

Risk Management and Cultural Heritage

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1. Introduction

The European Commission's November 2000 Strasbourg conference on cultural heritage identified a number of key issues concerning the application of science in this arena (see Box on page 2). A primary aim of the conference was to strengthen the idea that European scientific research should in general be tailored more closely to the needs of citizens. Research on preservation of European cultural heritage in particular was seen as a perfect example whereby natural science research and technological innovations, together with social science research on the values and aspirations of the public, could be combined in order to improve decision making in that sector.

The need for research of this kind was seen as high, because of, on the one hand, the exciting development within Europe of 'cultural tourism,' and on the other hand, the perceived threats to cultural heritage posed by natural hazards, environmental pollution, transport, urban development and mass tourism itself.

Despite the above, early funding in Framework V is concentrated on projects involving, mainly, scientific measurements, e.g., indoor pollution concentrations, deposition of particles to monuments, the effect of light on museum artefacts, the ravages of cyano-bacteria on monuments etc. All of this work is, of course, good science, but it may also be observed that it is a particular kind of science, namely, traditional science of the 'reductionist' kind and with a heavy emphasis on materials. As natural scientists ourselves, we are very familiar with this kind of approach and we recognise its immense power in answering specific, narrowly-defined research questions. On the other hand, we also recognise limitations of this approach. Reductionist approaches are *not* suitable for tackling complex topics. Indeed, the whole topic of 'complexity' itself and chaos had to fight very hard before it was recognised as a valid and respectable field of research in its own right.¹ Problems of this kind occur throughout all disciplines. In the *New Scientist*, Harvard biologist Donald Griffin writes,² in the context of his own specialty, which is animal consciousness, that "Scientists like to study things where they can get reasonably clear and definite answers. But there's a great deal of science where we can't do that though we still investigate the topic. Yet somehow when you mention animal consciousness, there's this feeling that because we don't see how to get perfect evidence immediately, it's a waste of time to try to get evidence. That's what I think is mistaken." Likewise, philosopher David Seedhouse, in a recent seminar on the dignity of hospital patients, remarked that "priorities are set on the basis of technical priorities and not on less tangible priorities which frequently are what count for people. This is a deeply cultural problem."³

Although these research interests are a far cry from cultural heritage, the same criticism can be made. There is a heavy emphasis on what can be achieved by scientific techniques, and a notable shortage of projects dealing with the more difficult issues which may ultimately have greater relevance for those looking after the cultural heritage at the site level. For this reason our proposal is that risk management techniques be investigated in the context of the

¹ J. Gleick, 'Chaos,' 1987. ISBN 0 349 10525 1.

² D. Griffin, as quoted by Gail Vines, *New Scientist*, 30 June 2001, p 49.

³ D. Seedhouse, Healthcare seminar, Middlesex University, 4 June 2001.

preservation of cultural heritage. Furthermore, we suggest that the problems investigated should be defined by end users rather than by the (scientific) tools available.

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- The present research programme is dominated by materials research despite the fact that threats emanate from natural hazards, the environment, visitors, transport, urban development, and mass tourism..... Very few projects deal with management issues. Although the quality of the research was high it often did not connect directly to end user needs
- End user interests should be far more prominent in future projects to ensure the relevance of studies
- The future aim is to match research more closely to the needs of citizens
- There is a need for research in social as well as natural science to assist decision making by site managers
- Sustainable development and the precautionary principle are motivating concepts
- A particular problem which is seldom appreciated is the complex interaction between site safety for visitors, access requirements, and preservation of site authenticity
- The numerous 'unmanaged' sites also present a problem
- There is a need to determine national experiences regarding conflicts of access, safety and conservation
- The kind of research needed is not that purely concerned with technical measures, but which incorporates transdisciplinary techniques aimed at site management and based in part on qualitative experiences
- Research is necessary on: the economic benefits of sites to local communities; what visitors like about sites; what visitors think about restrictions on access
- Demonstration projects on site management are required
- We need to move towards the examination of real-life problems and away from purely reductionist studies
- There is a need to consider the roles and perceptions of various stakeholders e.g. politicians see themselves as responsible for sites but subject to costs and benefits; conservators are likely to be pragmatic but more attached to their discipline; volunteers may be very idealistic about conservation; the public have mixed interests
- There is a need for scientific research to define user-friendly urban planning tools for site managers
- The potential utility of tools such as risk assessment, cost-benefit analysis, life cycle analysis, environmental impact analysis and strategic environmental analysis should be examined

2. Risk Management - a Brief Outline and Some Important Trends

Risk analysis and risk management techniques have been actively researched and used for at least three decades.¹ Initially, interest in these approaches to decision making formed in the nuclear industry, spreading in time to the off-shore oil and gas sector, rail transport, and now to many other disciplines including occupational health and safety. The question which can be asked is: 'are these techniques, and the associated research, transferable in a useful way to other sectors, for example, the management of cultural heritage?'

¹ See, for example, the journal Risk analysis, first published in 1980.

It is worthwhile to recall something of the principles of risk-based techniques. The following definitions are commonly used:

Hazard – a situation which could cause harm e.g. a stockpile of nuclear waste; an earthquake fault line; a worn stair case; an excess of visitors

Risk – the probability that a certain kind of harm is realised e.g. the probability of an outbreak of fire

Risk assessment – the activity of identifying hazards and assessing the likelihood of harm

Risk management – the decision making process following on from risk assessment (see Fig. 1)

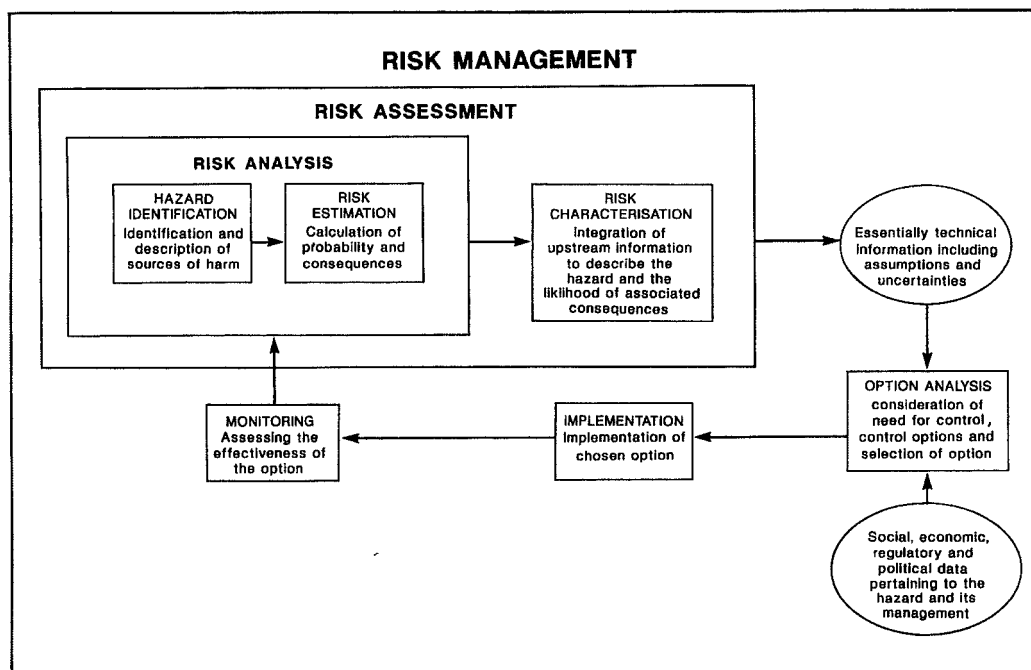


Figure 1: Risk assessment is only a part of the risk management (or decision) process.¹

Once a risk has been assessed, additional information is required on the control options available, in particular, their effectiveness, cost and difficulty of implementation, and whether the measures themselves have any additional consequences, which may be either beneficial or detrimental. Furthermore, consideration must be given to the purpose of the hazardous activity (or site) that is being assessed. Failure to do this may lead to the adoption of remedial measures that undermine the very purpose of the item in question. Risky activities are usually knowingly undertaken in order to achieve the associated benefits. A good example of this is car driving which poses an annual risk of being killed of about 1 in 10,000. This is by most standards a very high risk, but it is by and large tolerated because of the benefits of the associated mobility. Thus, risk management is about balanced decision making and this clearly requires consideration of factors beyond those emerging from risk assessment. In the context of historic buildings, it might be about *accepting* a risk of injury to the public, through visiting an historic site without all modern safety features, in order to preserve authenticity.

¹ D. J. Ball, 'Risks of injury – an overview,' Chapter 19 in ABC of Sports Medicine, 88-91, 2nd edition, eds. Harries, McLatchie, Williams and King, BMJ Press, 2000. ISBN 0 7279 1366 2.

A number of authors have written about the problems posed by some risk (safety) interventions.¹ For example, some interventions may simply transfer or modify risk, or have some other disbenefit. In the case of the cultural heritage, safety and access measures may not be consistent with sensitive conservation. Others have written about the failure to consider the benefits of activities (or sites) which may give an inappropriate emphasis to safety, which is often only one of a number of desirable attributes (Figure 2).²

Over the past three decades risk management has evolved from a largely science-oriented discipline to a more multidisciplinary one. Important trends are as follows:

- Risks were once seen as objective realities but are now recognised by many to be culturally selected
- Society and its response to risk is increasingly seen to be reflexive,³ that is, if you intervene with some safety measure society may adjust in some complex way which negates what was intended
- Public education, once seen as the way to gain acceptance of risks, is now often regarded as subservient to public participation in risk-related decisions

All of these trends point indicate a shift in thinking from reductionism to a more holistic approach, which, even though it may be less scientifically rigorous, at least holds out the potential for embracing end-user concerns to a greater degree. These shifts in emphasis may be seen to be *remarkably similar* to those emerging from the Strasbourg conference (see Box on page 2) and which are regarded as desirable if not essential for effective management of cultural heritage. There is therefore an indication that risk research, as carried out in other fields, may well be in tune with thinking in the cultural heritage sector.

3. Risk Management and Cultural Heritage

The cultural heritage faces a huge diversity of risks, ranging from those posed by natural hazards such as floods and earthquakes, those attributable to remote human activities such as pollution and fire, those due to wear and tear – perhaps because of their ‘success’ in attracting visitors, to more complex phenomena attributable to the curious machinations of society which often generate unexpected and unintended consequences e.g. the pressure for safety and access to historical sites, while understandable, may compromise the authenticity of some sites. Site managers throughout Europe will be faced with a plethora of complex and interacting risk issues. It is worthwhile to consider whether some systematic approach to risk management, recognising that site managers may have very different sites and face very different issues, might be useful if it could be devised.

One possible prototype in fact exists. In 1998, a classification of mainly technological risks was attempted by Renn et al. in Germany.⁴ This classified hazards according to eight selected criteria: probability of harm; extent of possible damage; certainty of the probability and damage assessments; ubiquity of hazard; persistency of harm; reversibility; latency and potential for (political) ‘mobilisation.’ When actual hazards were classified against this scheme, it was found that rather than a huge number of possibilities, *only six broad types emerged*. This simplified matters greatly, and from there on it was possible to identify different types of risk management strategies appropriate to each of the six types.

¹ J. D. Graham and J. B. Wiener, ‘Risk versus risk; tradeoffs in protecting health and the environment,’ Harvard University Press, 1995.

² J. Adams, ‘Risk,’ UCL Press 1995. ISBN 1 85728 068 7.

³ U. Beck, ‘Die Risikogesellschaft: Auf dem Weg in eine andere Moderne,’ 1986.

⁴ O. Renn et al., ‘Risk concepts and risk classification,’ Proc. Society for Risk Analysis, Paris conference, 1998.

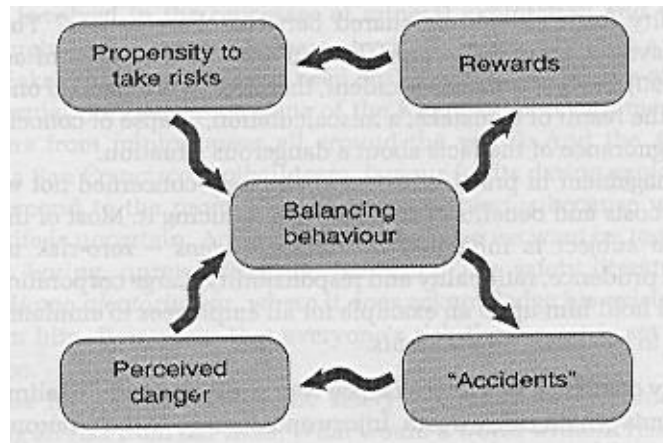


Figure 2: The Adams model of risk compensation. Risks are accepted in exchange for benefits. Failure to consider the upper 'benefits loop' leads to a culture overly preoccupied with risk reduction.

4. A User-driven Collaborative Research Proposal?

There are various possibilities for research of the kind deemed necessary. The route taken needs to be defined by heritage managers as that which is most likely to be useful and feasible. Various possibilities present themselves. One which might be useful for heritage managers in Europe is produce a manual dealing with the types of hazards which are encountered in this sector and demonstrating the risk management practices which may be invoked to deal with them, including an account of their strengths and limitations.

To ensure the relevance of any such manual, the project would preferably be steered throughout by end users. End users, so far as this project is conceived, are site managers although, ultimately, end users are the public. The aim would be, with the help of end users, to first of all identify the full range of hazards to which European cultural heritage is exposed. This could be achieved by a survey of heritage site managers.

Secondly, an attempt would be made to classify the hazard types according to characteristics relevant to the conservation of heritage to see if, as in the case of technological risks, a smaller sub-set of hazard types emerges.

Thirdly, drawing on risk management experience from all sectors, types of remedial measures would be identified for each hazard type.

Fourthly, case studies would be investigated for each of the main hazard types to identify the practical strengths and limitations of proposed risk management strategies. This would be a key part of the project since it is where theory meets practice.

Fifthly, risk management interventions would be considered for possible adverse consequences themselves (most medicines, for example, have unwanted side effects).

Complex socially-induced threats, such as the impact of modern safety and access requirements on conservation, would be included as a particular kind of hazard and assessed accordingly.

It is contemplated that the full range of risk management options might be considered during the course of this project, ranging from the very simple to the more sophisticated, the latter including, for example, technical risk assessment, economic costing, life cycle analysis, environmental impact assessment and strategic environmental assessment. It is envisaged

that most of these techniques will have something to offer although they would first need to be adapted to the needs of heritage conservation.

5. Outstanding Questions

- Is the above proposal considered relevant to end user interests?
- Is it too ambitious?
- Should it be restricted to specific issues such as the conflict between access, visitor safety, and site authenticity, or should it take on the other site risk management issues too?
- How could case studies be used to illuminate the project in a meaningful way?
- To what extent do end users (site managers) consider that such a project would be helpful
- What kinds of outputs would be preferred?