



Proceedings of the International Conference
Preventive and Planned Conservation
Monza, Mantova - 5-9 May 2014

4

Metodi e strumenti per la prevenzione e la manutenzione



A cura di **Stefano Della Torre**
Curatela editoriale **Maria Paola Borgarino**



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**POLITECNICO
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PREVENTIVE CONSERVATION VERSUS RISK MANAGEMENT. APPLYING AN INNOVATIVE METHODOLOGY DEVELOPED BY ICCROM, CCI AND RCE

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Abstract

Over the last ten years, ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property), the Canadian Conservation Institute (CCI) and the Cultural Heritage Agency of the Netherlands (RCE) developed a risk management methodology, which allows the risks that a collection or an heritage asset is facing to be identified and quantified in a systematic manner.

The methodology was applied to two Italian museums: the Ravenna City Art Museum (MAR) and the Museum of Natural history and Archaeology of Montebelluna (TV) for the purpose of two experimental master's thesis at University of Bologna and University Cà Foscari of Venice, respectively.

The methodology is composed by five steps that allow an integrated identification and analysis of all expected damages and losses to cultural property and the development of a mitigation strategy to reduce these risks. It thus provides a useful tool for the design of more efficient conservation strategies due to establish a long term preservation planning.

Analyzing two different collections from geographical areas and diverse characteristics of objects material, similar issues of application have been highlighted.

The two case studies provided to raising awareness of museums staff thinking in terms of "collections" instead "single object", raising current issues about significance of items and identified the gravity of selected risks.

The aim of this paper is to exploit the highlights of the methodology and the advantages of risk assessment as tool to prioritize preventive conservation actions. It also considers reflections on potential application for Italian institutional target.

Preventive and Planned Conservation, that is giving priority to the risk assessment and to the mitigation of decay causes, is considered a management strategy based on a long run vision and on a virtuous integration between conservation and valorization. Today, preventive conservation is widely recognized as a priority line of action.

However, decision-makers are confronted with difficult choices in planning conservation strategies with limited resources, both human and financial, and sometimes there is not a clear sense of priority.

Over the last ten years, ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property), the Canadian Conservation Institute (CCI) and the Cultural Heritage Agency of the Netherlands (RCE) developed a risk management methodology, as a result of six joint courses: *Reducing Risks to Cultural Heritage*. The method and tools that have been developed for the courses proved to be applicable for all types of heritage, ranging from a single wall painting and large collections to historic buildings and archaeological sites.

The purpose of this paper is to present a risk management approach through the application at two Italian case studies (presented as final Master dissertations) providing numerous benefits to be derived simply from working through the exercise of a risk assessment to be applied for the protection of heritage asset.

The Risk Management approach

Insurance companies, other businesses, and governments have been using the idea of risk management for many years, but its application to the preservation of collections of cultural heritage is quite recent. Until now, preventive conservation for collections has been codified in a series of rules or standards that were applied to all collections in a “one size fits all” manner. Instead of defining standards it is necessary to take into account a working method to rank and prioritise conservation needs and mitigate the most relevant in a cost-effective manner: risk management.

As well defined by Robert Waller and Stefan Michalski, the goal of risk management can be defined as “*delivering the collection or heritage asset to some point in the future with as much as value as possible*” (Waller, Michalski, 2005: 733-738). One of the means to minimize loss of value, or to maintain value, is (preventive) conservation. To prioritise our actions and spending we need to determine what the biggest or most urgent risks to heritage asset are.

In essence, Risk Management is a decision-making tool that allows to identify the risks that a collection or a museum is facing, and to quantify those risks in a systematic manner. The improved decision-making that results from identifying and addressing the risks produces improved outcomes, it is then possible to accurately prioritize the risks and ensure that time, money, and energy are spent in the most effective manner.

Risk is defined as the “possibility of loss”. It is usually looked at as the product of the likelihood or probability that a harmful event or process will happen, and the consequence, impact or effect of that event or process:

$$\text{Risk} = \text{Probability} \times \text{Consequence.}$$

The likelihood or probability refers to the chance that a particular event may take place, to the frequency with which incidents happen or to the rate at which degradation processes take place when given the chance. The consequence can be expressed by considering how much of a heritage asset could be affected and “how bad” the impact will be. This is expressed as “loss of value”, where value represents the idea of *cultural significance* that encapsulates the multiples values ascribed to objects, buildings or landscapes. In addition, risk becomes the “possibility of loss of value” or the “expected loss of value” in a certain period of time. This is a new approach in the field of preventive conservation, and an important development that will definitely become the most requested development in preservation.

The CCI-ICCROM-RCE methodology structure follows the steps of the Australian and New Zealand Standard for Risk Management, the international reference in the field. The method is composed of five steps:

- 1 - ESTABLISH THE CONTEXT → understand the museum’s planning and how it perceives the value (historical, cultural, educational, monetary, religious, etc.) of its collection;
- 2 - IDENTIFY RISKS → identify and describe all the risks that may be threaten the collections (which would involve a loss of value);
- 3 - ANALYZE RISKS → study each risk in order to assign a numerical value based on the impact it could have on the collection;
- 4 - EVALUATE RISKS → compare analyzed risks to put them in order of priority;
- 5 - TREAT RISKS → propose treatments due to avoid or reduce the risks (minimize the loss of value) by comparing them in terms of cost-benefit.

The evaluation of a Risk Management method within the Italian context. Two Case studies: the Ravenna City Art Museum, Italy and the Museum of Natural History and Archaeology of Montebelluna, Italy.

Historical overview

The Ravenna City Art Museum is an important civic museum within the region of Emilia-Romagna and represents a typical museum typology found all over Italy.

The entire collection comprises of about 3.300 items (mainly canvas paintings, panel paintings, sculptures, drawings, prints, ceramics, and mosaics). The permanent displays are divided in three sections: the Antique collection, the Modern collection and the Contemporary collection. The majority of the artworks originate from Ravenna and the Romagna area, and includes works by famous painters from Bologna, Ferrara, Veneto and Tuscany. Most of objects are oil paintings, panel paintings and stone sculptures. Decision-makers explained that the most important items are those that have a connection with the museum's own history and that represent the history of art of Ravenna, in line with the museum's mandate and most of them are part of "the antique collection" which is composed by 310 objects (Fig. 1).

The Museum of Archaeology and Natural History in Montebelluna opened in 1984 and became an Institution in 1998. Institution means that the museum is funded by the municipality of Montebelluna. This museum conserves the natural and historical-archaeological characteristics of the territory; it gathers, exhibits and values objects that represent the history of the area. It is not distinguished for single objects in a collection of exponential value, but for collections studied and organized as educational material and for social development. Nowadays the collections are composed of 35.000 archaeological items and of 30.000 naturalistic items (Fig. 2).

Both museums represent an important point of view for the social inclusion in their own cities, respectively; they were very enthusiastic in applying the CCI-ICCROM-RCE RM method and all the staff museum has been available for any technical information or inspection and curious to find out more especially on the concept of cultural significance.

Stage 1. Establish the context

A relationship with museum's decision-makers was established. In Ravenna, the museum's policies focused mostly on preparing temporary exhibitions and thinking to invest in a sophisticated environmental control system

with difficulty in implementing long-term planning for preventive conservation measures. At the beginning, many brainstorming consultations took place in order to understand the importance of items and to establish the collections *value pie* and its importance in assessing risks to the collection. Establishing the relative value of object groups in the collection was extremely challenging so many questionnaires and a brief presentation about value and criteria to assessing the antique collection's items were carried out.

In Montebelluna, a custom-made questionnaire regarding the appraisal of the value of the objects exhibited was drawn up, due to introduce the director and curators to an understanding of the value concept. All members of the museum personnel contributed to this important phase with their previous experiences, demonstrating great interest in the development of the method and making themselves available to answer any questions.

The intention was that everyone working with collections should focus on the fundamental concept of significance in order to make consistent decisions about managing them.

Stage 2. Identify risks

The method layer focuses on tools for being comprehensive, and introduces the all-important risk scenario. It combines elements that traditionally have been fragmented: museum environment (light, RH, temperature, pollution), disaster planning (fire, water, physical forces), security (criminals) and remedial conservation. All this information is organized into a chart, developed by CCI (Michalski, 1990: 589-591), which contains a list of *ten agents of deterioration or loss, 5 control stages, 6 layers of enclosure*: a basic classification for comprehensive risk identification.

This framework forces clarification on the causes of deterioration, following a specific path, in relationship with the building layers (room, hardware, storage areas). This stage involved consulting numerous research data wherever possible, whether from conservation or other field (e.g. insurance data, natural disaster statistical data, technical literature, observations of previous damage, museum staff knowledge, etc.). It also forces about a “behind the scenes” thinking, due to recognize numerous internal and external hazards.

In Ravenna, after carried out a systematic photographic campaign during the museum survey and referring to several sources of information, all specific risks to the Antique collection were identified. In Montebelluna, thanks to numerous interviews with the museum staff members, the gathered documen-

tation and the research inherent to the territory, it was possible to write up a rough draft of all risks.

Stage 3. Analyze risks

These studies limited to a small selection of risks within one specific collection of the Museum. The decision-makers selected the following risks for analysis, as they were perceived (by them) to be the most serious:

Ravenna City Art Museum

- RH fluctuations (agent of deterioration: incorrect relative humidity).
- Incorrect values of light (agent of deterioration: light and UV).
- Mishandling of artworks (agent of deterioration: physical forces).

Natural History and Archaeology Museum of Montebelluna

- Earthquakes (agent of deterioration: physical forces).
- Theft (agent of deterioration: criminals).
- Loss of information (agent of deterioration: dissociation).

Specifically, the CCI-ICCROM-RCE methodology uses fractional scales (A,B,C) to make calculations that are the combination of probability (frequency of occurrence) and severity factors (the fractional part of the collection susceptible to the threat and the potential loss in value to it) (Waller, 1994). That tool allowed to quantify the risks due to obtain a specific typology which is expressed by its magnitude, that is the product of probability and consequence.

The risk assessment to the Antique collections' items has been focused on information on damage from **mishandling** (sporadic frequency) that came from conservation documentation, by analysing past damages of condition data over a specific range of time and by calculating the percentage of collection would be affected (with loss of value). The magnitude of **incorrect values of light** and **RH fluctuations** (both cumulative process) came from conservation science studies and compared with photographic documentation of the collection as well as monitoring of environmental conditions for a specific range of time.

The risk assessment for the Natural history and Archaeology collection, has been concentrated at first in the study of **earthquake** risk. Due to determine the frequency of this "sporadic event" it was necessary to obtain data from central agencies and geological authorities depending from the geographic area in which the collection resides. Information to determine the frequency of **theft**

and **dissociation** had been collected through statistical data at the international and national levels data and by comparing them with the types of object that can elicit actions of theft, case studies and brainstorming with museum staff.

Furthermore, during this phase, some of the values assigned to a part of the collection were revised.

Stage 4. Evaluate risks

At present, a perfect calculation is difficult to predict considering the uncertainties of current knowledge of the magnitude with respect to individual risks. However, this procedure identifies the factors affecting collection preservation that are in most need of study (e.g. by developing a model for which we can predict rates) (Michalski, 1990).

Overall, the “scientific” risks are the typical things that museums worry about. In these case studies, it must be emphasized that since such a small sample of risks was selected, there is no way of knowing if these are indeed the most serious risks faced by the institution. By design, this study can only show how these three risks compare one to another in terms of their priority, from high, medium and low:

Ravenna City Art Museum

- Incorrect values of light (cumulative process).
- Mishandling of artworks (sporadic event).
- RH fluctuations (cumulative process).

Natural History and Archaeology Museum of Montebelluna

- Criminals (sporadic event).
- Dissociation (sporadic event).
- Physical forces (rare event).

For the Natural history and Archaeology collection, the dissociation risk was analyzed as cumulative process and, as a result, was evaluated more dangerous than the earthquake risk, because the number of object loss would have been high.

The evaluation phase determines what the critical risks are and predetermines the order of priority to make the most efficient decisions for future interventions or mitigation strategy.

In line with the objectives established by the Museums the projects concluded with this phase.

Stage 5. Treat risks

During this phase, some risk treatment options to mitigate risks were proposed to decision-makers considering the cost-effectiveness of a single option.

However, it would be beneficial, as a potential follow-up project, to conduct a comprehensive risk assessment including all collections and the museum building itself and after develop the most suitable options for mitigate risks and allocate resources.

Conclusion

The risk management approach to conservation planning and decision making offers several advantages. Overall, the approach is holistic in nature. The solutions to be developed through this method are necessarily pragmatic because they will provide the greatest reduction in risk to collections for any given amount of resources available for preventive conservation.

Personally, learning and applying any Risk Management Method could be very hard in country without a background on preventive conservation like Italy.

However, the study of two different collections of two museums has allowed to test the strengths and weaknesses of a risk management methodology into the Italian context. Questionnaires, presentations and communication tools were developed in order to face the understanding of cultural significance. The major difficulties that have been encountered were the explanation of concepts such as risk, value, total loss, magnitude. Nevertheless, at the same time in both museums should be noted that the flexibility of the staff and curiosity has led to good results: they recognised the importance of “behind the scene” hazards (smoke detectors) or rare risks (earthquakes) and appreciated the CCI-ICCROM-RCE methodology very much because it allow to rank and prioritize conservation needs.

In our opinion, each stages or specific tools of the methodology could be carried out individually accordingly to the objectives of a museum or cultural institutes.

In conclusion, the two case studies contributed to:

- RAISING AWARENESS of the museum on the preservation in order to establish a clear sense of priorities, based on deeper understanding of the significance and potential of its properties;
- NEED TO ENGAGE more stakeholders at different level, museum staff and local community for establish the significance of items and strengthen collaboration;

- REFLECTIVE PRACTICE in the conservation profession embracing new way of thinking and responsibility.

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Fig. 1 - The Antique Collection, Guidarello room.



Fig. 2 - Natural History Collection, room emerged lands.