Preventive Conservation in Historic Houses and Palace Museums: Assessment Methodologies and Applications

SilvanaEditoriale

Preventive Conservation in Historic Houses and Palace Museums: Assessment Methodologies and Applications

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Comparative Study of Assessment Methods: In Situ Tests and Critical Analysis in the EPICO Programme

Abstract

The first phase of the EPICO programme was dedicated to bibliographic research and the analysis of the existing assessment methods focused on the preventive conservation methodology.

At the end of the first phase, four methods that correspond at best to the EPICO programme's objectives, were chosen to be tested at such locations: the Palace of Versailles, the Wilanów Palace (Warsaw) and the Pitti Palace (Florence).

1. The pilot inspection method developed by Agnoko-Michelle Gunn at the Chateau de Chantilly.
2. The ABCD risk evaluation method, developed by the Canadian Conservation Institute in collaboration with the ICCROM and the Netherlands Institute for Cultural Heritage.
3. The combined evaluation method of the risks and the state of the collections developed by the English Heritage.
4. The CAT method (Conservation Assessment Tool) developed by the Scottish Conservation Studio for the Scottish Museum Council.

In order to compare the results of the different methods, it was decided to carry out a complete sanitary check of each room inside the perimeter of the tests. This systematic report formed the backbone for evaluating the effectiveness and the adaptability of the four methods tested on the historic houses, according to the EPICO programme's objectives. The décor of each room (woodwork, ceilings, wall hangings…) were also included in our sanitary check.

After having detailed the implementation tests (in particular the choice of perimeter), we endeavoured to compare amongst themselves the results of the tests (by classifying the deterioration causes) and verify the coherence of the methods compared to our sanitary check. Each method was also evaluated in terms of the necessary human resources, the time for the application and the adaptability to EPICO objectives. This critical analysis of the tests formed the basis for the elaboration of the EPICO evaluation method.

Keywords

EPICO, historic house, preventive conservation, assessment of the state of the collections, assessment of the preservation conditions, causal relationship, risk evaluation, damage causes.

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EPICO's approach and critical analysis were presented in depth at the conference *Les nouvelles rencontres de la conservation préventive*, June 8-9, 2017, Association Aprèvu, Original title: "Assessment Methods for Collections: Comparative and Test Study Toward their Application to Exhibited Collections of Historical Houses and Castle-Museums EPICO Research Program," co-presentation by Danilo Forleo, Nadia Francaviglia and Noémie Wansart.

Introduction

The first research phase (2015) focused on the different assessment methods of the existent collections (Forleo, Francaviglia, De Blasi, Pawlak, 2017). The second phase (2016) was devoted to testing the methods that were taken on, following the objectives of the EPICO, whose first results are presented here.

Assessments of the Collections with Regard to the Objectives of the EPICO Program

The statistical method proves to be necessary when there are too many objects, making an item to item survey approach very difficult. Nevertheless, if this method adapts perfectly to a storage assessment, where the items are, in theory, assembled by homogeneous categories, this approach has proved to be more difficult to apply to the rooms of a house: the diversity of the collections, the presence of the decorations, themselves a collection, would entail a very close sampling, the price of the representativity of the statistical profile would be too costly in terms of time.

In the wake of teaching at the Master of Preventive Conservation at the University of Paris 1, our attention focused during the literature research phase on types of evaluation methodologies: the methods whose starting point is the observation of the collections, their state and conservation conditions, and the risk evaluation methods, where the condition report of the collections is a limited part of the evaluation approach.

Four methods, according to the objectives of the EPICO research program, have particularly held our attention.

– A pilot inspection method designed by Agnoko-Michelle Gunn [Gunn, 2001];

– an ABCD risk assessment methodology, developed by the Canadian Conservation Institute in collaboration with ICCROM and ICN [Michalski, Pedersoli, 2016; Karsten, Michalski, 2010];

– a condition report and risks assessment cross method developed by the English Heritage [Xavier-Rowe, Fry, 2007 and 2011];

– the CAT – Condition Assessment Tool software, even if it's not a real assessment method, but rather an observation tool that implies a method [Murray, Edwards, 2002].

Object Number	Type	Author	Designation	Materials and techniques	Last movement	Materials
OA 5312	Decorative art	Pierre-Philippe Thomire	Chandelier	Engraved and gilded bronze, biscuit, green porphyry	2012	Metal

Damaged material	Damage	Gravity	Extension	Generic factors	Specific factors	DIAGNOSTIC
metal	Corrosion/oxidation, tarnish	1	3	Interaction with climate	High stable RH	Building characteristics (lack of insulation, inertia)
metal	Dust/Surface dirt/ Grime/Soil particles/ Encrustation	3	2	Pollutants/ dust accumulation	Dust/visitors flows	Inadequate management of the flow of visitors (airlock, locker rooms, regulation of the number of visitors…)

Tables 1a, 1b
Example of a condition form produced by the EPICO team and used as part of the tests. Table 1a: identification and description of the object: extract of the computer database. Table 1b: condition report and identification of damage causes. (© EPICO team)

All the methods cited require a more or less a thorough observation of the collections and, in particular for the ABCD method, the objects' conservation context. The CAT tool and the English Heritage method require making a report, on each object (CAT) or on a statistical basis (EH) in order to identify the action priorities in terms of preventive conservation that are to be programmed. A. M. Gunn's pilot inspection also requires a condition report of the items on a statistical basis, all typologies combined, but concentrates on the prioritisation calculation of the deterioration causes.

Fig. 1
Assessment of the Collections in the Dutch Cabinet at the Wilanów Palace in June 2016. (© EPICO team)

In order to compare the results of the different methods (some using statistical calculation systems), it was decided to carry out a comprehensive sanitary check of the rooms, subject to the test, by carrying out a condition report of all the items. Using Excel® sheets as support for data collection, we also provided possible causes, corresponding to each deterioration observed on each material constituting the items (see image, input table example). The decoration of each room (wood panelling, ceilings, panelling, wall hangings) has also been included in our sanitary check.

The preparation of a reference glossary of deterioration indicators requires a considerable effort to establish comparable reports: all the objects from the assessed rooms using the methods, were analysed based on sixteen indicators we developed in order to measure the observed damage. The glossary was all the more valuable as the teams made up of museum professionals from different specialties and from three different countries (fig. 1).

For the choice of the scope of the test, several criteria were taken into account, for the sake of comparability, between the different sites:

– history of the locations, typology, the number of objects and presence of the decorations in the same room, the reflexion was based on "zoning" criteria proposed by Gaël de Guichen and Benoît de Tapol as part of the training organised by the ICCROM during the 1990s;
– conservation condition of the objects (it was necessary to avoid collections recently restored);
– type of attendance (free or guided tour, number of visitors, opening hours);
– accessibility for the condition report (maximum observation height: 180 cm): the condition report had to be able to be done correctly without moving or manipulating the object;
– surface and orientation of the rooms;
– availability of climatic parameter recordings: in order to make assumptions about the causes of deterioration and the risks related to the climate of the rooms (this criterion did not discriminate because the recordings were not always available).

Test Results

We present here an overview of the results of the tests carried out on the collections of the Palace of Versailles and the Wilanów Palace. The results are presented in the form of graphs from the calculations carried out applying each method to the three selected rooms. Doing a comparison is complex; the methods tested follow different approaches since they measure with different parameters, the active or past causes and the potential causes. While recognising this difference, we

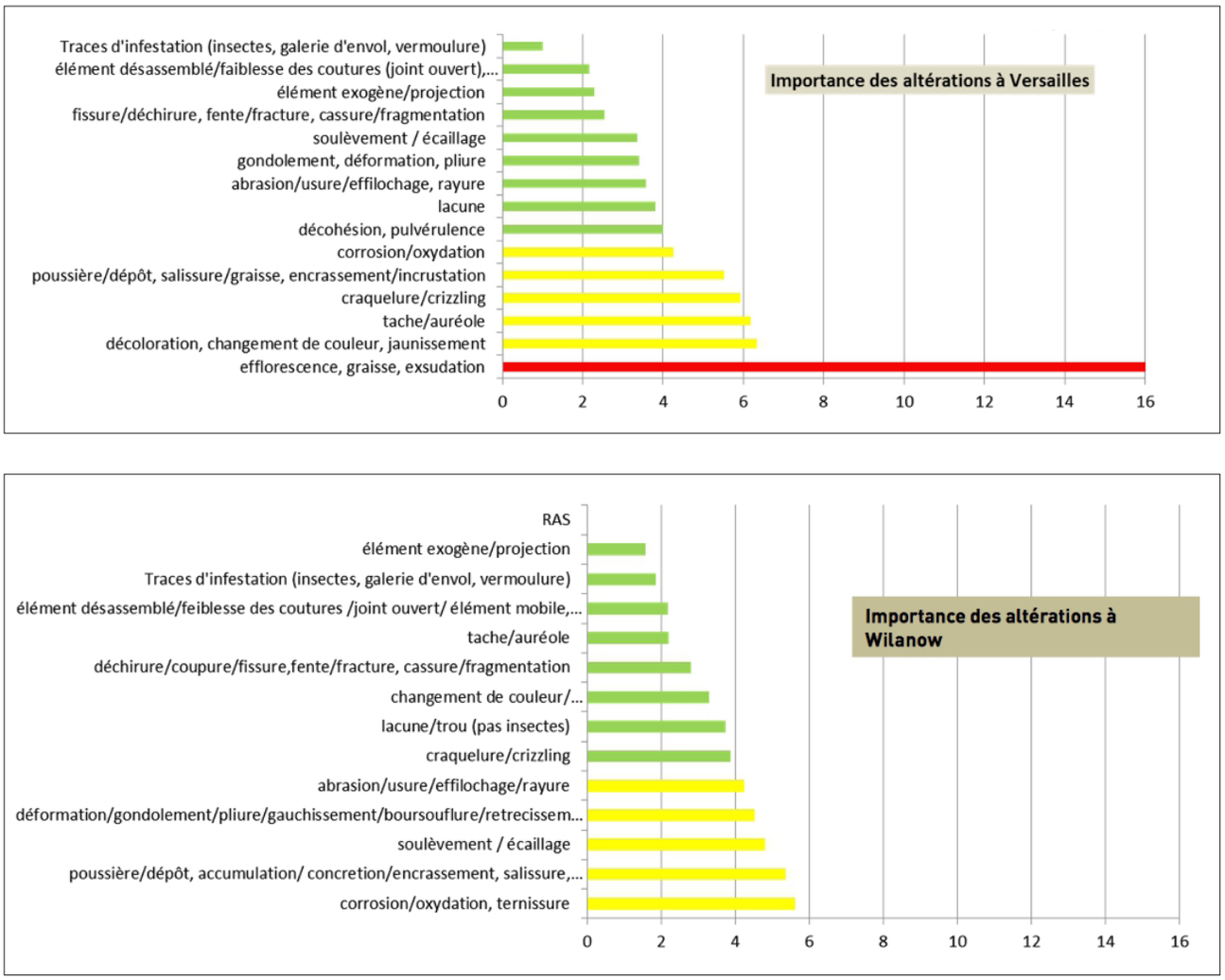


Fig. 2
Results of the importance of the deteriorations during the sanitary check at Versailles and Wilanów. (© EPICO team)

believe it is essential for our objectives to look at these results using a single lens, in order to understand the relevance of the methods and their effectiveness in identifying solutions that arise from the assessment in the specific case of the collections of an historical house.

The results presented here (fig. 2) are those from the condition report forms made on all objects during the test sessions. The importance of the deteriorations is calculated by multiplying the extent and the severity of the deterioration. This reasoning seemed to us the most relevant one because it highlights the most serious deteriorations even if they appear only on a small number of artworks (for example, in the case of Versailles, the significant efflorescence on the lower part of a bookcase).

Figure 4 is another formatting of the results from Versailles, which can easily distinguish both the number of occurrences of the causes of alteration (whose sums are in the abscissa) but also their gravity,

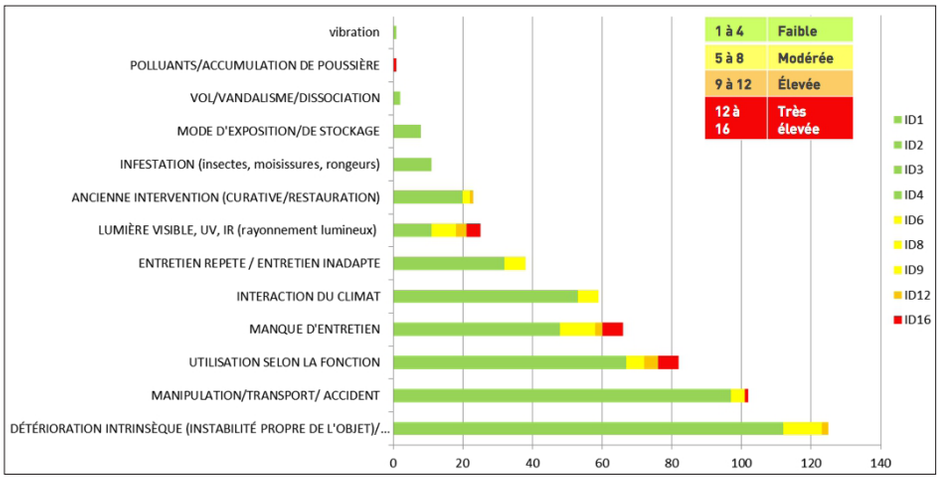
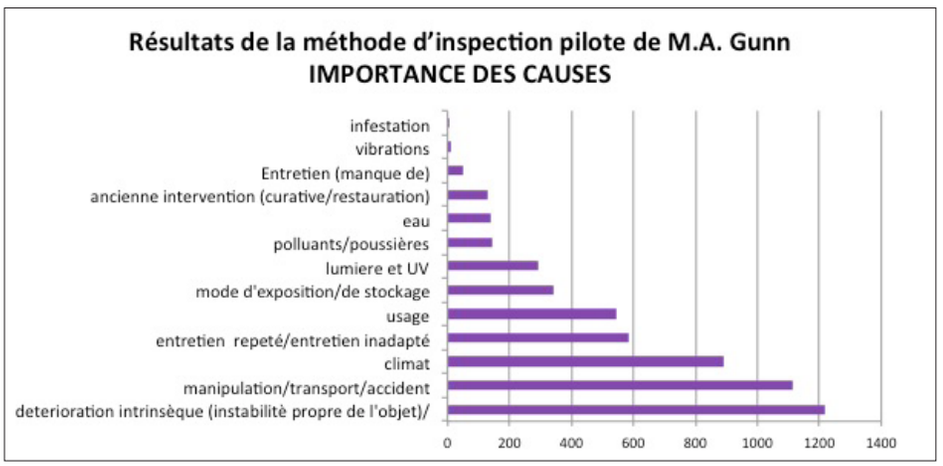


Fig. 3
Results of the importance of the deterioration causes during the sanitary check at Versailles. (© EPICO team)



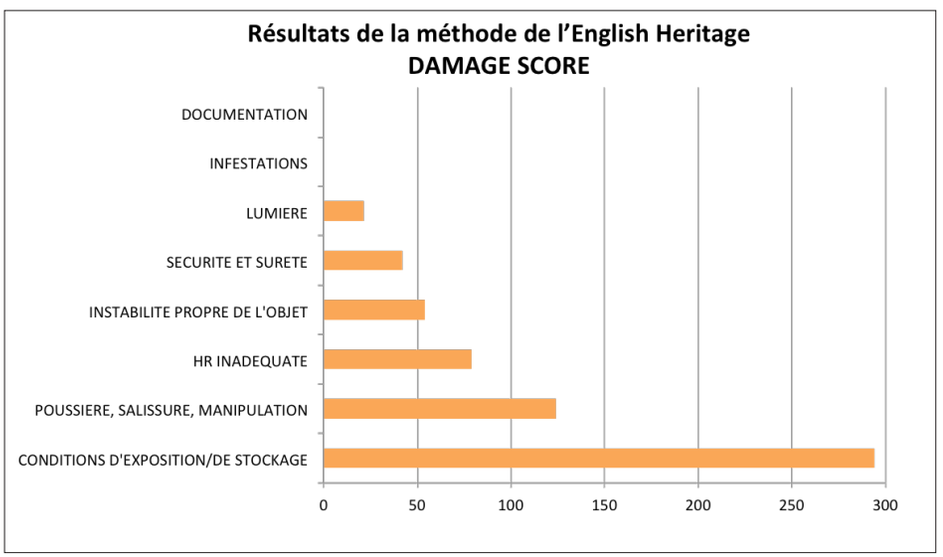


Fig. 4
Comparison of the results of the English Heritage method and the method elaborated by Agnoko Gunn applied for the first time in the Chantilly Château. The problems linked to handling and maintenance seem to be the most important in both cases. (© EPICO team)

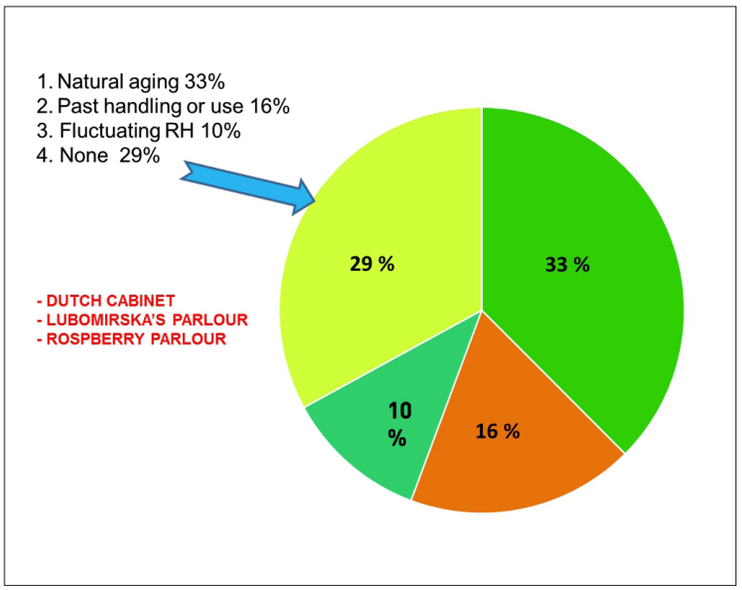


Fig. 5
Result of the application of the CAT software at the Wilanów Palace. (© EPICO team)

thanks to the colour scheme. This graphic allows collections' managers to quickly visualise deterioration factors in order to plan with the preventive conservation specialists corrective actions.

Here we present the results of the tests with the CAT software (fig. 5) and the ABCD method (ICCROM-ICC-ICN) (fig. 6) tested at the Wilanów museum in June 2016. Here also preliminary analyses and a complete evaluation by condition report were made. The tests at Wilanów lasted 2 to 5 days and mobilised conservation teams from Italy, France and Poland that worked together, a total number of 9 people divided into groups, each group tested a different method.

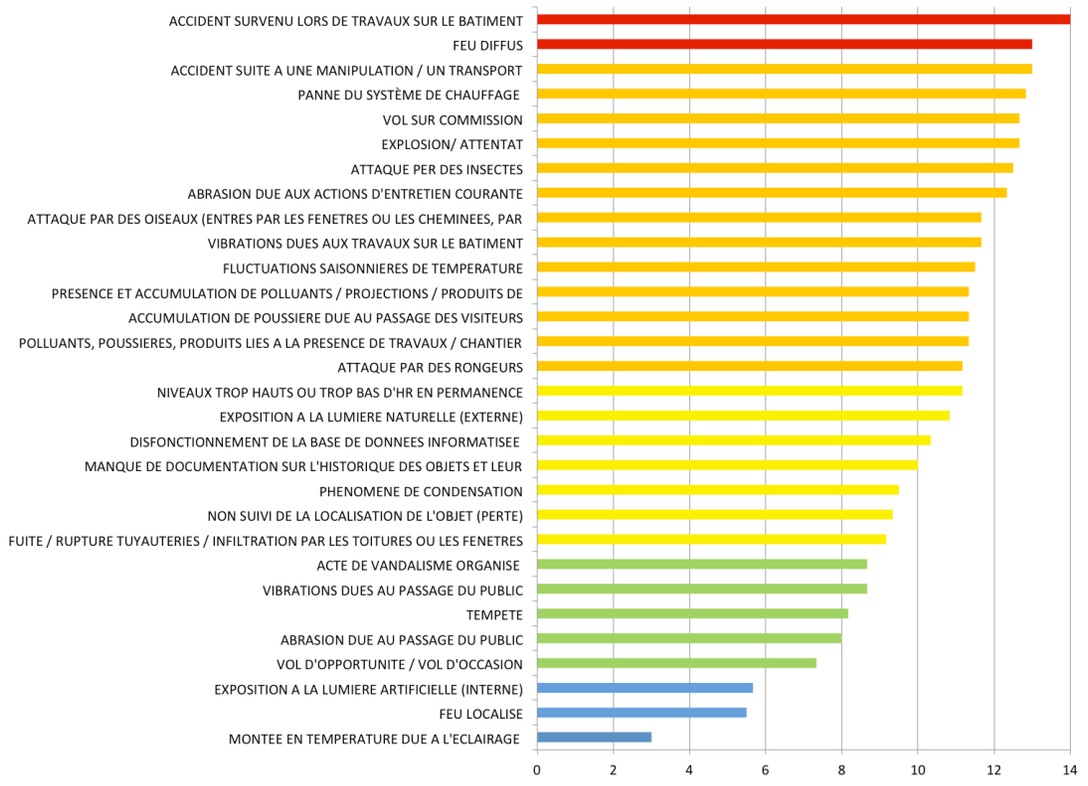
For the sake of uniformity and comparability, the choice of the tested perimeter was strictly studied. In fact, it was important to find rooms to study in each residence which had a similar number of works, objects with similar characteristics, etc. One of the important factors was also the presence of the public – which rooms were visited continuously, intermittently or even used in the context of particular events. It is a conjunction of these different factors that resulted in the choice in Wilanów of the Dutch Cabinet, the Lubomirska Salon and the Raspberry Salon, three very different spaces within the Palace.

The tests with the CAT software (fig. 5) were carried out following the first evaluation. This method was also based on the conservation reports (the condition report). Thanks to this evaluation tool, it was also possible to analyse the conservation conditions and determine the potential damage causes. This method makes it possible to determine the deterioration cause and its relation with the exhibition space where the object was reported. The application of this tool presents sometimes

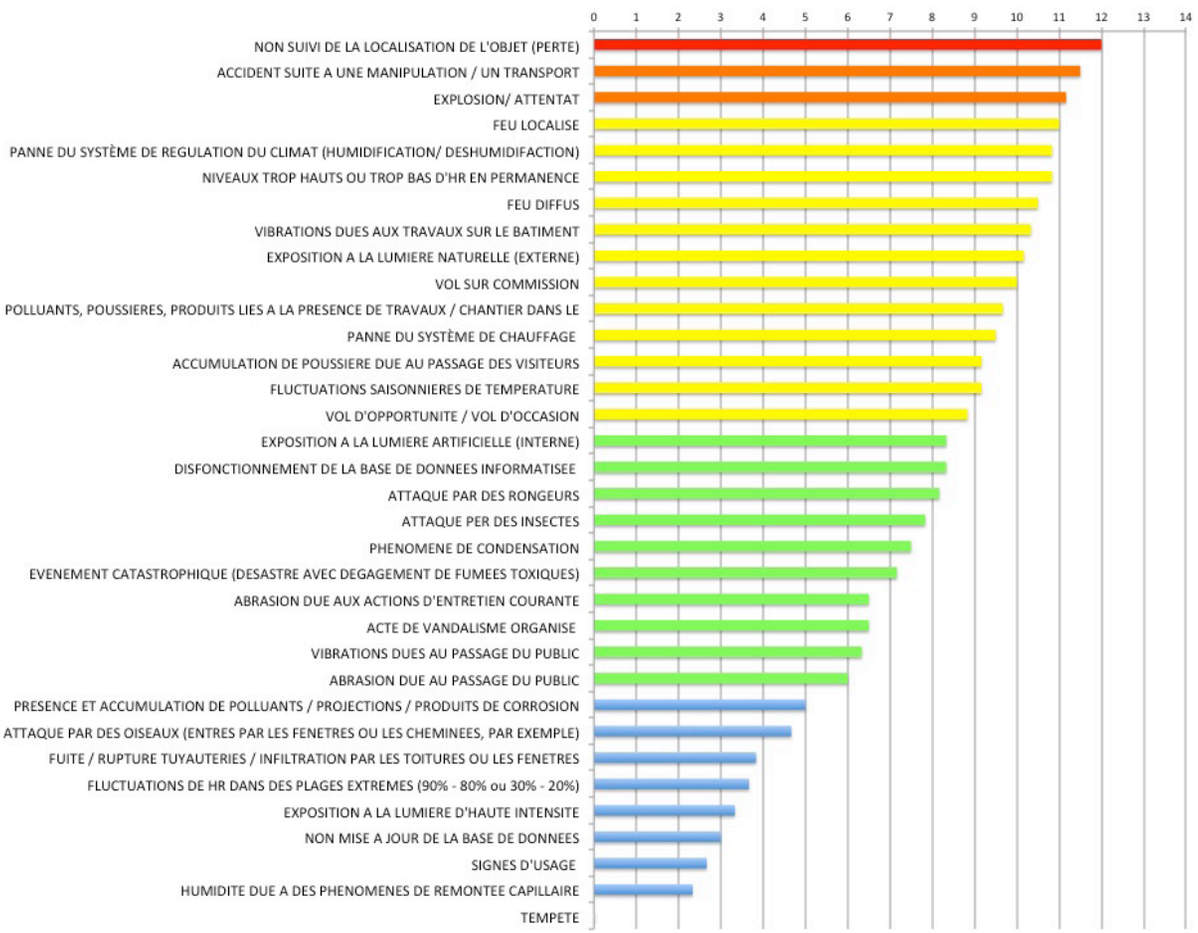
Fig. 6
Result of the application of the ABCD method at the Palace of Versailles. (© EPICO team)

Fig. 7
Result of the application of the ABCD method at the Wilanów Palace. (© EPICO team)

MAGNITUDE DU RISQUE- VERSAILLES



MAGNITUDE DU RISQUE- WILANOW



a subjective evaluation in the deterioration input system and their relation with the causes (for example, 29% of the causes could not be clearly determined). In 33% of the cases, natural ageing was the deterioration cause. Very often, the deterioration reason was indicated as manipulation or use depending on the function (16%), which is coherent with the damage risk due to moving as highlighted in the ABCD method.

The risk assessment methodology called ABCD was also tested in Wilanów. This scaling method takes its name from the main components that determine the importance of each defined risk factor. The results obtained (fig. 7) proved to be consistent with our experience. Tests have shown that the highest risk evaluated by this tool was the damage risk resulting mainly from moving (handling/transport) and the risk of dissociation or loss. Of course, the most dangerous being the fire hazard risk. A somewhat surprising position is the terrorist attack – which has never taken place in Wilanów, while taking into account the political situation, the risk was highly probable.

It is interesting to note that Wilanów's risk factors are very close to those highlighted by the application of the ABCD method in Versailles (fig. 6). They seem consistent with the report from the analysis of the collections' condition reports and the experience of the people working in this institution.

The ABCD method is also interesting for the EPICO members because it highlights the risks and thus allows to project oneself in the future, which is not obvious with the other tested methods.

Appraisal of the Tested Evaluation Methods

In conclusion of this study on the different assessment methods, we can conclude with an assessment attempt of these methods' effectiveness in relation to the objectives set at the beginning of our research (table 1).

The application time and the human resources to be deployed are also fundamental elements in the assessment of each method (table 2).

Conclusion

The testing sessions have made it possible to verify on the field the adaptability and the effectiveness of the methods and draw the following conclusions:

– the assessment method, namely the way of collecting and processing data is a crucial element for achieving reliable results. The comparison of the graphs of the tested methods clearly shows that the

Criteria for evaluating the methods in relation to the EPICO objectives	**Pilot Inspection** M. A. Gunn Paris 1 University	**Cross Method** A. Xavier- Rowe, C. Fry English Heritage	**ABCD** S. Michalski *et alii* Canadian Conservation Institute	**CAT** Conservation Studio Scottish Museum Council
The method must provide a global vision through a systemic approach	✓	✓	✓	×
It must be specific / adaptable to the collections of historic houses open to the public	✓	✓	✓	✓
The method must be simple and reproducible (on large-scale residences as well as in smaller houses)	✓	✓	✓	✓
It must highlight the causal relationship of the alterations	✓	✓	×	✓
The method must be usable with any medium: paper, Excel spread sheets, database (e.g. Filemaker®), but also adaptable to existing collections management IT systems (e.g. The Museum System – TMS®)	✓	✓	✓	×
Comparability between rooms / sites: the calculation system is not influenced by the number of displayed objects in the rooms	×	✓	✓	×
The results of the assessment with this method are consistent / comparable with the data from report campaign done object by object	✓	✓	×	×

Table 2
Summary table of the criteria of the assessment methods. (© EPICO team)

TIME STEPS IN THE ASSESSMENT/METHOD	**SANITARY REPORT**	**ABCD**	**GUNN**	**ENGLISH HERITAGE**
Preparation of the report tools at the office and on the spot	**1 day** 2 people	**1 day** 2 people	**2days** 1 person	**1/2 day** 1 person
Data collection on the spot	**3 days** 2 people	**3.5 days** 3 people	**3 days** 2 people	**3 days** 2 people
Data treatment on the office	**3 days** 1 person	**1 day** 1 person	**1.5 days** 1 person	**2 days** 1 person
Interprétation des résultats au bureau	**3 days** 2 people	**1 day** 2 people	**1 day** 2 people	**1 day** 2 people
Interpretation of the results at the office	**10 DAYS**	**6.5 JOURS**	**7.5 DAYS ***	**6.5 DAYS**
ESTIMATE FOR 12 ROOMS	28 DAYS	18 DAYS	7.5 DAYS	20 DAYS

Table 3
Summary table of the estimated application time temps for each method. (© EPICO team)

*NB: if we consider that the results of the GUNN method are representative for twelve rooms – thanks to the pilot inspection – the method proves to be more efficient.

relevance of the results of the assessments is related more to the data processing system than to the level of expertise of the examiners (for the tests it was the same team composed of conservators, an art historian, a registrar, a physicist and preventive conservation specialists). Thus, it is permissible to allocate less energy to the observation of the object in its singularity, but we must not be mistaken in the data calculation system concerning the whole collection.
– The history of the location of the items is a decisive factor when taking into account the causal relationship. Even if the Gunn and the English Heritage methods evaluate the causes according to the observed deteriorations, the tested methods do not take this parameter into account. In an historic house, the interpretation of the deterioration and its causes is facilitated by the relation that the objects maintain with the conservation conditions of the rooms for which they have been conceived or assigned. The recent history of their location (between 0 and 100 years) is more easily recognizable.
– The factors of active (cause) or potential (risk) deterioration must be evaluated and interpreted as distinct but complementary elements, which publications and experiments encourage us to create a dialogue within a same method that has a systemic approach.

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