* (Federici, 2022). The pulpit of the church of San Bartolomeo (Fig. 1) is in fact a particular case of the refunctioning of thirteenth-century pulpits (Corio, 2021) and, for this reason, its parts, although reallocated and reworked, are today preserved inside the Pistoia church, partly housed in a new architectural structure and partly mounted on the wall. These conditions allow thus to hypothesize that the methodologies proper to surveying and representation, exploiting the potential offered by the most recent digital technologies for the acquisition of metric data and for graphic processing, can constitute an effective aid for the elaboration of historical reasoning (Giammusso, 2014).

The purpose of the research, therefore, is to reconstruct the original appearance of the pulpit virtually, in order to represent its transformation over time (Federici, 2022). This means to realize a 'virtual anastylosis' (Borra, 2004), which is a process that begins with the identification, survey and classification of the sculptural fragments and culminates with the virtual repositioning of the parts. The virtual anastylosis of a plastic-architectural complex is not limited to the

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elaboration of images, but becomes itself a process of knowledge (Migliari, 1999). It is thus essential to apply a research strategy capable of integrating the methodologies proper to representation with the traditional ones of art-historical analysis.

Fig. 1: The pulpit of the Church of San Bartolomeo In Pantano in Pistoia (photo by Greta Attademo)

2. The artistic history of the pulpit

The pulpit of San Bartolomeo in Pantano is the work of the Como sculptor Guido Bigarelli from the years 1239-1250. We know this information through two epigraphs, one of which, that is dated 1250 and bearing the artist's signature, is now positioned below the reliefs on its front side. The other epigraph, dated 1239, has re-emerged in the 20th-century anastylosis of the artefact after having been concealed inside the box in modern times, turning the slab upside down (Gurrieri, 1999). Both inscriptions are now unanimously considered to refer to the same object, as the series of historiographical misunderstandings that had led some critics to consider the original

presence of two pulpits as plausible have been cleared up (Tigler, 2001; Badalassi, 1995; Corio, 2021).

The medieval pulpit must have been grafted onto the small wall separating the nave from the presbytery area at the height of the sixth column of the right aisle (Tigler, 2001) (Fig. 2). Traces of the foundations of this little wall were found during exploratory tests beneath the floor that preceded the restoration work of the last century. The same church column replaced the fourth support of the box, which, in fact, still has only three today.

The pulpit was dismantled in 1591 at the behest of Abbot Alessandro da Ripa and reassembled leaning against the wall of the right aisle with the new function of cantoria annexed to the organ (Bruschi, 1981). In this new arrangement (Fig. 2), the three supporting columns are linearly repositioned below the front of the box, with the lions at the sides and the telamon in the centre (Bruschi, 1981). The latter was originally intended to support the rear left corner of the box, as in the pulpit of San Cristoforo in Barga, which is the work of craftsmen related to Guido Bigarelli in terms of language and geographical origin. Three of the four historiated slabs were relocated on the front side, divided by marble strips that constituted the only material addition due to the modern intervention (Bruschi, 1981). The relocated slabs followed an order that did not take into account their reading direction (from left to right and from top to bottom: *Christ in Limbo, Christ in Emmaus, Apparition to the Apostles, Incredulity of Thomas, Nativity, Presentation in the Temple*). At the corners, as originally, were the two lecterns[2] (Corio, 2021). Two aniconic slabs were placed on the left side of the box. On the right side, there was a slab with *Annunciation* and *Adoration* towards the front, and a rose window towards the lateral wall (Badalassi, 1995). An epigraph in memory of Da Ripa[3], now lost, was placed below the reliefs.

The 16th-century reassembly of the pulpit of St. Bartolomeo was a victim of both the 20th-

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[2] The presence of the lecterns and the persistence of the term 'pulpit' in modern sources lead us to believe that its original function was also preserved.

[3] The epigraph read as follows: *"VENUSTATI ECCLESIAE CANTUIQ(UE) PROSPICIENS ORGANUM AC SUGGESTUM AUXIT, DECORAVIT, TRANSTULIT, / NUMER(UM) MODULATIONUM CALLENTISS(IMU)S, ALEX(ANDER) A RIPA MEDIOL(ANENSI)S ABB(A)S M.D.LXXXXI"*.

century purism, with its idea of restoring an often only imagined Middle Ages (Corio, 2021), and of the erroneous historiographical tradition of the two pulpits, previously mentioned. For these reasons, we know it today only through some 19th century photographs (Corio, 2021). In 1976, the cantoria was in fact dismantled in an attempt to restore the original appearance of the work (Gurrieri, 1999). The result of this operation, which is still visible today (Fig. 2), is very unfortunate, both in the choice of the pieces and in the placement of the artefact. Following the most widely accepted critical hypothesis at the time, in fact, it was decided to exclude from the 'restoration' many of the original pieces, which were considered remains of another pulpit and which are now affixed to the wall of the nave (Turi, 1961; Brunetti, 1966). Suffice it to say that only half of the figured reliefs remained in place.
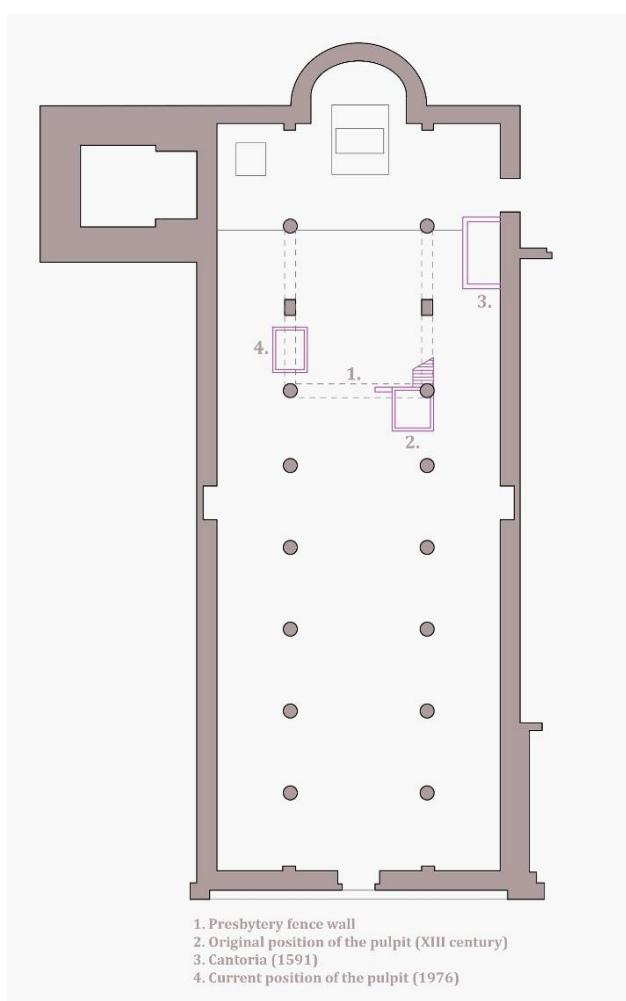

1. Presbytery fence wall
2. Original position of the pulpit (XIII century)
3. Cantoria (1591)
4. Current position of the pulpit (1976)

Fig. 2: Planimetric diagram of the relocation of the pulpit in the Church of San Bartolomeo in Pantano. (Image by Greta Attademo)

The pulpit, thus mutilated, was placed on the left side of the church, in a position that is not supported by archaeological evidence and that appears incongruous when compared to other contexts (Corio, 2021). The territory of north-western Tuscany is in fact very rich in this type of artefacts and the canonically position of the pulpits is always in the right aisle, contiguous to the structures of the presbytery closure, to which these micro-architectural objects were always connected, albeit with a certain variety of solutions (Corio, 2021).

Considering the current set-up, not at all satisfactory, it seemed useful to exploit the potential offered by advanced strategies of three-dimensional representation in order to give new evidence to the convincing hypothetical reconstruction of the work's original appearance, proposed by Guido Tigler more than twenty years ago.

3. The digital photogrammetric survey of the pulpit

The research work began with an inspection of the Church of San Bartolomeo in Pantano, where the case study is located, in order to carry out some preliminary checks, necessary to prevent possible issues and to optimise the three-dimensional survey process of the pulpit. On this occasion, particular attention was paid to the dimensions of the artefact and its spatial position, the observation and analysis of the different sculptural parts, as well as environmental factors such as accessibility and lighting of the architectural space. The on-site investigation revealed the presence of some critical issues related to both the artwork and the context in which it is set. The main problems relate to the inadequate lighting of the environment, the presence of very dissimilar plastic decorations, the considerable height of the pulpit and its awkward positioning, as it is limited on two sides by the presence of columns that preclude the proper placement of large survey instruments, such as laser scanners. In addition to these factors, the church hosts a rite of Perpetual Adoration, a religious practice that presumes the constant presence of worshippers within the sacred space. The preparatory phase of the work was, therefore, essential for the definition of an intervention design scheme that would take into account the concomitance of survey operations and the church's own functions.

The considerations made led to the selection of digital photogrammetry using SLR cameras as the most effective and flexible acquisition method for surbeying the case in question. This guarantees a non-invasive survey of the sculptural heritage, a close-up shot of sculptural parts located in hard-to-reach places, and the positioning of a non-impacting equipment in the religious context. Concerning the latter, in particular, it was necessary:

- A MiTOWER scaffolding, adjustable to different heights and measuring 4 metres high x 2 metres wide;
- Four illuminators for light diffusion and stabilisation, complete with LUPO LIGHT 5400° K special fluorescent lamps and mirror-adjustable side fins, total dimensions 600 x 295 x 50 millimetres.
- A 3.50-metre height-adjustable ladder.
- Two operators for assistance during ladder and scaffolding handling.

Once the decisive strategies had been identified to allow the optimal and correct execution of the pulpit's photogrammetric survey, we proceeded with the execution of the photographic shooting operations, necessary for the subsequent data processing in the digital environment. A circumscribed area around the pulpit was cleared of liturgical furnishings in order to position the necessary equipment and allow the indispensable movements for the acquisition of the digital survey. We surveyed the pulpit by ideally breaking it down into different portions, listed below:

- Front left column with capital and lion with dragon;
- Front right column with capital and suckling lioness;
- Rear left column with capital and telamon;
- Panels with *post-mortem* history of Jesus and lath with inscription dated 1250, placed on the front side of the pulpit;
- Aniconic geometric pluteus, placed on the right side of the pulpit;
- Aniconic inlaid pluteus, placed on the left side of the pulpit;

- Eagle, lectern and bookend group of the Gospels in left-hand corner position;
- Bookrest and bookend group of Epistles in right-hand corner position;
- Lath with inscriptions from 1239, wall-mounted;
- Wall-mounted cornices;
- Inlay decorated with plant motifs, wall-mounted;
- *Ante-mortem* panels of Jesus, wall-mounted.

Fig. 3: Photogrammetric acquisition methodology (graphic elaboration by Greta Attademo)
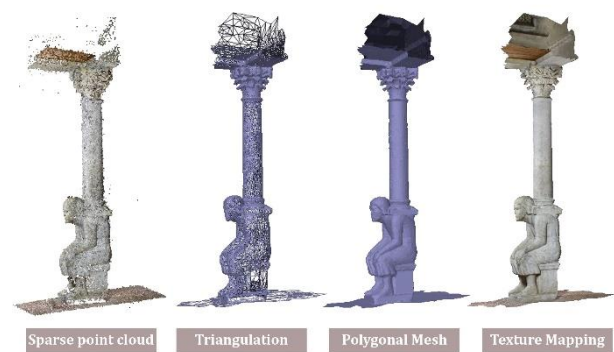

Fig. 4: Phases of the photogrammetric process. The example of the rear left column with capital and telamon (graphic elaboration by Greta Attademo)

The subdivision of the structure into its constituent elements makes it possible both to optimise the management of the data to be processed within photogrammetric software and to rationalise the 'virtual assembly and disassembly' processes necessary for the digital reconstruction of the medieval artefact.

Fig. 5: The north-east side of the reconstructed pulpit of the Church of San Bartolomeo in Pantano through virtual anastylosis (3D model and image by Greta Attademo)

The shooting operation was carried out with the exclusive use of a Nikon D5200 SLR camera and an AF-P DX NIKKOR 18-55mm VR wide-angle zoom lens. This photographic equipment is compatible with close-range photogrammetry processes (Remondino & Zhang, 2006), as the close-range shooting of the object guarantees the production of highly accurate and detailed three-dimensional models. The method used, known as the 'multi-image approach' (Suwardhi et al., 2015; Murtiyoso et al., 2017), allows to obtain a digital model by collimating the points of the same object photographed from different positions, heights and distances. More than 500 photographs in RAW format with a resolution of 6000x4000 pixels were taken for each constituent part of the pulpit. The photos were taken by keeping fixed the aperture of the diaphragm (parameter f/8), the sensitivity of the sensor (IS0 100) and the focal length (18 mm) and varying only the exposure time, always in values between 1/10 and 1/16 of a second.

Digital photogrammetry also allows the photographic shooting system to be adapted to the formal and geometric features of each sculptural/ architectural piece. A convergent-axis camera system was used for most of the portions of the pulpit, constructing a circular photographic path around the object to be surveyed, with an overlap of 80% between the framing of one photo and its subsequent shot (Fig. 3).

The parallel axis shooting, on the other hand, was used for those pieces whose positioning did not allow the construction of a circular path, as in the case of the panels and inlays mounted on the wall behind the pergamum of the church. The illuminators used were calibrated by varying the temperature of the artificial lights in order to ensure accurate reproduction of colours and brightness in the photographs; we also used a colour checker, a device necessary to standardize colour rendering during the photographic post-production.

The shots acquired during the photographic campaign were subsequently imported into *Metashape*, a software program that enables the creation of three-dimensional models from a set of images. The photographs, in fact, are automatically aligned due to the common features present among them, exploiting specific algorithms to determine the position and orientation of each image in relation to the others (Szeliski, 2022). *Metashape* calculates the three-dimensional position of the common points
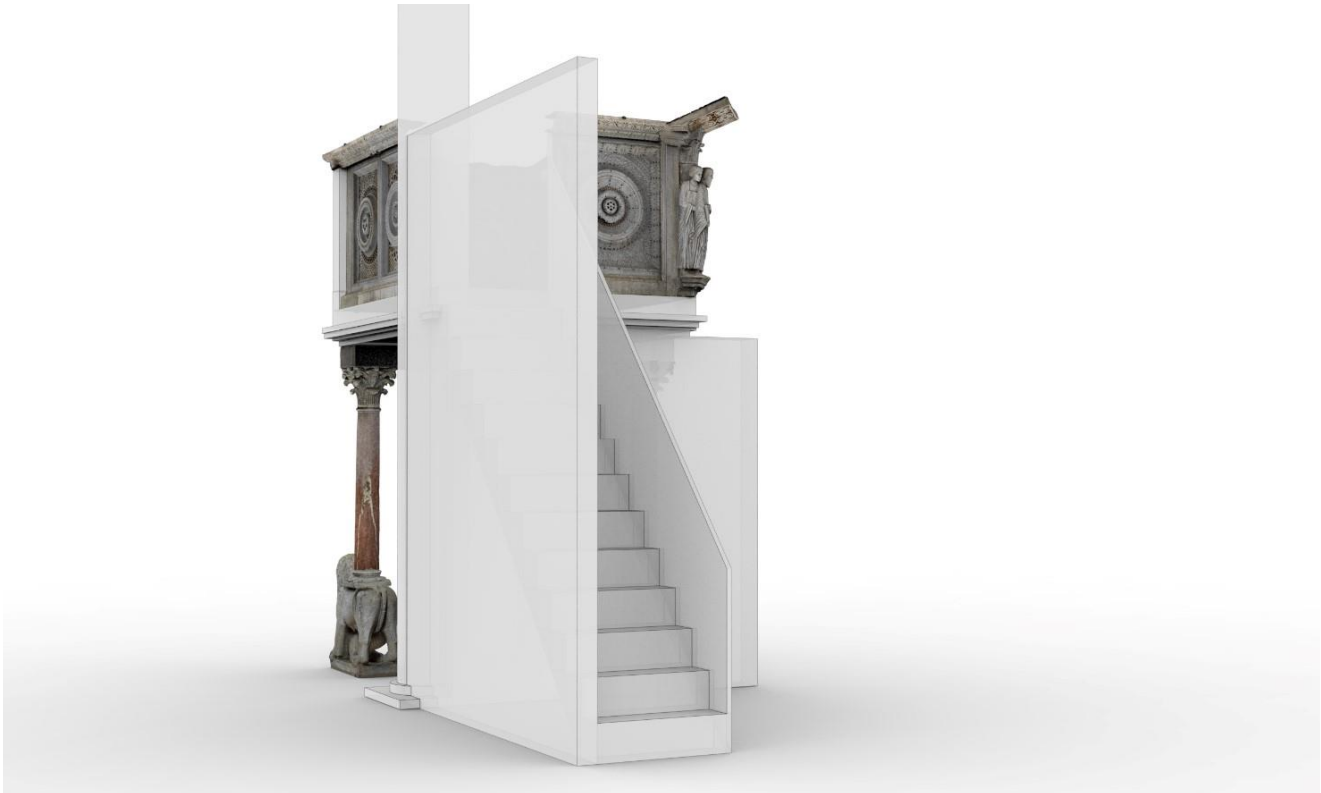
Fig. 6: The south-east side of the reconstructed pulpit of the Church of San Bartolomeo in Pantano through virtual anastylosis
(3D model and image by Greta Attademo)

detected in all the images, generating a sparse point cloud that is later densified and used to create the polygonal mesh of the photographed object. Finally, the obtained three-dimensional model was textured by mosaicking the images acquired during the survey, thus giving a realistic appearance to the chromatic and chiaroscuro features of the object (Fig. 4).

Therefore, all sculptural and architectural portions of the pulpit were three-dimensionally modeled, optimizing the digital copies obtained through specific operations, such as scaling, orientation and positioning, as well as the elimination of errors and inconsistencies through post-production processes of the mesh surfaces.

4. *Digital twins for heritage knowledge*

The digital copies of the different sculptural and architectural portions of the Pistoiese pulpit not only constitute a fundamental documentation for the knowledge and preservation regarding their formal, material and dimensional properties, but also enable the simulation of those operations that could not be conducted in physical reality without altering the artifact. In fact, the digital environment enables to explore hypotheses of

repositioning the parts of the pulpit in a short time, preserving the integrity of the artifact in the search for its original state. In this regard, through the scientific support of Professor Clario Di Fabio and Dr. Aurora Corio, we worked on the virtual reconstruction of the medieval appearance of the pulpit, integrating the innovative methodologies of digital representation with the more traditional methods of art-historical research.

The *querelle* about the original appearance of the pulpit has now been convincingly put to rest by the reconstruction proposed by Guido Tigler (2001), which is accepted by a solid strand of medieval sculpture scholars. The Florentine academic believes, in fact, that all the pieces now preserved in San Bartolomeo in Pantano were originally part of Guido Bigarelli's pulpit, made for the church in the mid-thirteenth century: "*La mia convinzione è che nessuno dei pezzi, figurati e non, [...] può essere espunto facilmente dal pulpito del 1239-50*"[4] (Tigler, 2001, p. 95). The author, in fact, summarizes his configurational hypothesis

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[4] Translation of the author: "My conviction is that none of the pieces, figured or not, [...] can easily be expunged from the pulpit of 1239-50".
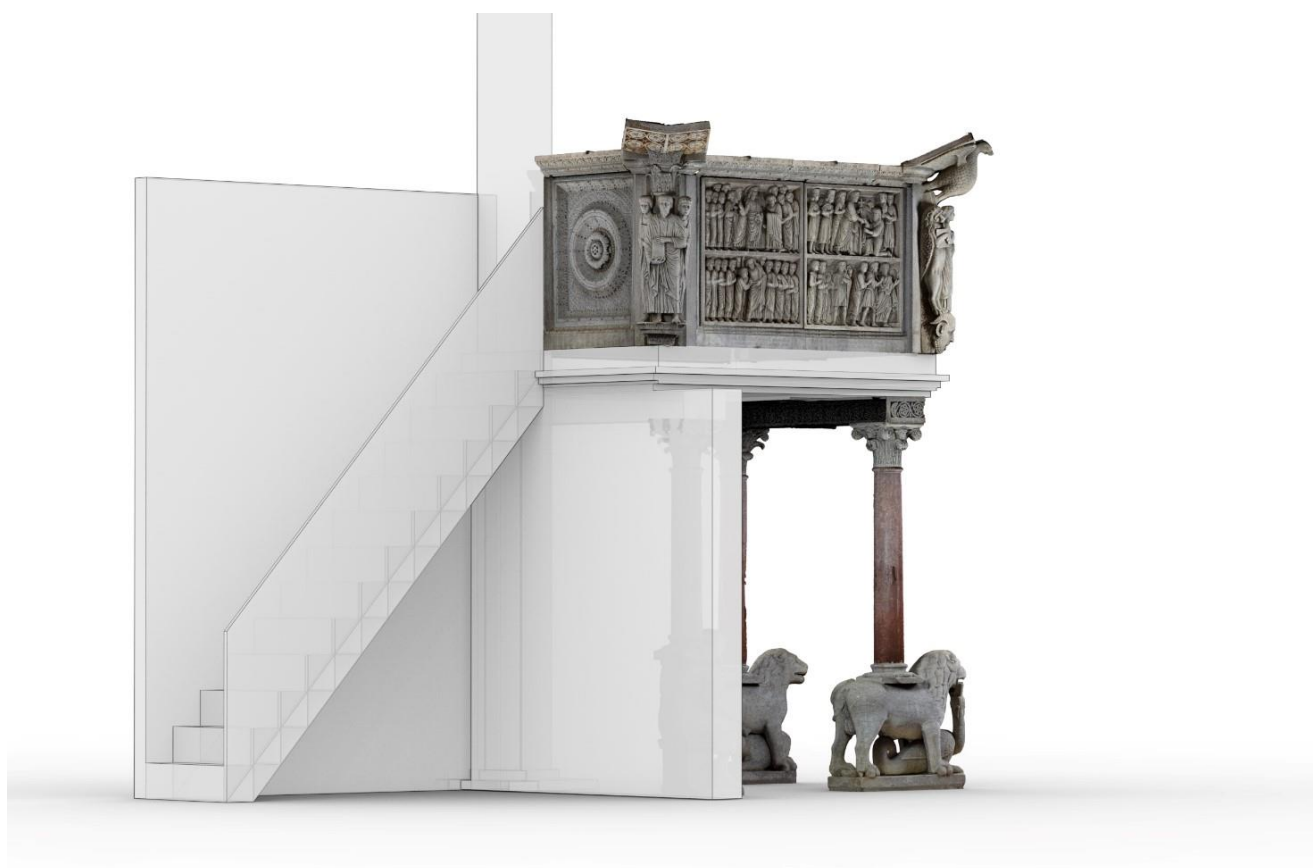
Fig. 7: The south-west side of the reconstructed pulpit of the Church of San Bartolomeo in Pantano through virtual anastylosis
(3D model and image by Greta Attademo)

by stating that *"l'architrave con tralcio intarsiato, la soprastante iscrizione con la data 1239 e le due lastre con storie dell'infanzia sono collocate sul lato ovest, l'iscrizione-firma con la data 1250 e le soprastanti lastre post mortem, fiancheggiate dai lettorili angolari, sul lato nord, e le tre lastre aniconiche sul fianco e sul retro"*[5] (Tigler, 2017, p. 257). We compare the artistic hypotheses with the current arrangement of the pulpit without going into the merits of the art-historical reasons supporting Tigler's reconstruction, which have already been clearly stated by the author elsewhere (Tigler, 2001; Tigler, 2017).

The panels depicting scenes from the life of Christ, distinguished into *post mortem* scenes, now located on the north side of the pulpit, and *ante mortem* scenes, mounted on the wall behind, were actually to be read from left to right. The *ante-mortem* scenes were on the side toward the

entrance of the church, with *Annunciation* and *Adoration* on the right and *Nativity* and *Presentation* on the left, surmounting the 1239 inscription. The *post mortem* scenes were on the side facing the center of the nave, with the *Limbo* and *Emmaus'* scenes on the right and the *Apparition to the Apostles* and *Incredulity of Thomas'* scenes on the left, surmounting the 1250 inscription (Tigler, 2001). The curved bases of the bookends groups confirm that these pieces were already originally conceived as corner elements. While the group consisting of the Eagle, lectern and bookend of the Gospels maintained its position in the left corner, as in the present context, the group of lectern and bookend of the Epistles must have been allocated in the corner of the box opposed to that in which it is located today.

The east side of the pulpit, on which the geometric pluteus is currently arranged and flanked by a modern corner pillar, was originally intended for the two shorter aniconic slabs, measuring 90 x 60 cm and now placed on the west side. The geometric aniconic slab, therefore,

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[5] Translation of the author: ""the architrave with inlaid trellis, the above inscription with the date 1239 and the two panels with infancy stories are located on the west side, the inscription-signature with the date 1250 and the above *post mortem* panels, flanked by the corner lictors, on the north side, and the three aniconic panels on the side and back".
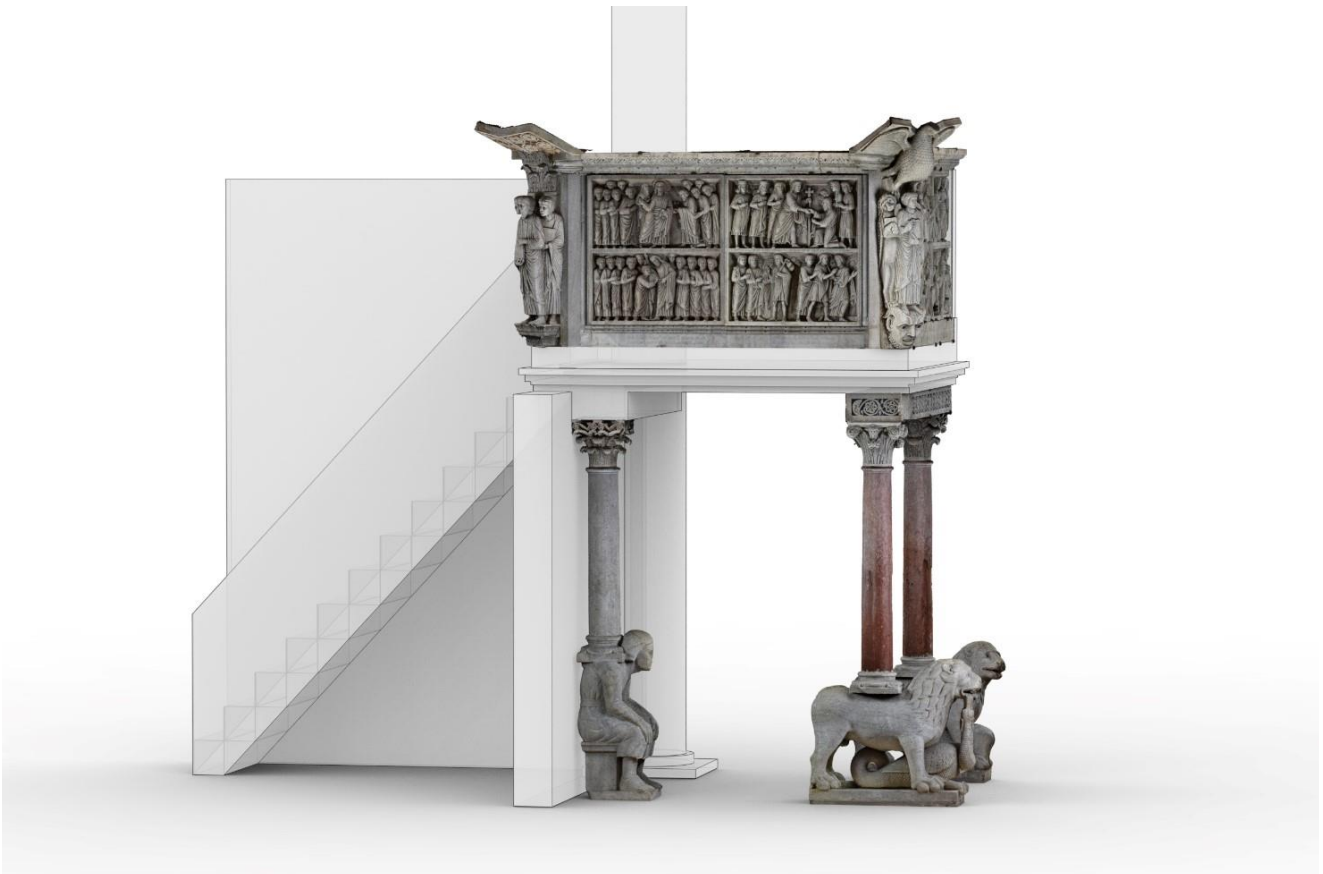
Fig. 8: The north-west side of the reconstructed pulpit of the Church of San Bartolomeo in Pantano through virtual anastylosis (3D model and image by Greta Attademo)

having a greater width (90 x 80 cm), "*trovava invece la sua posizione confacente sul retro [...] accanto alla apertura per l'accesso dalla scala*"[6] (Tigler, 2001, p. 96). The pieces of the frame now wall-mounted, however, must have circumscribed the upper part of the box, with the fragment containing the small lion protome positioned on the southwest corner (Tigler, 2001).

Regarding the marble inlay decorated on two sides with plant motifs and exhibited today along the wall of the church, Tigler believes that "*essendone le facce laterali ed inferiori lisciate, si può star certi che si trattasse [...] della trave posta sopra i capitelli delle due colonnette anteriori e sotto il pavimento della cassa*"[7] (Tigler, 2001, p. 96). The three supporting elements in the lower part of the pulpit are unaffected by changes from the medieval arrangement; the stylophorous lions

are, therefore, placed in the front, while the telamon is positioned posteriorly to the left. Tigler's historical hypothesis, graphically supported by plan and elevation schemes by architect Ombretta Dinelli (Tigler 2001) constituted, therefore, the fundamental basis for the three-dimensional reconstruction of the original pulpit in a virtual environment.

The actual relationships between the sculptural fragments and the architectural parts of the artifact were examined in *Rhinoceros* solid modeling software. The ability to rotate, translate and orient the digital pieces allowed reconfiguring the entire structure of the pulpit. The reassembly of the pieces through virtual anastylosis enabled the Florentine scholar's hypotheses to be verified and confirmed. Indeed, the digital model of the pulpit turns into a real three-dimensional puzzle, in which all the pieces can be arranged in a precise and metrically accurate fit (Figg. 5-8). The work in the virtual environment becomes a fundamental verification key, especially for those portions of the pulpit that are currently walled in. The upper closure of the pulpit was reconstructed by moving and

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[6] Translation of the author: ""instead found its suitable position at the back [...] next to the opening providing access from the staircase".
[7] Translation of the author: "since its lateral and lower faces are smoothed, one can be sure that it was [...] the beam placed above the capitals of the two front columns and under the floor of the chest".

Fig. 9: The medieval pulpit virtually reconstructed and relocated to its original position in the Church of San Bartolomeo in Pantano. (3D model and image by Greta Attademo)

orienting differently the fragments of the frame now arranged horizontally along the church wall. The correct arrangement of the pieces was ascertained by verifying the coincidence of their extremities.

The three-dimensional model, in addition to enriching the documentary apparatus in favour of historical-artistic study and research, becomes a tool for producing new channels of valorisation, communication and enjoyment of past memory (Ciula & Eide, 2017). The digital twin (Gabellone, 2022) can be used to communicate the medieval heritage to a wider public, usually unaccustomed to imagining configurations that no longer exist or to interpreting two-dimensional graphic schemes. In this regard, it was deemed necessary to relocate the medieval pulpit to its original position within the sacred space, in order to improve the understanding of what is being observed without perceiving the three-dimensional model as an isolated and decontextualised object. The pulpit, in fact, as well as having undergone numerous disassemblies over the centuries, was repeatedly moved and

refurbished in the Church of San Bartolomeo in Pantano (Fig. 2).

As mentioned earlier, the current position of the pulpit, dates back to 1976 (Baldassi, 1995) and already in the sixteenth century some parts of the artefact were selected to be mounted in a cantoria connected to the church organ. Emiliano Lucchesi clarifies that "*nel 1591 l'Abate Alessandro da Ripa ebbe l'infelicissima idea di togliere il pulpito dalla navata, appoggiato alla colonna, per collocarlo alla parete sotto la navata a destra di chi entra come si ricava dall'iscrizione scolpita lungo l'imbasamento del pulpito stesso [...]. Da quel giorno il pulpito non servì più per predicare la divina parola, ma fu convertito in cantorìa*"[8] (Lucchesi, 1941, p. 69). This assumption is also proposed by Tigler, who affirms that *"se fossimo*

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[8] Translation of the author: "In 1591 Abbot Alessandro da Ripa had the very unfortunate idea of removing the pulpit from the nave, leaning against the column, and placing it on the wall under the nave to the right of the entrance, as can be seen from the inscription carved along the pulpit's moulding [...]. From that day the pulpit was no longer used to preach the divine word, but was converted into a cantorìa".

entrati in epoca medievale nella chiesa [...] avremmo probabilmente visto, in corrispondenza delle colonne prima della coppia di pilastri a base quadrata, un muretto di recinzione, aperto al centro [...] su questo muro, di cui furono scoperte le fondazioni nel 1961, che separava il coro dei monaci dalla parte occidentale della chiesa adibita ai laici, poggiava, con ogni probabilità dalla parte destra ma ben in vista nella navata centrale, il pulpito [...]"[9] (Tigler, 2001, p. 87).

Representing the original location of the pulpit is extremely important for a non-expert audience, because it emphasises the different function and perception of the pulpit within the medieval church (Figg. 9-10). In fact, the 3D views of the sacred space give the idea of a pulpit, which, thickening at the presbyterial crossing, marked the transition between the area intended for the laity and that for the clergy. The frontal orientation of the pulpit to the entrance of the church made it immediately visible to the faithful, thus emphasising its important religious significance, which was lost with the structural and liturgical renovations of later centuries.

A final issue of relevance concerns the choice of representation methods and techniques used for data visualisation and presentation. As researchers we are, in fact, faced with the need to balance the allure of realism and the desire for an appealing aesthetic with a fragmented and hypothetical historical truth (Cignoni & Scopigno, 2008; Bentkowska-Kafel, Denard, & Baker, 2012). Digital models, especially when used in communication to a novice audience, must be able to reveal both the facts and uncertainties of a virtual reconstructive hypothesis. For this reason, the same graphic choices were used for all cases in the MemId project, as can be seen in the already published reconstruction of the ciborium of San Gennaro Extra Moenia in Naples (Attademo, 2023). The different treatment between the surveyed parts, shown in a realistic key, with high-definition textures and chiaroscuro refinements, and the merely hypothesised parts, modelled in a grey geometric transparency, devoid of details, becomes a real communicative

scientific language, aimed at showing the value of the existing artistic traces without falling into examples of exaggerated hyperrealism and digital spectacularisation. At the same time, the re-composition of the pieces in their original configuration and the relocation of the pulpit in the space of the mediaeval church intends to enrich the emotional and sensorial impact of the observer, guaranteeing a deeper and more conscious path of knowledge and interpretation of Guido Bigarelli's pulpit.

5. Conclusions

The research intends to demonstrate how the integrated and structured application of humanistic knowledge, ICT and advanced strategies of digital representation can offer the medieval sector the precious possibility of virtually reconstructing contexts that have changed dramatically over time and at the same time recontextualise artefacts in the past scenario, allowing them to be better understood and intelligible. The pulpit of the Church of San Bartolomeo in Pantano in Pistoia becomes an emblematic case study to understand how drawing and representation methodologies can dialogue with traditional sources - material, written and oral - of historical research.

The case study highlighted how virtual reconstruction, in addition to becoming a tool 'at the service' of the historical-artistic discipline, becomes a constitutive part in the elaboration process of the scientific aspect of the research. It gives the opportunity to handle, interrogate and compare a previously unthinkable amount of data, as well as to translate concepts that are often abstract or complex into effective and clarifying visual representations.

For the specific process of virtual anastylosis, it does not seem possible to define a sequence of universally applicable procedures. The reliability and exhaustiveness of the expected results depend on the quantity and quality of the sources used the information that can be deduced from the still existing parts of the artefact, the interdisciplinary collaboration between researchers and the ability to compare and critically re-read the iconographic and documentary material. Instead, it seems possible to define an univocal and yet versatile methodology that can be adapted to the contingencies of the specific case: from the photogrammetric survey of parts to the 3D

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[9] Translation of the author: "If we had entered the church in the Middle Ages, we would probably have seen a small enclosure wall, open in the centre, at the columns before the pair of pillars with a square base; [...] on this wall, the foundations of which were discovered in 1961 and which separated the monks' choir from the western part of the church used by the laity, rested the pulpit, most probably on the right side but clearly visible in the nave [...]".
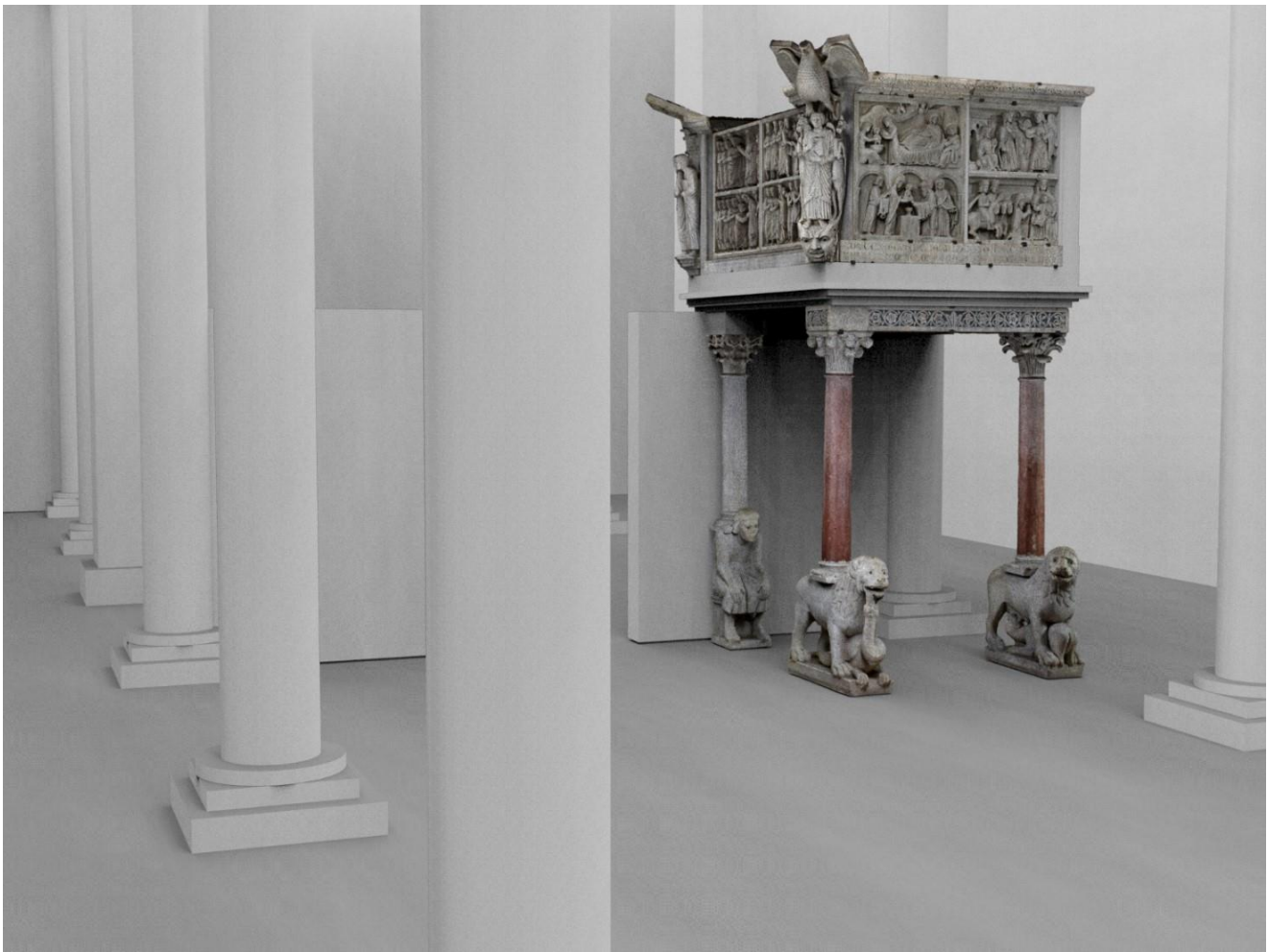
Fig. 10: The medieval pulpit virtually reconstructed and relocated to its original position in the Church of San Bartolomeo in Pantano. (3D model and image by Greta Attademo)

modelling in a virtual environment, from the design of meaningful scenarios to the definition of data visualisation and communication choices. In this way, we configure a method that encompasses and provides the formulation of a representation project in which all the virtualities of ancient artefacts and spaces appear to the consciousness of the present, increasing the awareness not only of who studies those artefacts, but also of the community of people who experience them everyday.

6. Credits

Although the paper is a joint collaboration, Greta Attademo is the author of paragraphs 1, 3 and 4. Aurora Corio is the author of paragraph 2. The authors wrote together the conclusions.

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