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Bridging planned conservation and community empowerment: Portuguese case studies

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# Bridging planned conservation and community empowerment: Portuguese case studies

Planned  
conservation  
and community  
empowerment

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## Abstract

**Purpose** – In the present-day context of a sharp decrease in economic and ecological resources, planned conservation and community empowerment are key strategies for sustainable heritage management, because of their cost effectiveness, increased preservation of authenticity and socially development. However, there are still very few practical implementations, so the purpose of this paper is to present applied research to real case studies, as well as to demonstrate that preventive-planned conservation is increasingly successful when linked with the empowerment of local communities and users.

**Design/methodology/approach** – This paper proposes a methodology that focuses on two complementary aspects: planned conservation (material component) – undertaken directly on buildings, through inspection, monitoring, maintenance and repair activities; community empowerment (intangible component) – afforded indirectly to users, through participatory strategies and training in prevention, maintenance and use.

**Findings** – Based on an estimation of costs, this paper suggests that preventive-planned conservation strategies (pre-damage) can be one-third cheaper than the reactive and interventionist approach (post-damage). Moreover, this study also develops innovative ICT tools for the planned conservation of the built heritage, namely a specifically designed computer software/App (“MPlan”) that can be used to compile maintenance plans.

**Originality/value** – The case studies are among the first applications of preventive-planned conservation strategies to the built heritage in Portugal. Different types of case studies are provided to better illustrate the methodological approach adopted and the results obtained. Special attention is given to the Romanesque Route, a cultural itinerary with 58 monuments (monasteries, churches, bridges, towers and a castle). Illustrated manuals contribute to the empowerment of local communities and users.

**Keywords** Preventive conservation, Sustainable development, Maintenance, Planning conservation, Community empowerment, Cultural heritage management

**Paper type** Case study

## 1. Introduction

Maintenance [...] means not allowing a building to decay. In the beginning, it's only about small tasks, but often we let things progress until the building arrives at a state of profound decay. After that, it's not about maintenance anymore, but about rehabilitation, and rehabilitation is expensive. So, carrying out constant maintenance is also a question of economics (Siza, 2016, p. 141).

As Álvaro Siza maintains, the current context of economic depression, ecological saturation and an excessive number of recent constructions (many of which are empty, useless or obsolete) calls for a careful approach to the management and preservation of the built heritage. Acknowledging that the heavy and exceptional “restoration” of single monuments is no longer an exclusive or sustainable practice, it is urgent to implement strategies of preventive-planned conservation and maintenance, which have always existed in the history of construction (plastering, replacing tiles, cleaning gutters, etc.), especially before its industrialisation.

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These practices provide for a more sustainable management of resources, shifting from a reactive and interventionist approach (post-damage) to preventive conservation (pre-damage) and continued care over time.

Seen from this perspective, attention can be drawn to the work of some international organisations and initiatives on preventive-planned conservation, including, among others, the Society for the Protection of Ancient Buildings in the UK (Crofts, 2008), the Monumentenwacht in Belgium and the Netherlands (Vandesande and Van Balen, 2016), the Planned Conservation experiences in Lombardy, Italy (Della Torre, 2003), the Monitoring System for the World Heritage Site of Cuenca (Heras *et al.*, 2013) and the UNESCO Chair in Preventive Conservation, Maintenance and Monitoring of Monuments and Sites (Van Balen and Stulens, 2001; Van Balen and Vandesande, 2013). There is a vast lexicon used in the field of preventive-planned conservation and maintenance, which also varies according to different languages, countries and fields of action (Forster and Kayan, 2009; Lipovec and Van Balen, 2010; Ferreira, 2011a; Vandesande, 2017).

In this context, preventive-planned conservation and maintenance are key strategies for ensuring a balanced systematisation, with great potential existing for their application not only in single buildings, but also in public spaces, the landscape and the whole territory. Nevertheless, there are still very few practical applications to real case studies, especially those linking preventive-planned conservation with the engagement and empowerment of local communities and users.

#### *Concepts, objectives, and methodology*

Preventive-planned conservation and maintenance are key strategies for sustainable heritage management, because of their cost effectiveness and increased preservation of authenticity. These practices, when applied to the built heritage, require knowledge of traditional materials and techniques, which further enhance compatible and sustainable repairs. These works require a skilled and qualified labour force, which, in many cases, is quite aged or has been undervalued due to the effects of the industrialisation of construction. However, maintenance of the built heritage can be a way to foster local participation, professional qualification and employment by reactivating materials and technologies that have fallen into disuse or are at risk of disappearing (ICOMOS, 2014, p. 5).

On the other hand, community empowerment calls for the involvement of all users in preventive conservation and maintenance processes, namely with the support of “User Manuals” and “Instruction Manuals”, which provide information and guidelines in an accessible language. Hence, users are a key factor in heritage maintenance, helping to avoid improper use, preventing risky situations, contributing to the recording of information and collaborating in daily maintenance activities (cleaning, ventilation, shade, etc.). From this point of view, civil society has an important role to play in preserving heritage, as well as in contributing to a sustainable and culturally integrated development (Ferreira, 2011a, b). “Local people, civil society, and elected local and national officials will play a key role in the design and implementation of heritage as a driver of development, and, through raised awareness of heritage, they will have ownership of the development process” (ICOMOS, 2011, p. 6).

The aim of this paper is to present research applied to real case studies in Portugal, as well as to demonstrate that planned conservation is increasingly successful when linked with the empowerment of local communities and users. Moreover, this paper intends to present economic data supporting the advantages of preventive-planned conservation strategies, as well as to provide for operative tools, such as a computer software/App and illustrated manuals for users.

Moreover, this paper proposes a methodological approach – preventive-planned conservation (material component) – performed directly on buildings, through inspection,

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monitoring, maintenance and repair activities; community empowerment (intangible component) – undertaken indirectly on users, through participatory and empowerment strategies. Besides, the paper presents different case studies, from different epochs and with different functions, with the objective of supporting evidence and the results. In order to provide more detailed information, while increasingly supporting the methodological approach defended in this paper, special attention will be given to the case of the Romanesque Route.

The following case studies are among the first experiences of preventive-planned conservation strategies applied to the built heritage in Portugal.

## 2. Portuguese case studies

### *The Portuguese context*

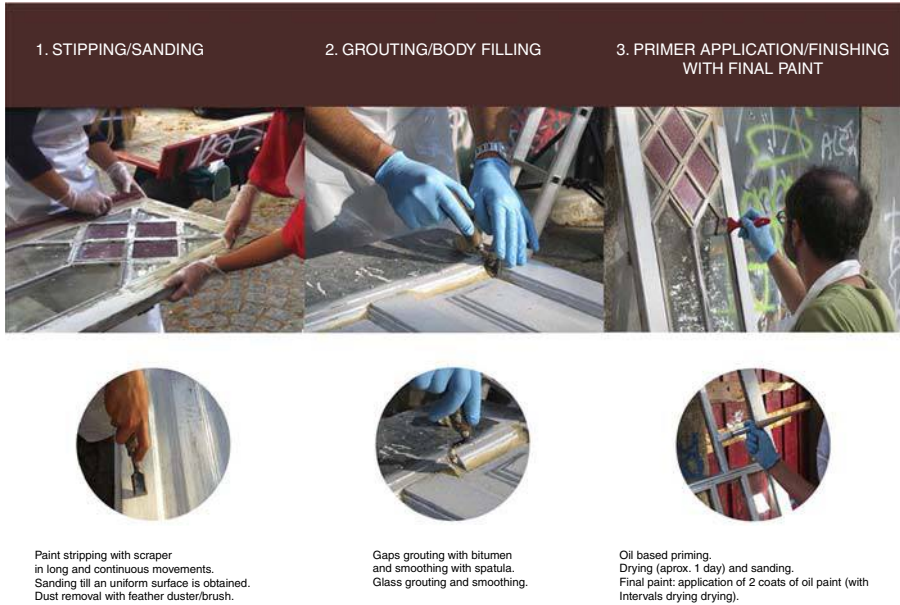
In Portugal, the term “maintenance” is commonly used, and broadly means the “set of preventive operations carried out in order to keep a building as a whole or each of its constituent parts in a good state” (Henriques, 1991). Maintenance is thus a system of preventive practices, controls, small repairs, cleaning and appropriate uses. In this sense, one can identify different types of maintenance: preventive or predictive maintenance (inspection and preventive actions), conditioned maintenance (post-symptomatic actions) and curative or corrective maintenance (post-damage actions) (Paiva *et al.*, 2006; Calejo, 2009). Hence, the productive cycle of maintenance is generally divided into three phases: “Information” (research, gathering information, databases, characterisation, diagnosis), “Programming” (developing manuals, scheduling inspections and repairs) and “Implementation” of maintenance activities that can range from cleaning to visual inspection, monitoring, minor repairs or replacement activities, and instructions for use (Flores Collen and Brito, 2003). Maintenance is therefore a very broad term, encompassing a vast range of different operations, which may be direct or indirect, simple or qualified, varying also in their frequency (daily, weekly, monthly, biannual or multiannual) or according to the seasons of the year (Cóias, 2004).

However, in the Portuguese panorama, the planned conservation and maintenance framework and instruments are still poorly defined, whether in the construction sector in general or in terms of built heritage (Cóias, 2004). Thus, some questions still remain open: what is the role of government organisations, companies and civil society in defining strategies for planned conservation and maintenance? What are the instruments of their applicability, particularly in regard to the architectural heritage? What are the bases required for creating a contemporary culture of maintenance?

### *Window maintenance in the Historical Centre of Porto*

The workshop “JANELAS com TINTA têm muito + PINTA” (“Painted windows are much more fun” organised by ICOMOS Portugal in partnership with CEAU-Faculty of Architecture of the University of Porto (FAUP), IC-FEUP and AOF Contractor) was a successful participatory experiment in the maintenance of windows in Porto’s Historic Centre (UNESCO World Heritage since 1996) performed between 10 and 12 September 2012 in the area of Passeio das Virtudes. The aim of the workshop was to focus on an essential constructive element for the authenticity and identity of this site – the window – which has been a recurrent target for replacement due to a lack of maintenance habits or as a result of intrusive renovation projects.

The workshop was aimed at local inhabitants and took place over several days, involving practical demonstrations and direct “hands on” experiences throughout the different stages, techniques, instruments and materials applied in the maintenance of windows. The whole process was compiled in an illustrated Good Practices Manual (Figure 1) and was also



**Figure 1.**  
Instruction handbook  
for window  
maintenance

**Source:** The author

recorded in a video published on YouTube. Moreover, this experience enhanced the potential of engaging and empowering local inhabitants through their active participation in the conservation process, increasing their quality of life and self-esteem through their direct relationship with the preservation of built heritage.

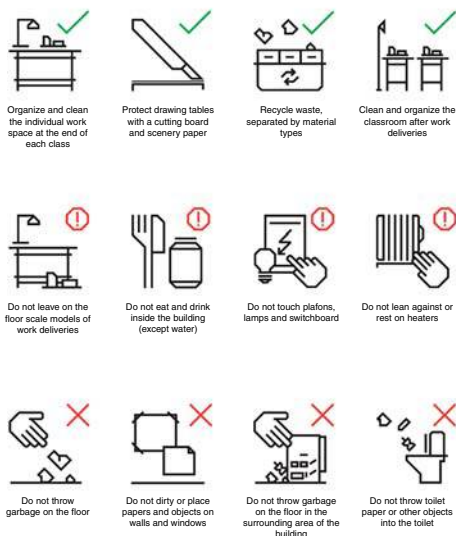
#### *Contributions to the maintenance and use of the Faculty of Architecture in Porto*

The building complex of the FAUP was designed from 1985 onwards by Álvaro Siza, and is now listed as a building of special interest in the Heritage Charter of the Porto Municipal Plan. The FAUP buildings were designed to house 500 students and are currently used by about 1,100 students. The building complex has thus been forced to adapt to a more intensive use (it is in permanent use, 24 hours per day and 7 days per week). The everyday users of the FAUP spaces are employees, teachers, researchers, students and visitors (tourists or others).

Recently (2016-2017), works were performed for the maintenance and repair of the external envelope of the buildings (roofs, façades and window frames)[1]. These repairs made it possible to solve some problems arising from the natural aging process caused by the building's exposure to atmospheric agents, since it had not previously been subjected to any profound repairs since its construction (Ferreira, 2016). The works made it possible to reflect on the implementation of planned conservation strategies based on the Maintenance Plan of the Faculty of Architecture (Ferreira, 2017).

On the other hand, focusing on the empowerment of users, an infographic poster was developed (Figure 2) containing three levels of recommendations, ranging from "suggestions" (organisation and cleaning of classrooms, furniture protection, recycling) to "alerts" (stowage of scale models, electrical wiring and equipment care) and "prohibitions/obligations" (rules for the use of the sanitary facilities, the placement of litter and rubbish in their appropriate bins, and writing or sticking posters on the walls and windows). This can be an

### Recommendations for use



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**Figure 2.**  
Poster with  
recommendations  
for users

**Source:** The author, with Daniela Silva and Inês Vieira

incentive to increase awareness about the good use and preservation of spaces, until the time comes when such care is no longer a rule and becomes an everyday and automatic habit for all users (Silva, 2016). Only with the commitment and care of everyone – architects, managers, employees and users – can we ensure the proper functioning of the building, the preservation of its architectural heritage value and its sustainable transmission to future generations.

### *Heritage Care*

A recent example in the Portuguese context is “Heritage Care”, an Interreg Sudoe project on “Monitoring and Preventive Conservation of the Historical and Cultural Heritage” (Ramos *et al.*, 2017), whose main aim is to raise the awareness of owners about the importance of preventive conservation, through the creation of a non-profit entity that will implement these kinds of practices in Portugal, Spain and the South of France. Among other activities, the Heritage Care system will include a series of periodical inspections, photogrammetric models, 3D surveys using geomatics, and Heritage BIM. These strategies are designed to combine planned conservation activities with the empowerment of users in the preservation of the built heritage.

### **3. Maintenance Plan for the Monuments of the Romanesque Route (Rota do Românico)**

#### *Context and objectives*

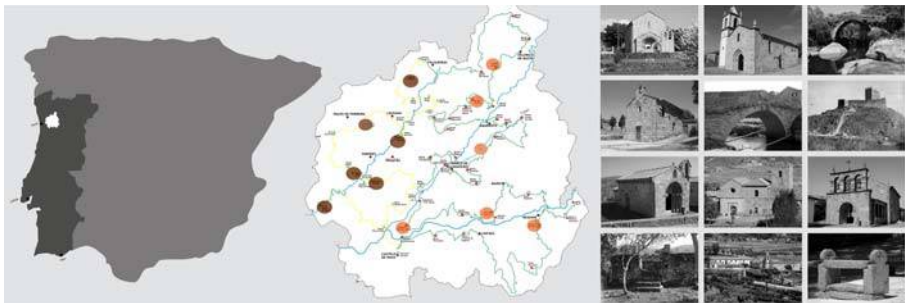
The Romanesque Route (*Rota do Românico*), in the North of Portugal, is an exemplary experience as far as management and safeguarding strategies are concerned, benefiting from a network system and economies of scale (which are more attractive for visitors and investors) and seeking to strengthen local communities through an endogenous and integrated form of development (Ferreira, 2011b). Hence, this project proposes a strategy

that goes beyond the traditional (passive and regulatory) models of safeguarding to become a proactive system, generating economic synergies and the sociocultural development of the territory (Sacco, 2009).

The Romanesque Route covers 12 municipalities of the Vale do Sousa and Baixo Tâmega regions, comprising 58 monuments over an area of 764 km<sup>2</sup>, including a range of different types, such as monasteries, churches, bridges, towers, memorials and a castle (Figure 3). Since 2003, it has proved possible to rehabilitate a considerable number of buildings, following good practices of intervention in the preservation of built heritage: prior in-depth documentary and material surveys of the buildings; diagnosis of the conservation status supported by non-destructive testing (NDT); interventions using compatible materials and techniques, providing for the introduction of passive ventilation systems; preventive conservation, monitoring and scheduled maintenance after rehabilitation interventions, operated through the Maintenance Plan, which is the main focus of this paper.

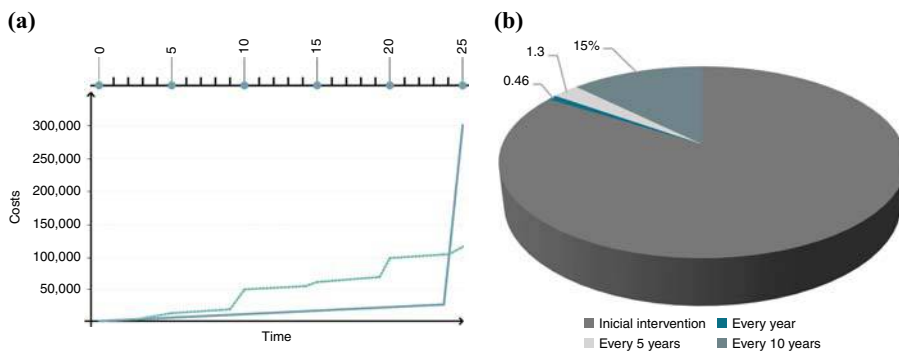
The Maintenance Plan is an important feature of the Management Plan for the Conservation and Valorisation of the Monuments of the Romanesque Route[2], as it is a preventive conservation tool with the following objectives: to improve management of resources (reducing costs in the medium and long term), promote the future self-sustainability of the project through an appropriate management model based on preventive-planned conservation, avoid the risk or emergency situations, guarantee the quality of the tourism product by ensuring a good state of conservation of the buildings, promote employment and professional qualification, improve the self-esteem of the local populations through their empowerment and involvement in the conservation process, and, finally, reinforce the pioneering and exemplary nature of the Romanesque Route project in both a national and an international context (Ferreira, 2012).

In order to better support the implementation of the Maintenance Plan, an hypothetic comparative analysis was undertaken for a church with a covered area of about 250 m<sup>2</sup> (Figure 4), which is the average area of a parish church of the Romanesque Route such as S. Vicente de Sousa. Thus, two scenarios were compared for the accumulated costs of construction work at that building, starting from a good condition point, over a 25-year time frame: without the implementation of a Maintenance Plan (solid line), the costs are reduced over 25 years, after which a profound intervention will be necessary (€316,000); with the implementation of a Maintenance Plan (dashed line), providing, in general terms, for regular interventions on an annual basis (visual inspection, clearing of vegetation in the surrounding environment, inspection and repair of roofs and other structural elements), every five years (painting of doors and windows and metallic elements, among others), every ten years (cleaning of stonework, treatment of joints, preventive disinfestation, structural inspection, among other interventions) with a total accumulated cost of €109,000.



**Figure 3.**  
Location of the  
Romanesque Route  
and identification of  
Pilot Monuments

**Source:** *Rota do Românico* and the author



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**Notes:** (a) Chart comparing two scenarios of the accumulated costs of maintaining a religious building over 25 years: without a maintenance plan (solid line); with a maintenance plan (dashed line); (b) chart showing the percentage shares of the periodical maintenance interventions compared with the cost of a single profound intervention

**Source:** The author

**Figure 4.**  
Charts comparing  
scenarios with and  
without maintenance  
over 25 years

This approach, although of speculative assumption, was important to persuade local stakeholders of the importance of funding-planned conservation and maintenance strategies, also in terms of economic advantages.

This comparative analysis suggests that the total accumulated costs in the case of a building subjected to regular maintenance corresponds to about one-third of the costs of a profound intervention in the same building, which would be necessary after 25 years without these periodical maintenance works. Furthermore, in addition to the considerable reduction in costs, it is clear that it will be easier to obtain small sums of money for periodical annual and multiannual maintenance (in particular through the involvement of local agents, for instance, priests) than to secure large sums for profound and reactive interventions. On the other hand, it is also noted that, in percentage terms, annual costs (corresponding to only 0.46 per cent) are relatively low when compared to the costs of an initial or profound intervention on the same building.

In these scenarios, interest and inflation were not considered in the calculation of the costs. Risks such as fire, flood, and storm were also not taken into account because they were very rare in the past decades. Moreover, even with a maintenance scenario, decay and deterioration cannot be completely avoided but, in some cases, merely postponed. However, regular maintenance makes it possible to increase the preservation and authenticity of the built heritage (heritage value), and subsequently its tourism and economic value.

Acknowledging that this is a speculative analysis based on hypothetic estimation supported on experienced contractor, in future research developments more precise economic survey and estimation will be provided with the data and costs of the maintenance works conducted since 2014 under the Maintenance Plan project.

### *Methodology and structure*

The methodology for the implementation of the Maintenance Plan is based on two complementary aspects: preventive-planned conservation (material component) – undertaken directly on buildings, through inspection, monitoring, maintenance and repair activities; community empowerment (intangible component) – intervening indirectly on users, through participatory and empowerment strategies, such as training in maintenance and use for local users and agents. The methodological definition envisages the formation of a multidisciplinary team[See footnote 2], coordinated by an architect and advised by a civil



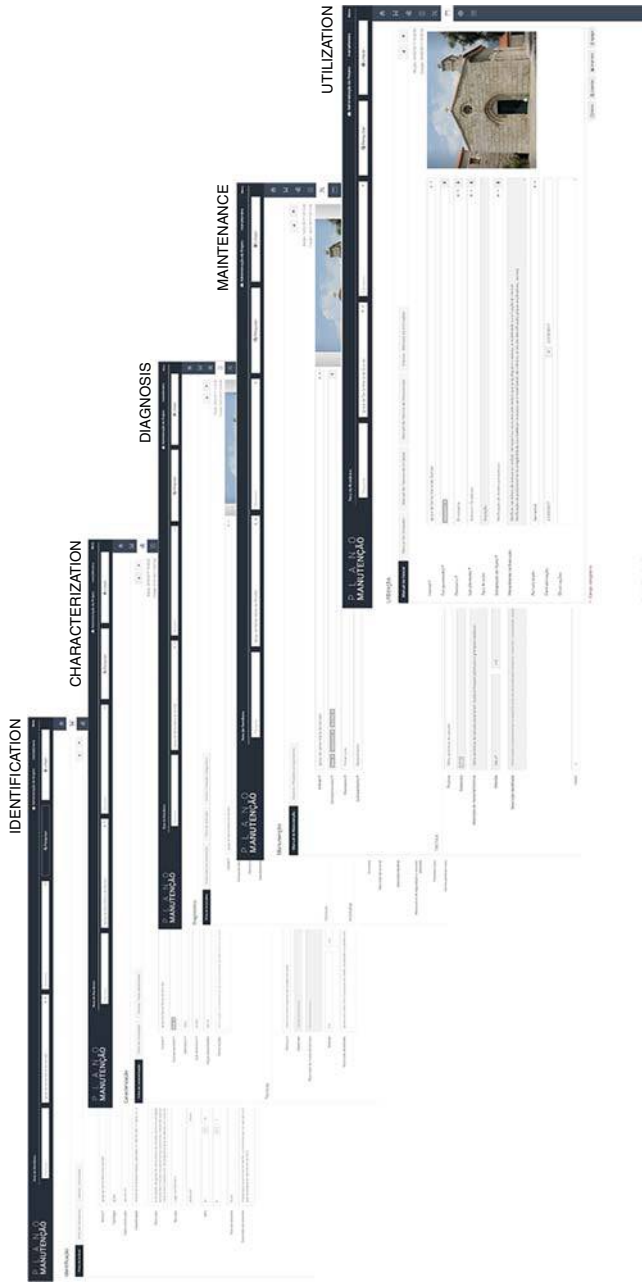
engineer, as far as the inspection, structural monitoring and risk control activities are concerned, and by a conservation technician with regard to the assets and applied arts (Ferreira, 2015).

The Maintenance Plan has four implementation phases. A first phase (Information) consists of the gathering of information and its integrated management through the creation of a relational database and a computer software and web software/App (“MPlan”) developed by the author of this paper under a specific project. This computerised tool makes it possible to centralise and research information, draw up maintenance plans and make budget estimates, among other functionalities. The “MPlan” App is accessible via mobile devices and facilitates the filling in of forms in the course of the field work thus optimising the implementation of the Maintenance Plan by the different operators involved in the process.

A second phase (Programming) consists in drawing up the Maintenance Plans, which are divided into five sections: Identification, Characterisation, Diagnosis, Maintenance, Utilisation (Figure 5). The Identification section (I) includes general information about the building (type, chronology, description, location) and the users (contacts, age, function, responsibility). The Characterisation section (II) contains the Building’s Drawings and Characterisation Form (materials, techniques, durability, areas), as well as a Chronology with building transformation and previous interventions. The Diagnosis section (III) comprises the anomalies form (description, mechanism, possible causes, percentage, risk factor), the utilisation form (including uses and related risks) and the log of occurrences reported by users. This section allows also for the uploading of different kinds of inspections, NDT tests and analyses, among others: thermo-hygrometric or structural monitoring, decay mapping, thermographic captions or inspection reports. The Maintenance section (IV) relates to the scheduling and description of inspection, maintenance and repairs (maintenance manual) including a cost estimate which is a very useful tool for managers. This estimate is obtained through the relation between area ( $m^2$ ) and costs of maintenance actions per  $m^2$  supported on database provided by experienced contractor; the intervention form relates to specific conservation works. Finally, the Utilisation section (V) provides for different kinds of manuals with recommendations for users, such as inspection, cleaning, use and current maintenance. The users’ manuals are documents designed for the managers and users who enjoy a continuing relationship with the building, containing information about its correct use, preventive actions, routine maintenance or cleaning tasks, as well as small-scale maintenance and repair work, and the log of occurrences. These documents are written in an accessible language and can be separated into two versions: one for the managers and another illustrated version for the everyday users, consisting of an instruction manual or good practices manual.

The sections mentioned above compose the Maintenance Plan for each building, which can be printed either in part or in full. Many of these forms have pre-compiled or dropdown fields in order to facilitate their full and rapid completion, as well as to reduce errors. There is a detailed tutorial to help people to fill in the form with lists and descriptions (materials, constructive systems, damage atlas, repair actions, users’ recommendations, etc.). The software has reserved access through different logins (administration, manager, technician, user) with distinct permissions and provides for a system of notifications and alerts related to occurrence’s management directed to specific users.

A third phase (Execution) concentrates on the execution of maintenance works in combination with two different models of training workshops: technical workshops for small local contractors, municipal maintenance teams, focusing on traditional construction skills, minor repairs, health and safety, etc. good practices workshops for regular users, such as managers, priests, caretakers, cleaning and maintenance technicians, focusing on correct use and cleaning procedures, reporting occurrences, behaviour in emergency situations, etc.



Source: The author

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Figure 5.  
“MPlan” software,  
sections of the  
maintenance plan

Finally, since the Maintenance Plan is a dynamic instrument relating to a work in progress, a final phase (Evaluation) relates to the assessment of results and the updating of documents.

#### *Implementation of the Maintenance Plan (2014-2018)*

The Maintenance Plan of the Monuments of the Romanesque Route is a form of exploratory applied research, currently in its implementation phase, benefiting from structural funding from the European Union (85 per cent) and from the Municipal Councils (15 per cent).

In a first stage (2014-2015), the implementation of the Maintenance Plan was tested at 12 pilot monuments (Plate 1), one of each type identified in the Vale do Sousa and Baixo Tâmega regions (monastery, church, tower, bridge, memorial and castle) with the objective of better evaluating procedures and estimating costs. In selecting the buildings, a geographical criterion was used, namely that each municipality should have only one pilot monument, in order to distribute them evenly across the territory.

Maintenance Plans were drawn up for the pilot monuments, through *in situ* surveys and inspections and a detailed compilation made through the use of the “MPlan” app, in accordance with the above-mentioned sections: Identification, Characterisation, Diagnosis, Maintenance and Utilisation. The Maintenance Plans drawn up for the pilot monuments supported the definition of lists of the works to be performed at each of the 12 monuments, involving a total amount of €30.000 (the works were executed by an experienced contractor in 2015). Among others, these included the following actions (applied case by case in accordance with the Plan): clearance of the infesting vegetation in the surrounding area, cleaning of paths providing access to the building, inspection and repair of the roofs (with the replacement of broken tiles and the correction of specific problems), cleaning of rainwater drainage networks, removal of biological colonisations at the base of the walls, replacement of broken window panes, treatment and painting of doors and windows, disinfestation of altars, inspection and maintenance of the electrical installations, correction of specific problems, among other actions. These specific and localised maintenance works did not affect the architectural solutions and were designed to restore the proper functioning of the buildings, while preserving their integrity and authenticity.

As far as improving the conditions for future maintenance is concerned, it was found that, in most cases, the installation of lifelines in roofs not only had a negative visual impact, but was also not economically advantageous due to the cost of obtaining the compulsory annual safety certificates, when compared with the cost of renting mobile platforms and removable systems for the annual maintenance of roofs. Other possibilities such as rope



**Plate 1.**  
Maintenance works in  
pilot monuments, 2015

**Source:** The author

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climbing specialists (i.e. Monumentenwacht) or GutterClear scheme in England (Vandesande, 2017, pp. 84-85) would require previous specific training and organisation.

Moreover, training workshops were carried out together with the execution of maintenance works: a technical workshop for local contractors (Church of Telões, 17 June 2015); a good practices workshop for caretakers (Church of Telões, 17 September 2015). These workshops included the presentation of illustrated instruction manuals for everyday users (Figure 6) and a quiz for children, both of which highlighted the main problems of a lack of maintenance at a religious building. These are extremely important instruments, since they acknowledge that the Maintenance Plan will only be truly sustainable with the qualification and empowerment of the future guardians of this heritage.

In a second phase (2017-2018), the Maintenance Plan is now being extended to the 58 monuments that constitute the Romanesque Route. This stage envisages the improvement of the database and computer software ("MPlan"), providing for the inclusion of risk assessment and the inventorying of assets and plans for the evacuation of these pieces in emergency situations. Furthermore, works and training activities are being carried out at the monuments, with a total budget of €260.000. As far as resources are concerned, this amount includes human resources, such as multidisciplinary teams responsible for the coordination and development of maintenance plans, inspection and training activities, as well as works being undertaken on roughly 40 monuments, performed by an experienced contractor.

#### *Final note and future challenges*

The Romanesque Route is a successful experience in the bridging of planned conservation and community empowerment. Hence, it demonstrates several benefits in the implementation of preventive conservation strategies, such as the reduction of costs (over the medium and long term), the preservation of heritage authenticity (increasing its cultural and tourism values, and consequently its economic value), the creation of employment (small local contractors), and, finally, the improved qualification of local agents and users for the future safeguarding and sustainability of their heritage.

The main challenges currently being faced by the project include such issues as the correct balance between maintaining an approach that is "simple and operative" (quickly and effectively applicable to a large number of buildings) and one that is simultaneously "rigorous and flexible" (adjusting to the complexity and specificity of each building). Other emerging topics include adapting the structure of the Maintenance Plans to more complex buildings, as well as improving the technology used in the survey, inspection, diagnosis and management of the buildings (drones, monitoring sensors, photogrammetry, portable laser scanners, 360° digital cameras, Heritage BIM, among others). Another issue relates to the future management model agreed between the various agents and parties involved in the process (Romanesque Route, municipalities, dioceses, regional directorate of culture, tourism of Portugal, owners, sponsors, users, others).

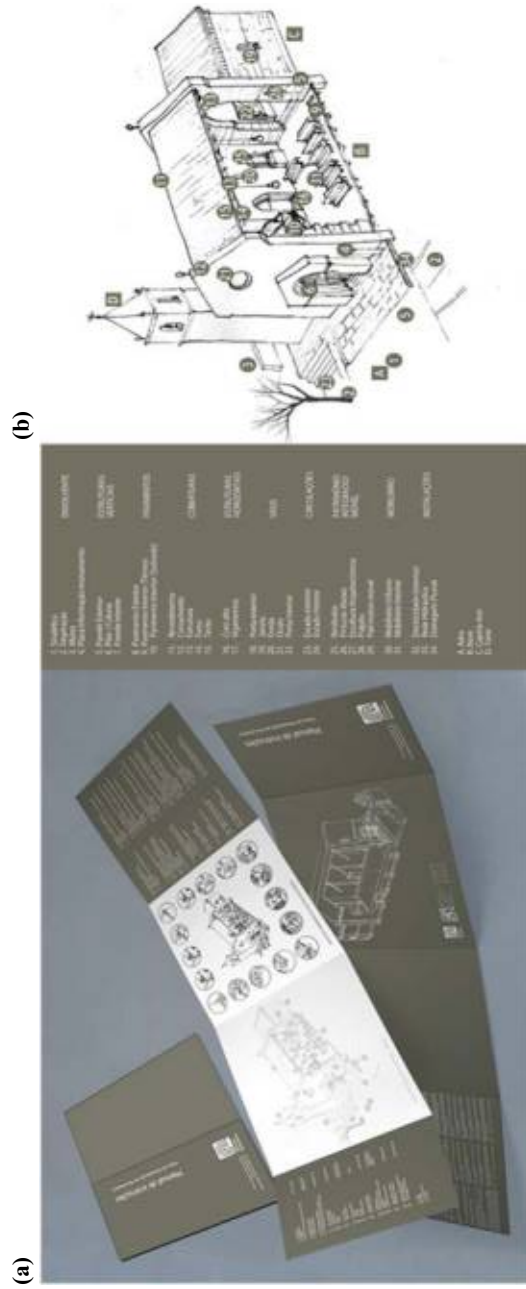
On the other hand, future research can possibly consider the relationship between values and threats as a tool aiming to prioritise the actions and the investments, in order to enable a long-term sustainable policy to implement planned-preventive conservation of monuments.

Finally, it is important to note that the project is still in its implementation phase and retains a critical stance in regard to future developments.

#### **4. Conclusions**

In Portugal, there are still very few instances of the application of preventive-planned conservation strategies. There are many possible reasons why maintenance is not carried out: first, because it is a cultural problem related to the loss of maintenance habits, especially after the industrialisation of construction; and also because it involves discreet interventions with little media impact and, normally, politicians, investors and citizens prefer highly visible

**Figure 6.**  
Illustrated instruction  
manual for  
religious building



**Notes:** (a) Illustrated instruction manual; (b) enlarged picture of the glossary section  
**Source:** The author

interventions. On the other hand, these kinds of ordinary interventions can also be less appealing for technicians because they are anonymous. Moreover, it is important to note that the economic advantages of maintenance run counter to the immediate interests of the professionals involved (contractors, architects and engineers earn a percentage of the total cost). Some other causes related to the failure to implement maintenance practices are the lack of skilled labour (in many cases aging and in risk of disappearing), as well as the difficulty in applying or gaining access to funding for these kinds of strategies and, finally, the absence of a suitable legal and institutional framework regarding preventive-planned conservation and maintenance practices.

The main contribution of this paper is to put into perspective the sustained process of applying the concepts of preventive-planned conservation linked to community involvement and empowerment, in diverse experiments that have common conceptual and methodological frameworks, but different specificities and conditions of application. Furthermore, the paper emphasises the role of society in the execution of preventive conservation measures and the consequent responsibility for these, which can have an important impact, not only from the economic point of view, but also from the perspective of social empowerment and the formulation of a constant relationship of greater benefits for both society and the heritage.

The *Rota do Românico* project provides a clear and operative model for adopting a methodological approach: planned conservation (performed directly on buildings) and community empowerment (undertaken indirectly on users), a phasing of its implementation (information, programming, execution, evaluation) and a structure for Maintenance Plans (identification, characterisation, diagnosis, maintenance, utilisation). All of these are complemented with illustrated training manuals, while also being supported by computer software/App and including assessment on economic data. Hence, this model, bridging preventive-planned conservation with community empowerment, can be possibly applied and adapted to other types of case studies.

In this way, the cases presented in this paper are a valuable resource both for research and for the professional field and the proposed model may therefore help in identifying possible paths for preventive-planned conservation and community empowerment for the built heritage in other parts of the world.

## Notes

1. With a budget of €395,062.95, the work took place between June 2016 and April 2017. Coordinated by Eliseu Gonçalves, with the support of José Luís Gomes and under the guidance of Álvaro Siza.
2. Management Plan for the Conservation and Valorisation of the Monuments of the Romanesque Route – Concept and Coordination: Teresa Cunha Ferreira; Collaboration: Margarida Ramos, Joana Gonçalves, Paulo Mendes (2014/2015); Marta Ferreira (2016, 2017); Consultancy: Esmeralda Paupério, Jaime Duarte, Filipe Ferreira (AOF); Management: Rosário Machado; Ricardo Magalhães, Nelson Antunes, Vitor Marinho.

## References

- Calejo, R. (2009), *Manutenção de Edifícios*, FEUP, Porto.
- Cóias, V. (2004), *Guia prático para a conservação de imóveis: manual para a utilização durável e económica da habitação, através de uma adequada manutenção*, Dom Quixote, Lisboa.
- Crofts, S. (2008), *The Good Maintenance Guide – A Practical Handbook To Help Volunteers To Care & Preserve Our Historic Places Of Worship*, SPAB, London.
- Della Torre, S. (2003), *La conservazione programmata del patrimonio storico architettonico- Linee guida per il piano di manutenzione e il consuntivo scientifico*, Guerini e Associati, Milano.

- Ferreira, T.C. (2011a), “Manutenção e Património corrente. Conceitos e perspectivas”, in Ferreira, T.C., Vasconcelos, D., Paupério, E. and Romão, X. (Eds), *Actas do Seminário Cuidar das casas: A Manutenção do Património Corrente*, ICOMOS-Portugal/FEUP, Porto, pp. 1-8.
- Ferreira, T.C. (2011b), “Rota do Românico: um processo inovativo nel contesto portoghese”, in Biscontin, G. and Driussi, G. (Eds), *Atti del XXVI Convegno Scienza e Beni Culturali (Bressanone) – Governare l’innovazione: processi, strutture, materiali e tecnologie tra passato e futuro*, Arcadia Ricerche, Venezia, pp. 489-500.
- Ferreira, T.C. (2012), “Prevenção e Manutenção. Conceitos e aplicações. Estudo de caso: a Rota do Românico no Norte de Portugal”, *4º Congresso de Patologia y Rehabilitación de Edificios – Patorreb 2-14 de Abril*, COAG, Santiago de Compostela, p. 6.
- Ferreira, T.C. (2015), “Manutenção de edifícios com valor patrimonial. O caso do Plano de Manutenção dos Monumentos da Rota do Românico”, in Rodrigues, R.C. and Rocha, P.F. (Eds), *Simpósio Manutenção De Edifícios: Perspetiva Multidisciplinar (GEQUALTEC)*, FEUP, Porto, pp. 23-30.
- Ferreira, T.C. (2016), “Perspectivas para a manutenção da Faculdade de Arquitectura da Universidade do Porto”, in Ferreira, T.C. and Rocha, P.F. (Eds), *Saber manter os edifícios: pensar, desenhar, construir*, CEAU-FAUP/CEES-FEUP, Porto.
- Ferreira, T.C. (2017), “Contributions for the implementation of preventive conservation and maintenance strategies in the Faculty of Architecture of the University of Porto”, in Amoêda, R., Lira, S. and Pinheiro, C. (Eds), *3rd International Conference on Preservation, Maintenance and Rehabilitation of Historical Buildings and Structures*, REHAB, Braga, 14-16 July, pp. 255-264.
- Flores Collen, I. and Brito, J. (2003), “Planos de Manutenção Pro-activa em Edifícios recentes”, *3º Encore – Encontro sobre Conservação e Reabilitação de Edifícios*, LNEC, Lisboa, pp. 1-10.
- Forster, M.A. and Kayan, B. (2009), “Maintenance for historic buildings: a current perspective”, *Structural Survey*, Vol. 27 No. 3, pp. 210-229.
- Henriques, F. (1991), *A conservação do património histórico edificado*, LNEC, Lisboa.
- Heras, V., Wijffels, A., Cardoso, F., Azilis, V., Santana, M., Orshoven, J.V., Steenberghen, T. and Koenraad, V.B. (2013), “A value-based monitoring system to support heritage conservation planning”, *Journal of Cultural Heritage Management and Sustainable Development*, Vol. 3 No. 2, pp. 130-147.
- ICOMOS (2011), *Paris Declaration on Heritage as a Driver of Development*, UNESCO, Paris.
- ICOMOS (2014), *The Florence Declaration on Heritage and Landscape as Human Values*, UNESCO, Florence.
- Lipovec, N. and Van Balen, K. (2010), “Tra prevenzione e manutenzione: i ‘Monumentenwacht’”, in Biscontin, G. and Driussi, G. (Eds), *Atti del XXVI convegno internazionale Scienza e Beni Culturali*, Arcadie ricerche, Venice, pp. 193-202.
- Paiva, J., Aguiar, J. and Pinho, A. (2006), *Guia Técnico de Reabilitação Habitacional*, Vol. 2, INH/LNEC, Lisboa.
- Ramos, L.F., Morais, M., Azenha, M., Masciotta, G., Pereira, E., Ferreira, T.C. and Lourenço, P.B. (2017), “Monitoring and Preventive conservation of the historical and cultural heritage: the HeritageCare Project”, paper presented at Congresso da Reabilitação do Património (CREPAT), Universidade de Aveiro, Aveiro, 29-30 June.
- Sacco, P.L. (2009), “Distretti culturali come shock cultural”, in Putignano, F. (Ed.), *Learning Districts*, Maggioli, Milano, pp. 47-60.
- Silva, D. (2016), *Perspectivas para a manutenção e utilização do Pavilhão Carlos Ramos na FAUP*, Tese de mestrado, Faculdade de Arquitectura da Universidade do Porto, Porto.
- Siza, A. (2016), “Interview by T. C. Ferreira”, in Ferreira, T.C. and Rocha, P.F. (Eds), *Saber manter os edifícios: pensar, desenhar, construir*, CEAU-FAUP/CEES-FEUP, Porto, pp. 143-153.
- Van Balen, K. and Vandesande, A. (Eds) (2013), *Reflections on Preventive Conservation, Maintenance and Monitoring of Monuments and Sites*, Acco, Leuven.

- Vandesande, A. (2017), "Preventive conservation strategy for built heritage aimed at sustainable management and local development", PhD dissertation, KU Leuven Faculty of Engineering Science, Leuven.
- Vandesande, A. and Van Balen, K. (2016), "An operational preventive conservation system based on the Monumentenwacht model", Raymond Lemaire International Centre for Conservation – Department of Civil Engineering (Building Materials and Building Technology division), University of Leuven, Leuven.

### Further reading

- Canziani, A. (Ed.) (2010), *Conserving Architecture: Planned Conservation of XX Century Architectural Heritage*, Electa, Milan.
- Costa, A.A. (2003), "Faculdade de Arquitectura da Universidade do Porto", in Siza, A. and Dias, A. (Eds), *Edifício da Faculdade de Arquitectura da Universidade do Porto. Percursos do Projecto*, FAUP Publicações, Porto, pp. 23-34.
- Della Torre, S. (2010), "Conservazione programmata: I risvolti economici di un cambio di paradigma/ Planned conservation: the economic implications of a paradigma shift", *Journal of the Department of Cultural Heritage, University of Macerata*, No. 1/2010, pp. 47-55.
- Della Torre, S. (2014), "La strategia della Conservazione programmata Dalla progettazione delle attività alla valutazione degli impatti", *International Conference on Preventive and Planned Conservation Monza, Nardini Editore, Mantova and Milano, 5-9 May*.
- Feilden, B. and Jokiletho, J. (1998), *Management Guidelines for World Cultural Heritage Sites*, ICCROM, Roma.
- Hunt, R. and Suhr, M. (2013), *Old House Eco Handbook – A Practical Guide to Retrofitting for Energy-Efficiency & Sustainability*, Frances Lincoln, London.
- Patricio, T., Van Balen, K. and De Jonge, K. (Eds) (2006), *Conservation in Changing Societies, Heritage and Development/Conservation et sociétés en transformation, Patrimoine et développement*, Raymond Lemaire International Centre for Conservation, Leuven, pp. 191-198.
- Rodgers, A. (2007), "Re-architecture", PhD thesis, Eindhoven University of Technology, Delft.
- Rodgers, A. (2011), "Editorial: bridging cultural heritage and sustainable development", *Journal of Cultural Heritage Management and Sustainable Development*, Vol. 1 No. 1, pp. 5-14.
- Sample, H. (2016), *Maintenance Architecture*, MIT Press, Cambridge, MA.
- Siza, A. (2002), "Recuperação e Manutenção", in Costa, A., Guedes, J.M., Silva, P.e. and Paupério, E. (Eds), *Actas do seminário de intervenção no património. Práticas de conservação e reabilitação*, FEUP Publicações, Porto, pp. 19-26.
- Van Balen, K. and Stulens, A. (2010), "Current preventive conservation approach: the Precomos Unesco Chair's perspective", paper presented at UNESCO Chair on Preventive Conservation, Maintenance and Monitoring of Monuments and Sites (PRECOMOS), 20 September.
- Van Balen, K. and Vandesande, A. (2015) (Eds), *Community Involvement in Heritage*, Grant Publishers, Antwerp.

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