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Jim McLoughlin, Babak Sodagar, and Jaime Kaminski
EPOCH Impact Research Group,
Brighton Business School,
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Overview

The following interim activity report is the result of 5 months of research by EPOCH's Work Package 2.6 'socio-economic impact research group'. The report presents preliminary findings regarding the nature of the study, the complexity of the socio-economic environment in cultural heritage, and begins to form the groundwork through which both the impact of cultural heritage sites and the impact of ICT in the sector can be assessed.

By looking at the methodologies and issues associated with assessing the socio-economic impact of cultural heritage sites the research provides a strong foundation for the study of the incremental impacts and benefits caused by the introduction of ICT.

The report has the following structure:

- Chapter 1 considers the scope and definitions of the cultural heritage sector and socio-economics.
- Chapter 2 reviews methodologies for impact analyses from the various fields of economics including both market and non-market analyses.
- Chapter 3 presents a framework which can be used to provide a context in which the various impacts, values and benefits of cultural heritage sites can be placed.
- Chapter 4 begins preliminary research into the impact of ICT in the cultural heritage sector.

Appendices have been included to review the use of non-market valuations of cultural heritage sites in Europe, and to look at potential methodologies that could be applied to the social impact of tourism. A glossary of terms has also been provided to facilitate interdisciplinary discussion between the different sectors that are part of this broad study.

Jim McLoughlin, Babak Sodagar, and Jaime Kaminski
EPOCH Impact Research Group,
Brighton Business School,
March 2005

1 Cultural heritage and socio-economic impact

1.1 Introduction

The cultural heritage sector[1] is facing important challenges in pursuing and sustaining its fundamental mission of protecting and preserving historic and culturally important buildings, monuments, and museums.

There is an almost universal scarcity of funds for investing in cultural heritage sites. Major funding sources, such as public-sector funding bodies, have many competing demands on their budgets. In the public sector, funding bodies constantly question why extra funds should be directed at cultural heritage instead of additional funds for 'vote-winning' sectors such as education or health. There is a:

> "lingering perception that heritage conservation is a luxury that cannot be afforded by communities struggling with issues like unemployment, education and healthcare" (Leaver 2000: 7).

Heritage is often highly valued in cultural and social terms but policy makers increasingly seek justification for allocating incremental funds on the basis of perceived socio-economic benefits. Here lies a fundamental problem for heritage – the costs of heritage are highly visible in the budgets of government funding, but the benefits are less visible, often intangible and difficult to capture in conventional terms. In the policy-making arena, where decisions concerning the allocation of funds take place, cultural heritage organisations are often ill-equipped to argue the socio-economic case for investment. Cultural heritage could be considered as an emerging, and potentially significant, industry in its own right, but attempts to evaluate and measure its socio-economic contribution are relatively under-developed.

Most cultural heritage sites have not systematically developed tried-and-tested techniques or processes to evaluate their socio-economic contribution. Such sites often find themselves receiving excellent rhetorical support from policy makers and public bodies for their vital role in preservation and protection, but still struggle to attract incremental financial support that would ensure the sustainability of many cultural heritage sites. There is little doubt that the profile of heritage as a potentially important driver of socio-economic benefits to communities has been increasing but the tools, methodologies, and capabilities for evaluating the socio-economic contribution are in their relative infancy (McLoughlin *et al*. 2004).

Of course, there are always difficult policy choices and funding choices to be made inside the cultural heritage sector itself. As Ready and Navrud (2002a: 5) have stated, "If we do not trust private for profit providers to supply enough cultural heritage goods, then it is up to the government and not-for-profit organizations to do so."

[1] Throughout the report, the terms 'cultural heritage sector' and 'the sector' have been used to denote archaeological sites, museums and archives, monuments, and historical buildings.

1.2 What is cultural heritage?

The concept of 'cultural heritage' was developed in Europe during the 18th and 19th centuries. Originally this referred to architectural and sculptural monuments, and artistic works, including mosaic and ceramic works. Article 1 of the 1972 UNESCO (the United Nations Educational Scientific and Cultural Organisation) World Heritage Convention defines cultural heritage as:

> "Monuments: architectural works, works of monumental sculpture and painting, elements of structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science.
>
> Groups of buildings: groups or separate or connected buildings which, because of their architecture, their homogeneity or place in the landscape[2], are of outstanding universal value from the point of view of history, art or science.
>
> Sites: works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view."

The definition of cultural heritage and cultural heritage sites is constantly evolving. In recent decades, the notion of cultural heritage has undergone considerable changes in order to express "the universal nature of the human spirit in all its creations[3]", and to incorporate modern definitions of culture[4].

As a result, early definitions of cultural heritage that encompassed the monumental remnants of cultures were gradually extended to include new elements from non-artistic sectors of activity such as industrial heritage, or from specific contexts such as the underwater heritage. Today, the notion of heritage is much more open, and is used to reflect living culture rather than just our past. UNESCO now includes in its' definition of cultural heritage historic cities, cultural landscapes, natural sacred sites,

[2] It is often assumed that sites and buildings are fixed points in the landscape, although this is not always the case. Where sufficient economic or cultural motivations exist, entire sites and buildings can be moved. Two prominent international examples include the relocation of the Egyptian temples at Aswan by UNESCO in advance of flooding by a hydro-electric project, and the displacement of entire buildings in advance of the creation of the St Lawrence Seaway and other hydro-electric projects in 1950s Ontario, Canada (www.uppercanadavillage.com and www.lostvillages.ca/html/museum.html). Within Europe, the removal of threatened historic buildings from Sussex and Kent, in the UK, to the Weald and Downland Open Air Museum (www.wealddown.co.uk), or the relocation of the Roman Temple of Mithras in the City of London (Shepherd 1998), all provide examples of the removal of cultural heritage sites from their original location in order to facilitate preservation.

[3] portal.unesco.org/culture/en/ev.php. In this report, references to Web site URLs will be made in the footnotes. References to specific papers on Web sites will be made in the references section.

[4] The definition of culture accepted at the 1982 *World Conference on Cultural Policies* was: "the whole complex of distinctive spiritual, material, intellectual and emotional features that characterise a society or social group. It includes not only the arts and letters, but also modes of life, the fundamental rights of the human being, value systems, traditions and beliefs".

underwater cultural heritage, museums, movable cultural heritage, handicrafts, documentary and digital heritage, cinematographic heritage, oral traditions, languages, festive events, rites and beliefs, music and song, the performing arts, traditional medicine, literature, traditional sports and games, and culinary traditions. Ironically, computers and other IT hardware are now considered part of our heritage as attested by the growing number of computing museums that have been set up for their preservation[5].

The increasing number of categories in the UNESCO classification of heritage provides an indication of what de la Torre and Mason (1999: 2) call the "democratization of the heritage field." This refers to the increasing numbers of people outside the traditional groups of specialists and experts are now defining what constitutes cultural heritage. All this confirms Benhamou's (2003: 255) statement that "heritage is a social construction where boundaries are unstable and blurred." In consequence it is important to acknowledge that as time passes the meaning of heritage is likely to change according to the needs of different communities and groups of people. Communities produce heritage, and those communities will decide what constitutes heritage. Certainly, with increasing numbers of cultural heritage sites and more value sets, choices have to be made about what is and is not heritage. It is not possible to preserve everything.

Today the definitions of cultural heritage are highly varied. UNESCO (1968: 1) defines heritage as "the product and witness of the different traditions and of the spiritual achievements of the past and thus an essential element in the personality of peoples". A simpler definition is that heritage is what we value from the past (Ashworth and Howard 1999). Heritage involves the handing down of assets from generation to generation. Assets can be physical objects or buildings, or intangible entities such as language or traditions. These definitions reflect what we value or reject in our present surroundings, and what we anticipate for the future.

Today cultural heritage is concerned with what has been and what will be retained from the past, and how it will be used in the present and the future. The endeavour is to understand society and its culture, and to use that knowledge to shape both the present and the future.

Of course in the modern world increasing levels of urbanisation, industrialisation, pollution, coupled with decreasing cultural heritage budgets have all led to a situation where cultural heritage sites and historic landscapes are in increasing danger of degradation and loss (see Appendix A).

This research will focus on the socio-economic impact of tangible cultural heritage. But it should be noted that although tangible heritage is important for the interpretation of our cultural heritage, it requires a cultural narrative in order to give it meaning. It is therefore human customs, ideas and knowledge, or our social, intellectual, and spiritual inheritance that are our real cultural heritage.

[5] These include: the American Computer Museum (www.compustory.com), the Computer History Museum (www.computerhistory.org), and the Computer Museum of America (www.computer-museum.org).

In the context of this research cultural heritage sites will refer to tangible heritage. These include:

- *Archaeological sites*: Archaeological sites can be divided into two principal types, active and static. Active archaeological sites are those where a program of *excavation* is being carried out, static sites are those sites which have been excavated and the visible remains are on show to the public (this could include sites such as the Jorvik Centre, in York, or Stonehenge, UK)[6]. There is obviously, some overlap between these two categories. Some archaeological sites which have been static for years may have excavation carried out on them, some sites are really a hybrid of both with visible remains on show to the public and excavations carried out during part of the year. The ICT needs of active and static archaeological sites are slightly different. This because the needs of active sites revolve around excavation/interpretation and the needs of static sites revolve around preservation and interpretation.
- *Monuments including heritage buildings*: The built heritage is a significant element of our cultural heritage. Buildings and monuments can be one of the strongest determinants of cultural identity.
- *Museums and archives*: A museum is "a non-profit making, permanent institution in the service of society and of its development, and open to the public, which acquires, conserves, researches, communicates and exhibits, for purposes of study, education and enjoyment, material evidence of people and their environment"[7]. Museums are significant repositories of a nation's objects and specimens of educational and cultural value (Johnson and Thomas 1998), they also have a role in fostering cultural identity (Boylan 1990).

From an economic perspective these sites are divided according to their annual operational budget. This is an essential prerequisite for any analysis. Because of the greater resources available to sites with larger budgets the greater the economic impact. For consistency in a European framework, the budget breakdown proposed by DigiCULT (Geser 2004) has been adopted for this report. For simplicity one budget has been used for all domains within the cultural heritage sector rather than having a different budget for museums, archaeological sites, heritage building, etc.

The following categories have been used for this analysis:

- annual budget exceeding €1,000,000 (large).
- annual budget of between €100,000 and €1,000,000 (medium).
- annual budget of less than €100,000 (small).

[6] Some static archaeological sites, such as Neolithic chambered tombs or standing stones, may be considered by some to be monuments rather than sites – the distinction is often difficult to make. Of course, many static archaeological sites do not have any technology used on them at all. One just has to think of the vast number of Neolithic chambered tombs, Iron Age 'hill forts', and Roman forts across Europe, that are not traditional tourist attractions.

[7] ICOM Statutes article 2, paragraph 1 (icom.museum/definition.html).

With these budget categories, it is evident that the different site types fall into different budget categories. The majority of cultural heritage sites have budgets of less than €100,000. Archaeological sites tend to have the lowest funding of all. There are very few excavations in Europe with annual budgets greater than €100,000, while there are a number of national museums across Europe that have budgets greater than €1,000,000.

1.3 What is socio-economic impact?

This is a complex area which remains ill-defined. Complexity and confusion are increased because the terminology has subtly different meanings in different sectors.

Economists and financial analysts have long studied economic impact. Analysing this impact involves tracing spending through a defined economy, and determines the cumulative effect of the spending. The conventional techniques and methods used to study this are long established, well understood and widely accepted, while more recent innovations in non-market impact analyses such as contingent valuation are not as widely accepted by policy makers and even other economists.

Socio-economic research analyses economic phenomena by studying variables both inside and outside the economy. It is based on the premise that politics, culture, and history provide a context in which contemporary economics function. The study of socio-economics recognises that the "economy is contextualized and makes the flow of causality from the dynamics of cultural and historical social forces into the economy rather than start from the aggregation of individual transactions" (Etzioni 1998: 544). In socio-economic studies, the economy is not considered an independent entity with the market as its own self-sustaining mechanism on one hand, while society exists separately with its own self-sustaining mechanisms on the other. The two are interconnected.

However, in the cultural heritage sector, the concept of socio-economics has tended to place greater emphasis on the social impacts rather than the purely economic ones. For obvious reasons, the economic benefits may appear weak compared to the social benefits and impacts.

Socio-economic impact studies in the cultural heritage sector tend to try to capture the social impacts of a defined project and integrate these data with the economic data to create a well-balanced picture of the impact within a defined impact region[8]. The importance of capturing the various impacts was succinctly stated in the London Declaration of the European Commission conference on *Sustaining Europe's Cultural Heritage*[9]:

[8] The impact region is crucial to the analysis. A project will have different implications for a city, a county, region, or for the entire country.

[9] European Commission Conference (1-3 September 2004): London Declaration from the conference entitled: *Sustaining Europe's cultural heritage: from research to policy*. An initiative to protect and safeguard European Cultural Heritage through scientific and technological research.

> "cultural heritage plays an essential role in the global position of Europe, and in enhancing the integration process of new enlarged Europe with its complex diversity and that it has considerable impact in many areas of economic and regional development, sustainable tourism, job creation, improving skills through technological innovation, environment, social identity, education and construction."

1.4 ICT and cultural heritage

Technology use at cultural heritage sites covers six main areas: interpretation, enhancing visitor experience, competition, cost savings, authenticity, and management efficiency (Owen and Buhalis 2005).

ICT has however, had a relatively slow introduction to the cultural heritage arena. In the 1980s and through much of the 1990s there was a lack of funding, a lack of expertise in ICT in the sector, and a degree of reticence within much of the sector to embrace change. The last 5 years has seen a significant change in the adoption of ICT in cultural heritage. Although the lack of funds is still a perennial problem for most sites the decreasing cost of computer hardware and software is beginning to alleviate some of this burden as is the increase in the skill base coupled with the increasing ease of use of ICT products.

It is apparent that ICT is now being used in almost every field of cultural heritage. There are increasing signs from across Europe that both governments and cultural heritage organisations are becoming increasingly aware of the value of closely integrating ICT with cultural heritage. The benefits of education, social identity and inclusion are all prime motivators for governments to invest in heritage as a platform for social and economic good.

As Dean (1996: 135) perceptively noted: "In the Information Age, the role of museums will be expanded through changing technologies. The basic appeal of the actual object, the 'real thing' will not diminish, but the intellectual curiosity engendered by exhibitions will find sustenance in information technology."

1.5 Conclusions

It is apparent that cultural heritage can have an impact at a number of levels, including economic, technological, social, cultural, educational, and environmental. These different impacts require different methodologies and capabilities for evaluation. Priority impact evaluation areas may vary from site to site, depending on a number of factors such as stakeholder expectations, policy and funding contexts, and the underlying mission of the site.

2 Economic valuation modelling methodologies

2.1 Introduction

In the last decade there has been a significant increase in the number of publications devoted to economics in the cultural heritage field. The field itself is not a new one. Since 1973, the International Association for Cultural Economics has published the Journal of Cultural Economics. Most of the members come from the economics arena – until recently few in the cultural heritage field have been actively involved in the organisation. What is significant about the last decade is the increasingly interdisciplinary nature of studies, on cultural economics and the increasing awareness that is being generated within the field of cultural heritage. Mason (1999: 3) argues for the value of economic analysis in the heritage sector:

> "Economic thinking and concepts make indispensable contributions to our understanding of conservation's role in society. As social science, economics sheds light on individual behaviour as well as the character of society, and thus shares a great deal with anthropology, art history, and other disciplines whose work has traditionally had a close relation to the field of conservation."

A point taken further by Bluestone (quoted in Mason 1999: 5):

> "If we are unable to articulate the values of heritage in the broadest sense – economic as well as cultural – the movement begins to crumble at the centre".

Nevertheless, there are a number of challenges associated with developing appropriate economic impact studies that are applicable to the cultural heritage sector. It is essential to be clear about the limits of economics in capturing the full impact of a site, as well as the potential positive benefits that might arise from such economic impact studies. Economists are accused of knowing the price of everything and value of nothing. Some in the cultural heritage field have been understandably suspicious of the economists because of the apparent obsession of reducing all activities down to a measurable market price. Burke (2004) recently reinforced this concern:

> "It is the vanity of economists to believe all choices can be boiled down to calculations of monetary value."

There are, of course, many economists are equally sceptical of the limits of the market price as a measure of value in society. Economic impact studies cannot effectively measure, for example, the beauty or aesthetic values of a site. It is important that economic impact studies identify the limitations of their findings while recognising that they can potentially play an important role in helping to develop and sustain some sites where empirical evidence of economic development is important to a funding decision for a cultural heritage site, which is increasingly the case.

Accepting that economic impacts will normally involve measurement (with some aspects being more easily captured than others), the existence of market failures and 'externality effects' in the cultural heritage sector suggests that the real challenge is to

try to capture the non-market benefits and costs of heritage, and to present the findings in some meaningful economic impact statement on a case-by-case basis.

The relative lack of such studies is clear; and limited evaluation of their contribution to the sector is equally limited. Economic impact studies in the environmental sector are well established, and seem to provide a rich area for possible transfer to the cultural heritage sphere. Pearce *et al*. (2002: 267) express support for drawing from this field:

> "While the valuation of cultural heritage is certainly challenging, it is no more challenging, or fundamentally different from, the valuation of an environmental good that has a significant non-use component … We expect non-market valuation techniques to perform equally well for cultural heritage goods as they have for environmental goods, where literally thousands of studies have been conducted."

One should also be cautious of uncritically transferring a methodology from one domain to another. Where important distinctions exist, they should be highlighted. For example, cultural identity impact issues figure much more strongly in the cultural heritage sector than in environmental impact studies.

There is also the issue of process versus outcomes, as stated by Avrami (quoted in Mason 1999: 3):

> "In economics, the outcome is valued over the process. Theoretically, we recognize that conservation is a process, but we have not really come to grips with how we value the process versus how we value the outcome."

There is, therefore, a need to identify some of the key conceptual issues in order to create firmer foundations for credible and robust economic impact studies and to clearly signal the potential positive contribution and limitations of such studies in the cultural heritage sector. This has encouraged considerable philosophical and methodological debate devoted to the methodologies used to assess value in the field. This is an indication of the increasing maturity and sophistication in the field of cultural heritage economics, although there is still enormous scope for growth in this study.

It is apparent that the methodologies chosen for impact analysis may differ depending on the nature of the project and the objectives and mission of the site. There may not be a single generic methodology that will work for all heritage sites. It is important to explore a range of techniques and decide on their applicability to the cultural heritage sector.

It is possible to apply two types of analysis to cultural heritage sites – market and non-market. Market analyses are the traditional analyses carried out by economists which identify direct and indirect expenditure effects. While these techniques can determine the more easily measurable economic impacts of a cultural heritage site, they do not reveal the full range of values produced by a site. Non-market analyses try to capture the values and benefits that are not picked up by the market valuations. Non-market valuations can be separated into two techniques: revealed and stated preference.

- Revealed preference techniques are based on an individual's actual purchasing decisions.
- Stated preference techniques are based on how people say they would react to changes in the market.

There are a number of issues with the application of revealed preference methodologies to cultural heritage assets (Bennett 2000):

- Revealed preference techniques are retrospective. They rely on future changes being extensions of the past and therefore do not work well if the future scenarios are significantly different to the past.
- Marketed goods may not always neatly relate to cultural heritage (i.e. existence benefits). It is unlikely that these benefits will be adequately determined using revealed preference techniques.

These kinds of limitations have led to the development of stated preference techniques. Stated preference techniques are a relatively recent innovation. Stated preference techniques can be applied to a wide range of circumstances where no marketed goods exist. However, the techniques and methodologies for measurement are not equally well developed in the different areas. Traditional economic analysis has a long history, but the measurement of indirect user benefits and societal benefits are less well developed.

It is hoped that multi-disciplinary approaches might produce interesting exchanges of learning, and that a mutual appreciation of the contribution can be made from each discipline to the development of the cultural heritage sector. Some innovative economic techniques may throw light on capturing use value and non-use value of cultural heritage sites. A number of economic impact assessment methodologies have already been employed in a limited number of cases in the heritage sector to date. Here, economic methods have been used to identify values that are also of mutual interest to cultural heritage professionals – notably bequest value, altruistic value, option value, and existence values. These are typically associated with the contingent valuation methodology examined later in this chapter.

2.2 Conventional economic and financial analyses

Some examples of conventional market-based approaches to impact analysis include:

2.2.1 Financial analyses

Economists have long-established methodologies for determining the financial implications of a project. These techniques include:

- *The business plan/profit and loss analysis*: Here the potential measured effects are direct costs and revenues based on purely financial/commercial criteria, even allowing for any subsidies, grants etc. While this might be a relevant basis for evaluating the financial sustainability of a project, particularly one that must satisfy break-even objectives this method fails to capture the real worth or impact to a local economy or society.

- *Cash flow forecasting*: This technique is used to create a model of the way in which cash circulates within a project or organisation. Where cash streams exist, forecasting is used to show the viability of a particular project. It can be used to assess if the predicted income will cover the operating costs, and whether the profitability of the project will be sufficient to justify the effort expended on it. As with the business plan methodology, this technique is purely financial and does not capture the real worth or impact to a local economy or society.
- *Investment appraisal techniques*: A specific project may be evaluated in commercial terms to arrive at a rate of return measure. The investment appraisal technique can be adapted to calculate a social rate of return using non-market valuation techniques. There are a number of established methods of investment appraisal. These are:
  - *The payback method*: This is used to determine how long it will take for the future income from the project to cover the initial cost of the project. This establishes the payback period of the project. Shorter payback periods are considered better than longer ones.
  - *Return on Investment (ROI)*: Also called the Accounting Rate of Return (ARR) or the Return on Capital Employed (ROCE). This is used to establish a project's rate of return. Most sectors have different ways of ascertaining the rate of return.
  - *Discounted Cash Flow (DCF)*: There are two principal appraisal methods in the DCF field. These are Net Present Value (NPV) and Internal Rate of Return (IRR). These methods take into account the effect of time on the value of money. Future income is expressed in terms of what it is worth now when money is expended.

2.2.2 Economic modelling

A number of economic modelling methodologies have been developed to assess various expenditure flows through economies. These techniques include:

- *Local macro-economic impact analysis*: This normally involves some economic modelling in an attempt to assess the total income, output, and employment effects on the local economy. The aim here is to capture the indirect, as well as the direct, effects on the local economy (i.e. multiplier effects are important to capture here). Typical methods used here are:
  - *Income/expenditure models*: These capture local multiplier effects (more practically this adds in expenditure in the area that results indirectly from visitors to a heritage site, such as on local hotels, restaurants, transport, etc). This method still measures actual expenditure flows.
  - *Input/output models*: These capture the inter-relationships between different sectors in the local economy via a matrix analysis.

  It is normally possible to derive approximations of employment effects (direct and indirect) from the above methods.

- *Satellite accounting methods*: This is normally carried out at a macro or regional level, using national input/output data extracted to examine the sectoral impact that draws from many sub-sectors. It has been used by World Travel and Tourism Council (WTTC 2004) and World Tourism Organisation (WTO 2000, 2002) to isolate the impact of tourism on an economy. However, it is difficult to apply to a single site given the lack of disaggregation of the data, but this might be relevant at a regional macro level or national level.

2.2.3 Cost-benefit analysis

This method takes the analysis beyond direct and indirect expenditure effects mentioned above in order to attempt to encapsulate the social costs and benefits of the project as a whole. Cost-Benefit Analysis (CBA)[10]is widely used in the business and public world for planning, product, and proposal evaluation, and other purposes. It has also been used to evaluate the impact of heritage-related projects such as the Glasgow Canal Project (Button and Pearce 1989). It is a methodology which summarises the positive and negative implications of a project or potential purchase. The positive and negative impacts are then weighed and compared. The key advantage of cost-benefit analysis is that it can take into account externalities and non-monetary costs and benefits.

This method involves attributing monetary values (using various valuation techniques) to externality factors (positive and negative) to discover whether a project represents a net social benefit to society, however the latter is defined. The costs include direct costs such as the purchase cost of the project to the institution. External costs can be considered. These could include the negative impact on other institutions and businesses in the area. Non-monetary costs can also be considered. This could include increased visitor numbers causing inconvenience to local residents.

In reality cost-benefit analysis is an umbrella term for a number of different types of analysis that range from the purely financial to economic and socio-economic – some of these have greater relevance for the cultural heritage sector than others (ICOMOS 1993). It should be noted that the nomenclature used for these variants within the cost-benefit analysis family can vary across sectors. The range of methodologies includes:

- *Financial Analysis and Social Financial Analysis*: Financial Analysis (FA) studies the financial implications for the owner of the site or the instigator of the project being studied. Social Financial analysis (SFA) differs from financial analysis because the financial implications are considered for other parities directly involved such as consumers.
- *Cost Revenue Analysis*: Cost Revenue Analysis (CRA) studies the financial implications for government (this could include local, regional, national government). The method looks at the taxes that would need to be raised in order to support a cultural heritage site or project (such as conservation) and also considers the revenues that would be generated by that expenditure. This could

[10] Some authorities refer to cost-benefit analysis (CBA) and benefit-cost analysis (BCA). This term is widely used in North America.

consider a single government organisation (CRA) or a number of government organisations (Social CRA).

- *Cost Benefit and Social Cost Benefit Analysis*: Technically, the term cost-benefit analysis (CBA) refers to the study of the use of resources in the economy only by the cultural heritage site in question or also by other institutions who are affected (SCBA).
- *Community Impact Analysis*: Community Impact Analysis (CIA) considers the cost and benefit implications for all sectors of the community would are affected by a cultural heritage site or project.

It is evident that there is a considerable diversity in the criteria that can be adopted for inclusion in cost-benefit analysis. An overview of the principal differences between the methodologies is shown below. However, it should be noted that there is no cross-sectoral definition of the various cost-benefit analyses, so the exact methods used are not standardised, (often studies require a combination of different perspectives, which just come under the broad umbrella term cost-benefit analysis).

Table 2.1: The different tools available to analyse costs and benefits (ICOMOS 1993)

		Financial			**Economic**		**Socio-economic**
		FA	SFA	CRA	CBA	SCBA	CIA
Site	On	✓	✓	✓	✓	✓	✓
	Off			✓	✓	✓	✓
Sector	Promoter	✓	✓	✓	✓	✓	✓
	On site		✓	✓		✓	✓
	Off site			✓		✓	✓
	All relevant						✓
Costs & benefits	Direct	✓	✓	✓	✓	✓	✓
	Some indirect			✓		✓	✓
	Community						✓

The types of benefits received include the direct monetary benefits such as the revenues derived from users of a product. Private non-monetary benefits include consumer surplus, which are the benefits that users receive beyond what they pay to enter. External benefits include those benefits received by non-users of the project, such as an increased number of visitors spending their money in nearby businesses (e.g. restaurants and shops). These values are then weighed and compared. If the positive benefits outweigh the negative costs, then the project is likely to be considered

viable. Naturally, valuing some of the 'externalities' poses methodological problems, but at least cost benefit analysis tries to capture all relevant social costs and benefits to arrive at some view of net social benefit.

Advantages

- *Integrates market and non-market costs*: All the costs and benefits of a project are identified and quantified. In addition, to the monetary values this includes externalities and non-monetary costs and benefits. This is much more effective than methodologies that assess purely monetary values.
- *Widely used*: The methodology is widely used and has been extensively tested across many different sectors.

Disadvantages

- *Assigning values*: In order to add the costs and benefits up a financial value is often assigned to each. However, attempting to assign monetary values to externalities such as aesthetic values, quality of life, etc can be problematic.
- *Consistent methodology*: Although it is a widely-used technique, most sectors, industries, and institutions have subtly different ways of approaching the analysis and calculation. Different methods are used to calculate non-financial values. If cost-benefit analysis were used for assessing the impact of ICT in the cultural heritage sector, it would be necessary to reach agreement on a consistent methodology in order for the analysis to allow inter-site comparison.

Application to ICT at cultural heritage sites

The cost-benefit analysis technique is extensively used in the ICT and business sectors to evaluate the impact of information technology projects. Furthermore, because the methodology can be used to attempt to capture all relevant social costs and benefits, it can arrive at an estimation of the net social benefit of a project.

Cost-benefit analysis should be seen as an umbrella methodology which can encompass a variety of separate evaluation methods. It could therefore act an evaluation framework for an analysis of the benefit of ICT in cultural heritage sites.

2.3 Revealed preference techniques

These methodologies rely on actual consumer behaviour to determine values and benefits.

2.3.1 Hedonic pricing

The hedonic pricing method has been used in the field of environmental economics to provide an estimate of the value of environmental amenities and urban goods that affect prices of marketed goods. Hedonic price analysis was first used by Andrew Court in 1939, although the technique gained widespread popularity with the work of Zvi Griliches in the early 1960s (Goodman 1998). Although the technique is not

widely used to determine values for cultural heritage sites, it has been applied to cultural heritage in both the United States and Australia.

In the United States the creation of historic preservation districts has been used as a means of regenerating urban areas (Kilpatrick 2000). These districts encompass both residential and commercial properties. The hedonic price method has been used to evaluate the value and benefits of the creation of historical preservation districts in Sacramento, California. The results suggest that the districts have a positive impact on residential property prices in four out of the six districts surveyed (Clark and Herrin 1997). In Australia, a hedonic price study of historic properties in Sydney's upper north shore determined that heritage-listed houses were found to command a price premium over unlisted houses. This was considered to be an indication of the combined value of the heritage character of properties and their listing status. The historical significance of the heritage properties was considered to have had a beneficial influence on price (Deodhar 2004).

House prices are the most common vehicle for estimating the value of environmental amenities, although other vehicles such as wages can be used (e.g. Smith 1983). Hedonic valuations assume that individuals place a value on the characteristics of a good, rather than the good itself. In this way the price will be a surrogate for the value of a set of characteristics, including cultural heritage characteristics that people consider important when purchasing the good.

The rationale of hedonic property price analysis is that property prices are determined not only by the characteristics of the property, but by the environmental attributes of the locality such as the neighbourhood and community, and other local environmental characteristics. In this scenario, if the factors not related to cultural heritage are controlled for, then the remaining price differences can be ascribed to differences in the quality and value cultural heritage. The higher price will be a reflection of the perceived value of cultural heritage to people who buy houses in the area.

Advantages

- *Market-based*: The hedonic pricing method is relatively straightforward and uncontroversial to apply, because it is based on actual market prices and fairly easily measured data.
- *Good value indicators*: Property markets, the most common vehicle for hedonic studies, are reasonably efficient in responding to information, so can be good indicators of value.
- *Data availability*: Data on property sales and characteristics are usually easy to obtain from a number of sources. This makes the technique relatively inexpensive to apply.

Limitations

- *Proximity to markets*: Many heritage sites do not have a large number of residential properties near them. In these cases the number of sale transactions would be too small to be statistically viable.

- *Relationship to markets*: Any benefits that could be inferred or measured are constrained to goods that are related to the property or similar markets. Non-use values especially, are not linked to any marketed goods or services (Bennett 2000: 38).
- *Externalities*: The housing market can be complex and may be affected by externalities such as taxes, interest rates, or other factors. Hedonic pricing assumes that individuals have the opportunity to select the features that they want, within the constraints of their income.
- *Model specifications*: Different specifications of the model used can significantly alter the results.
- *Statistical requirements*: Large amounts of data are needed, then gathered and studied, requiring significant statistical expertise.
- *Data availability*: If the data is readily accessible then the survey can be done quickly, but the property price information is not always accessible. If data must be gathered and compiled, the cost of an application can increase substantially.
- *Assumed linearity of price and characteristics*: The relationship between price and characteristics of the property may not be linear – prices may increase at an increasing or decreasing rate when characteristics change.

Application to ICT at cultural heritage sites

Although the hedonic pricing method has been applied to a limited number of cultural heritage sites, it seems unlikely that the technique could be used to determine the impact of ICT at such sites. The method is limited by its relationship to the property, or similar markets.

2.3.2 Travel cost

The underlying assumption of the travel cost methodology is that the amount individuals are prepared to pay to travel to a cultural heritage site is a reflection of the value of the goods and services provided by that heritage site. Using this framework, the expenses that individuals incur in order to visit a site, in terms of time and travel costs, are a proxy for the 'price' of access to the site. This data can be used to estimate willingness to pay.

Because travel costs increase with distance, the further away people live from a site, the less often they will visit. The number of visits to a site can be affected by other factors. The greater the choice of alternative sites, the fewer visits will be made to a site. Higher income earners will on average make more trips. Personal interest will also impact on the number of visitors. Statistical modelling should try to take these factors into account.

Travel cost methodology determines the number of visits from different distances from the site, and the travel cost from each zone. This is used to create an aggregate demand curve for visits to the site. The demand curve is used to determine how many visits individuals would make at various travel cost prices. This can then be used to provide

an estimate of willingness to pay for site visitors. This applies if they are charged an admission fee or not. The most controversial aspects of the travel cost method include accounting for the opportunity cost of travel time, how to handle multi-purpose and multi-destination trips.

As with the hedonic price methodology, travel cost has not been widely applied to the valuation of cultural heritage sites. In a seminal study, Martin (1994) used the travel cost method to assess the use value for the Museum of Civilisation in Quebec, and contingent valuation to determine the non-use value. A decade later Bedate *et al.* (2004) used the travel cost method to estimate the demand curve for three different cultural heritage sites in the Castilla y León region of Spain. These included a historic village, a museum in the provincial capital, and a historic cathedral. A cultural artistic event was also studied.

Poor and Smith (2004) also undertook a travel cost analysis of St. Mary's City in southern Maryland, USA. This heritage city was the British Colonial capital of the State of Maryland in the seventeenth century. Three years of sample visitor data were compared using three functional forms of visitor demand. It was found that, depending on which of the functional forms were used, the annual average individual consumer surplus ranged from $8.00 to $19.26. Interestingly, this study is one of the first to employ a revealed preference methodology rather than a stated preference methodology to estimate the consumer surplus welfare measures of a cultural heritage site.

Advantages

- *Accepted economic techniques*: The travel cost method is based on widely accepted economic techniques for measuring value based on market prices.
- *Actual behaviour*: As a revealed preference technique, it uses data derived from actual behaviour, rather than individuals' responses to hypothetical scenarios.
- *Dataset size*: Because the method is non-controversial, visitors tend to be willing, and interested in contributing, making the technique easy to apply.
- *Easy interpretation*: Travel cost results are usually easy to interpret, even for non-economists.

Limitations

- *Cost allocations*: The simplest travel cost models assume that individuals will make a trip for the express purpose of visiting the cultural heritage site being studied. However, it is often the case that individuals undertake a variety of activities during a single trip. In these cases it can be difficult to allocate the correct proportion of the travel costs to the site being studied.
- *Opportunity costs*: The definition and measurement of the value of time spent travelling is highly contentious. The time spent travelling is considered to be an 'opportunity cost' because the time could have been used for other purposes. This opportunity cost needs to be added to the travel costs. There is considerable debate as to the measure to use: is it the individual's wage rate, or some defined fraction

of their wage rate – this value will have a significant impact on the final benefit estimate.

- *Substitute sites*: If a traveller has a number of potential sites that could be visited, but chooses the study site out of preference, then this implies a higher value than an individual who travels with the express intention of visiting the study site. The complexity of the model has to be increased in order to account for this scenario.
- *Local bias*: Some individuals may choose to live close to a cultural heritage site or sites because they have a high value for the site and the services or amenities that it provides. These individuals will have low travel costs, but high values for the site. These will not be captured using a travel cost methodology.
- *Local origin zones*: Estimations of demand functions require sufficient differences between the distances travelled to alter travel costs and for these differences to influence the number of trips made. Sites near or in major cities may not be assessable by this method because many individuals may come from 'origin zones' that are quite close to one another.
- *Non-use values*: Travel cost cannot be used to measure non-use values or off-site values. These are a significant feature of cultural heritage sites.

Application to ICT at cultural heritage sites

The travel cost methodology has not yet been widely applied to cultural heritage sites, although there does appear to be a recent renewed interest in its use. As with the hedonic pricing method, it seems unlikely that the technique has the flexibility to determine the impact of ICT at cultural heritage sites. However, it is conceivable that in some cases travel cost could be used to determine the value of a specific IT-oriented exhibition, event or highly targeted IT oriented site.

2.4 Stated preference techniques

Most cultural heritage goods and services are not traded in traditional markets; furthermore, they are often not closely related to any marketed goods. It is therefore impossible for economic analysts to use an individual's market purchases to determine their willingness to pay for cultural heritage goods. Revealed preference techniques are also retrospective they are only applicable if the future changes being studied are related to the past (Bennett 2000). Their results are poorly able to be extrapolated to circumstances that are significantly different from the past, as could be expected with the use of advanced technologies.

These limitations go some way to explaining why revealed preference techniques are not widely used in the cultural heritage arena (Hansen *et al*. 1998). In this field stated preference surveys using hypothetical scenarios have been widely used to ask people directly what they are willing to pay for a good or service.

2.4.1 Contingent valuation

The contingent valuation method (CVM) is a non-market valuation technique based on stated preference, which tries to extract an estimation of the 'willingness to pay' for a good or service from users and non-users. It is designed to capture the value of a cultural heritage site or the value of some potential investment in a site.

Ready and Navrud (2002a: 6) explain willingness to pay as:

> "the value that a person gets from being able to enjoy a cultural heritage good is defined as the largest amount of money that that person would willingly pay to have that opportunity."

Contingent valuation is the only accepted way of determining a financial value for non-use values in cultural heritage. These 'passive use' values that do not involve a market and may not even involve direct participation are extremely difficult to quantify otherwise. They include amongst others option, existence, and bequest benefits. In the current climate of diminishing funds for the cultural heritage sector, there is increasing urgency in assigning a financial value to non-use and passive use at cultural heritage sites. Individuals are obviously willing to pay for non-use, or passive use, but traditional economic analyses tend to treat these benefits as zero. Since people do not reveal their willingness to pay for them through their purchases or by their behaviour, the only option for estimating a value is by asking them questions.

The contingent valuation method was first proposed in 1947 and applied in a Harvard Ph.D. dissertation on the economic value of recreation in woodlands in Maine. Numerous applications of the method to various public goods and studies of its methodological properties were conducted in the 1970s and 1980s. A review of the use of contingent valuation by Carson *et al*. (2000) found more than 2,000 academic and other papers on the subject. These studies are mainly from the environmental arena but also cover the fields of transport, health, education, and the arts, and across the globe.

The issues associated with developing a financial estimate of economic value based on how individuals respond to questions about hypothetical market scenarios, as opposed to observing their actual behaviour, is a source of enormous controversy and debate. Considerable endorsement was given to the methodology in 1993, when the US National Oceanic and Atmospheric Administration (NOAA) published its report of the findings of its expert panel on the subject. The panel included a number of eminent social scientists, and was co-chaired by two Nobel laureates, Kenneth Arrow and Robert Solow.

The panel was charged with reviewing if contingent valuation measures of non-use value could be used to determine liability issues in the aftermath of the 1989 Exxon Valdez oil spill. The panel concluded that provided that contingent valuation studies are carried out following a number of stringent conditions that gave due consideration to the biases affecting the methodology, the technique "can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive-use values" (Arrow *et al*. 1993: 43). However, the panel did also note that "there will always be controversy where intangible losses have to be evaluated in

monetary terms." (Arrow *et al*. 1993: 45). Despite strenuous debate (i.e. Harrison 2002), further endorsement was given by Carson *et al*. (1996). There are indications that the contingent valuation method is gaining mainstream acceptance in Europe. The UK government recently commissioned a major CVM survey with 11,000 respondents designed to value the environmental costs and benefits of active quarries (London Economics 1999).

The contingent valuation method requires respondents to provide values based on hypothetical scenarios. Contingent valuations' reliance on what respondents say they will do, rather than their actions, is paradoxically one of the method's greatest attributes, and its most controversial feature.

The principal techniques used to elicit a value from respondents are;

- *Sequential Bid Contingent Valuation* (SBCV): In this methodology individuals are presented with a number of financial amounts that are increased until the respondent is no longer willing to pay.
- *Open Ended Contingent Valuation* (OECV): Individuals are asked how much they would pay for a particular cultural good.
- *Closed Ended Contingent Valuation* (CECV): Individuals are given a single value; they only have the option of responding yes or no to this value. The value is varied across the sample, and is used to determine averages.

Advantages

- *Flexibility*: Contingent valuation is extremely flexible. Contingent valuation is the most widely-accepted method for estimating total economic value in cultural heritage sites. Its flexibility allows it to be used to provide values of all types of non-use, or 'passive use'. It can also estimate use values, as well as existence values, option values, and bequest values.
- *Widely-tested*: Contingent valuation has been extensively used in the field of environmental economics (Carson *et al*. 2000) and is increasingly used in the arts and cultural field (Noonan 2002), and cultural heritage studies (Pearce *et al*. 2002). A considerable body of research has been undertaken and is being conducted to improve the methodology, make results more valid and reliable, and better understand its strengths and limitations.
- *Accessible results*: Even for non-economists the outputs of contingent valuation studies are not difficult to comprehend. Financial values can be presented as a mean or median value per person, per household, or as an aggregate value for the population being studied.

Limitations

- *Resource intensive*: Contingent valuation is highly resource intensive. A properly-conducted contingent valuation survey is both time-consuming and expensive because it requires the use of focus groups, a pilot survey (pre-testing), 250-500 interviews for open-ended surveys and 500-1000 interviews for closed-ended

surveys, and a detailed statistical analysis of the data (Bateman *et al*. 2002: 110, Bennett 2000: 40). Such a survey would require outside consultancy and would be beyond the financial means of most cultural heritage institutions.

- *Hypothetical versus real markets*: There is considerable debate as to whether a hypothetical market can be compared to real economic markets. The hypothetical context could affect respondent's answers. Individuals may give a higher willingness to pay response if they feel that the scenario is hypothetical and that they will not have to pay.
- *Experience and information*: Contingent valuation assumes that individuals are aware of the numerous values that heritage encapsulates. Individuals have much more experience in making choices with market goods, so their purchasing decisions in markets are likely to reflect their true willingness to pay. Contingent valuation assumes that people understand the good in question. Unfortunately, most individuals are unfamiliar with placing values on cultural heritage goods and services. If individuals are forced to value attributes with which they have moderate or no experience such as cultural heritage, then this can affect the results of a WTP survey. In these instances, the type and amount of information presented to respondents could affect their answers. A number of methodological studies have been conducted in the field of cultural heritage in order to determine the importance of information provision in contingent valuation surveys and the impact this has on respondents WTP (Riganti 1997, Riganti and Willis 2002).
- *Strategic response bias*: Individuals can give false responses during a survey in order to increase their personal net benefit. This can take the form of 'free riding' where individuals underbid because they feel others will pay more and they will still secure the good (Ready and Navrud 2002b: 20). Alternatively, individuals may overbid in order to receive more of the good if they believe they will not have to pay.
- *Income-dependent*: WTP has a dependency on income. Individuals with a high disposable income can pay more for a non-market benefit. The preferences of higher income individuals may marginalise those of the less-well-off. Of course, this does mirror actual market conditions.
- *WTP and WTA*: Two different methodologies exist for determining the payment question The most common is when individuals are asked what they would be willing to pay in order to preserve or retain the current level of goods and services at a cultural heritage site. Less commonly, individuals may be asked what they are willing to accept as compensation for the loss of the goods and services provided by a cultural heritage site. Studies have shown that the two methodologies yield different results – WTA exceeds WTP (Bateman *et al*.2002). This has been seen by some as an indication that individuals' responses are an expression of what they would like to happen, not real valuations.
- *The ordering problem*: Research has shown that in some cases, people's expressed willingness to pay for something has been found to depend on where it is placed on a list of things being valued.

- *Interview bias*: It is possible that a respondent may overstate their willingness to pay in order to please the interviewer. With cultural heritage sites, respondents may feel it is 'the right thing to do' even if they do not value the good in question highly (Ready and Navrud 2002b: 20).
- *Question bias*: Related to interview bias a respondent may reveal their values about the act of giving for a social good (sometimes called the 'warm glow' effect) even though they believe that the specific good being surveyed is unimportant in itself.
- *Payment biases*: Research has shown that the willingness to pay amounts provided by individuals can be influenced by the specific payment vehicle chosen. A common form of questioning uses taxes as a payment vehicle, however, some users may feel strongly about increased taxes and their responses may be a protest against this rather than their actual value for the good. Other payment vehicles such as donations or contributions may influence people to consider how much their 'fair share' of the contribution is.
- *Starting point biases*: An early contingent valuation methodology was Sequential Bid. This prompted individuals with a starting bid, which was then increased or decreased based upon whether the respondent agreed or refused to pay the amount in question. Research has shown that the choice of starting bid has a strong influence on individuals' final willingness to pay response.
- *Strategic bias*: Strategic bias arises when an individual deliberately biases their answers in order to attempt to influence a particular outcome.
- *Non-response bias*: When sampling respondents the bias inherent in non-response is problematic, because individuals who do not respond are usually likely to have different values to the individuals who do respond.
- *External validation*: External validation of non-use values can be difficult.
- *Acceptance*: Despite the wide use and extensive research into the technique in the last two decades, there are still many authorities who do not accept the results of contingent valuation. There is considerable debate in the research community over whether it adequately measures people's willingness to pay for a cultural heritage good or service. A number of economists, psychologists, and sociologists question the financial estimates that result from contingent valuation.

This apparently long list of disadvantages associated with contingent valuation methodologies is a function of the widespread and extensive study of the technique in the environmental and now the cultural heritage arenas. Contingent valuation should be part of a wider decision-making process and not a stand-alone tool. The known methodological biases of contingent valuation should be avoided as far as possible and the results treated with reasonable caution.

Application to ICT at cultural heritage sites

Stated preference methodologies such as contingent valuation have been widely applied to the cultural heritage sector (see Appendix B). Although contingent valuation is not without its limitations, if applied properly it could be used to determine

willingness to pay for some customer-facing IT applications at cultural heritage sites. No such studies have been undertaken so far.

2.4.2 Choice modelling

Choice modelling (sometimes called conjoint analysis) encompasses a family of related stated preference techniques that includes:

- *Choice experiments*: choice experiments present individuals with a number of alternatives and the respondents are asked to choose their preferred alternative.
- *Contingent ranking*: Requires individuals to compare and rank alternative hypothetical options. Each alternative is made up of different attributes. These different attributes are provided at different levels across the available alternatives. Individuals are asked to rank the alternatives in order of preference.
- *Paired comparison*: In this type of survey respondents are given two alternatives and asked about the strength of their preference for the choices. Their preferences can be rated using a numeric or semantic scale.
- *Contingent rating*: Individuals are given a number of scenarios one after the other. They are then asked to rate each one numerically or semantically according to their preferences. This methodology differs from the others described above because there is no actual *comparison* of the choices.

Choice modelling was originally developed for marketing research and transport to measure preferences for different characteristics or attributes of a multi-attribute choice (Bateman *et al*. 2002).

Choice modelling is similar to contingent valuation, in that it can be used to estimate both economic and non-use values for cultural heritage sites. Like contingent valuation, it is a hypothetical method, which requires individuals to make choices based on a hypothetical scenario. Unlike contingent valuation, it does not directly ask respondents to state their values in financial terms. These values are inferred from the hypothetical choices that the respondents make.

Contingent choice is particularly valuable for the evaluation of the outcomes of several policy options, where non-use values are important. Contingent choice can be used to rank options as well as estimate financial values.

The contingent choice methodology has started to be applied to cultural heritage in recent years. Research by Maddison and Foster (2001) used a choice experiment at the British Museum (UK) to determine the WTP to reduce congestion in the museum. This was followed by a study conducted at the Galleria Borghese Museum (Italy), which combined a contingent valuation survey with a choice experiment. This was used to determine the WTP for entry to the Galleria, and the provision of additional (multimedia) services, and exhibitions (Mazzanti 2003a, 2003b).

Advantages

- *Benefit transfer potential*: Contingent choice usually provides a much greater number of valuation estimates per survey than contingent valuation. This is

because the method produces a functional relationship between attributes, respondent characteristics, and values. The greater number of values produced makes the technique more cost-effective than contingent valuation and increases the prospects of the values being used for benefit-transfer (Bennett 2000).

- *Holistic*: The contingent choice method can be used to value the outcomes of an action as a whole, as well as the various attributes or effects of the action.
- *Better experience*: Individuals rarely have significant experience in determining financial values for cultural heritage products. People are often better able to rank choices. Contingent choice also provides an opportunity to check for consistency of responses.
- *Qualitative ranking*: Individuals are usually more inclined and better able to provide qualitative rankings or ratings that include prices, rather than attempt an actual financial valuation of cultural heritage goods.
- *Relative values*: Contingent choice can be used to estimate relative values. Although the estimation of absolute financial values may not be as precise as those obtained through contingent valuation, the relative rankings can be used as the basis for policy decisions.
- *Fewer biases*: Many of the potential biases that have been associated with contingent valuation, such as protest bids, are significantly reduced using contingent choice.

Limitations

- *Difficult to evaluate tradeoffs*: As with contingent valuation, some individuals may find some tradeoffs difficult to evaluate, because they are unfamiliar with the area of study.
- *Respondents behaviour*: because contingent choice is a more recent innovation to the field of cultural heritage compared to contingent valuation less research has been devoted to the understanding of respondents' behaviour. It is unclear if individuals resort to simplified decision rules if the contingent choices become too complicated. This could be a source of bias in the statistical analysis.
- *Complexity*: As the number of attributes is increased, the respondent is forced to make an increasing number of comparisons. It has been found that individuals can become fatigued with a large number of choices and may lose interest or take short cuts in answering the questions (Bateman *et al*. 2002). Providing too many attributed may be detrimental to a survey. Alternatively, providing individuals with a limited number of hypothetical options could channel respondents into making choices that they would not usually make.
- *Complex statistics*: In order to estimate willingness to pay values from choice modelling surveys considerably more complex statistical techniques need to be applied compared to contingent valuation

- Choice modelling has only recently been applied to environmental economics and cultural heritage. There is still considerable debate as to its applicability for the valuation of non-market commodities is largely untested.

Application to ICT at cultural heritage sites

It is becoming apparent that of the stated preference methodologies the contingent choice family of techniques could have a direct application to the study of ICT at cultural heritage sites. Contingent choice is being increasingly used for the study of cultural heritage assets including ICT at those sites (see Appendix B). Although contingent choice has had less methodological study compared to contingent valuation it does seem to be a strong contender for the study of ICT.

2.5 Benefit transfer

Conducting primary valuation studies such as stated or revealed preference surveys can be both time-consuming and costly. The benefit transfer methodology uses monetary estimates provided by existing studies ('source' research) of similar sites and applies these values to a new study ('target' research) for which a monetary valuation is required. Hence the valuations are 'transferred' from one study to another. If relevant adjustments are made, then the results of a previous study can be used to approximate the value of an impact. Benefit transfer has been widely used in the field of environmental economics where a large number of applicable studies can be used for transfer[11]. A number of different approaches are used in the application of benefit transfer:

2.5.1 Unadjusted unit value transfer

The simplest methodology for benefit transfer is to assume that data can simply be transferred directly from one site and applied to another. This relies on the supposition that individuals at different sites have similar perceptions and values. Obviously the transfer of mean unit values is methodologically weak, because individuals at one site may very well have different values compared to those at another. Differences in location, education, income, ethnic group, religion, or other socio-economic factors can all contribute to these.

2.5.2 Adjusted unit value transfer

The application of adjustments can increase the sophistication of the benefit transfer methodology. There are two areas of weakness with the unadjusted unit value transfer methodology: the quality of the analysis of the original dataset, and the differences between conditions at the data source and the new site. There have been continuous advances in the quality of continent valuation and travel cost methodologies. Some of the older methodologies, often developed for a specific environmental impact, are now

[11] For example, the Canadian EVRI (Environmental Valuation Reference Inventory) is an international database of economic studies of environmental benefits and health impacts. It has been specially developed in order to allow policy analysts to use the benefits transfer technique as an alternative to doing original valuation research (www.evri.ca).

considered unreliable. Second, the values may need adjustment in order to reflect conditions at the new site better. Differences include the socio-economic profile of the individuals and households, and differences in environmental characteristics, such as policy and the availability of alternative goods and services.

2.5.3 Benefit function transfer

It is immediately apparent that both unadjusted and adjusted unit value transfer methodologies are simplistic. However, both techniques do overcome the time and cost implications of conducting contingent valuation or travel cost analyses from scratch. A much more sophisticated methodology can be achieved through meta-analysis. This technique analyses a number of original studies as a combined dataset. This allows the user to analyse the characteristics of the resource, the types of samples used in the previous analyses, and the modelling assumptions. Regression equations can be used to explain variations in unit values and data can be collected to determine the independent variables on the new site. The application of both these techniques will allow for the creation of an adjusted unit value.

Advantages

- *Cost effective*: Benefit transfer is a cost-effective methodology. Its application will usually cost considerably less than conducting an original valuation study.
- *Rapid*: The methodology allows economic benefits to be estimated much more rapidly than when than conducting an original valuation study.

Limitations

- *Accuracy*: Benefit transfer may not be accurate, except for making gross estimates of values, unless the sites share all of the site, location, and user specific characteristics. This has led Pearce *et al*. (2002: 268) to suggest that in the cultural heritage field they "do not anticipate that there will ever be a catalogue of values from which decision makers can select an appropriate number for the new policy issue they face."
- *Original study availability*: Benefit transfer is dependent on the availability of high quality original studies for the issue in question. The relatively recent development of cultural heritage evaluation methods means that such studies are not yet available in statistically viable numbers. A recent review of the available non-market valuations of historical buildings, monuments and artefacts by Pearce *et al*. (2002) revealed only 27 such studies worldwide. Obviously, the number of valuations is increasing year by year, but compared to the 2000+ studies in the field of environmental economics there is more work to be done yet.
- *Original study publication*: Even if relevant studies have been undertaken, they may prove difficult to locate, because many are not published. For example, many studies are funded by local government or even private companies. These consultancy reports often do not have a wide circulation and do not tend to reach an academic audience.

- *Publication limitations*: Many publications are by necessity devoted to the analysis of the results and contain far less information about the criteria or questionnaires used. This will cause difficulty in making the needed adjustments. In many cases it will be necessary to contact the original authors for further information, if this is possible. Publication can make the adequacy of existing studies difficult to assess, because the results of benefit transfers are only as accurate as the initial value estimate.
- *Extrapolation issues*: The further that a new study is extrapolated beyond the range of characteristics of the original study, the lower the quality of the results is likely to be.
- *Rapid obsolescence*: The value estimates used in original studies can become obsolete very quickly. At the very least it will be necessary to account for inflation, but this alone may not be sufficient to account for cultural changes over time.

Application to ICT at cultural heritage sites

Theoretically, benefit transfer could be applied to cultural heritage sites, however, the lack of a sufficiently large dataset of relevant studies in the field and issues of accuracy make the method untenable for the study of either cultural heritage or the impact of ICT in cultural heritage.

Table 2.2: An overview of some non-market evaluation methodologies

	Hedonic price method	Travel cost method	Contingent valuation	Contingent choice	Benefit transfer
Market or non-market	Non-market	Non-market	Non-market	Non-market	N/A
Ease	Moderate	Moderate	Difficult	Difficult	Simple
Cost	Moderate	Moderate	Expensive	Expensive	Low
Time	Long	Moderate	Long	Long	Short
Accuracy	Good	Good	Good	Good	Low
Ease of comprehension	Good	Good	Good	Good	Good
Outside help required?	Yes	Yes	Yes	Yes	Possibly
Used in cultural heritage?	Limited	Limited	Extensive	Limited	No
Application to ICT?	No	No	Yes	Yes	No

2.6 Using multiple techniques

Pagiola (1996: 10) notes two problems with the use of multiple methodologies:

- *Under-estimation*: In any assessment of cultural heritage sites there will be some values that are impossible to estimate. This could be because of the lack of data and awareness, or the lack of methodologies used to determine value estimates. Overall value estimations will therefore, tend to underestimate the total economic value.
- *Double-counting*: Some methodologies may measure sub-sets of broader techniques. Adding the results of these valuations together would give an inaccurate result (McConnell 1990).

2.7 Qualitative approaches to impact studies

There are aspects of impact analyses that the above quantitative approaches do not capture very well. Sometimes impact on a society is better evaluated by, for example:

- Case studies of experiences from beneficiaries (e.g. from schools, heritage societies, local governments).
- Employee and visitor (by segment) satisfaction surveys.
- Perception measures – for example using questionnaires (or some other method) to assess the perceived contribution of a project to local or wider society.

2.8 Conclusions

It is apparent from the above review that there are a considerable number of techniques that can be applied to cultural heritage impact studies from the field of economics. The actual methods chosen or any particular study will depend on the objectives of the impact analysis, the data availability (currently or potentially), the resources supporting such a study and judgements concerning the suitability of the methodologies of the particular project in question.

Some methodologies such as cost-benefit analysis (specifically Community Impact Analysis) could be directly applied to determining impact at cultural heritage sites in a holistic manner. The methodology could act as a broad framework in which other techniques (such as revealed preference and stated preference, etc) could be incorporated to value particular attributes.

Other methodologies such as travel cost or the hedonic price method could be used within the framework of a cost-benefit analysis. Most importantly, the range of stated preference methodologies that have been adapted from the field of environmental economics could provide a means to value the non-market impacts of a site. It is notable, that the only study to date that has attempted to value multimedia services at a cultural heritage site has used contingent choice to value the attribute (Mazzanti 2003a, 2003b – see Appendix B of this report).

3 A socio-economic impact framework for cultural heritage sites

3.1 Introduction

Faced with tightening budgets, both government and private agencies need to make increasingly difficult choices about the allocation of funds to protect and restore cultural heritage sites. Government agencies need to justify their decisions, not only in terms of benefits to the cultural heritage sites themselves, but also in terms of financial accountability and public support. A clear demonstration of the economic benefits of their investments is required. However, in the cultural heritage sector, not all benefits can be measured financially. Authorities need to provide evidence that their financial investments are being managed to maximise the benefits per unit of currency spent.

Modelling of the benefits and costs of cultural heritage sites provides the following uses:

- It allows authorities to allocate and justify public spending on preservation, conservation, and restoration initiatives.
- Provides data needed to prioritise restoration or conservation projects.
- It provides evidence for the public's values on heritage issues, and helps encourage public participation and support for cultural heritage initiatives.
- Allows the comparison of the benefits of different programs.
- It allows site managers and authorities to achieve the maximum benefit possible from the financial resources available.

The study of economics revolves around the concept of value. According to socio-economic theory, cultural heritage is a consumable good. It is also a public good or quasi-public good. Public goods are defined using the following two characteristics:

- *Non-exclusive*: These are goods where a user cannot be stopped from 'consuming' that good.
- *Non-rival*: Goods where the quality of consumption by one user is not reduced by other users enjoying it simultaneously.

There is a traditional tendency to undersupply this type of good, because the benefits are not captured through conventional market mechanisms.

In reality, many cultural heritage sites are *quasi-public* goods, because access to some heritage buildings and museums is restricted. Furthermore, cultural heritage sites are non-rival to varying degrees. For example, some cultural heritage buildings and sites can become overcrowded and congested, thereby reducing the user satisfaction of visitors (i.e. Maddison and Foster 2001).

It is immediately clear, when assessing the sector, that a wide range of values can be attributed to cultural heritage sites. These can be precise values, such as the cost of admission to a site, or the cost of a book in the gift shop. These sorts of values are easily accessible to traditional economic modelling techniques. There is also a class of more amorphous values (non-market or non-monetary values), such as the 'satisfaction' derived from visiting a cultural heritage site, or the aesthetic value of a cultural heritage site to a local community.

Because cultural heritage goods and services are not usually traded in conventional markets, the benefits derived from these goods and services are 'external' to the market. The economic valuation of non-market cultural heritage goods and services attempts to 'measure' individual's preferences for non-market goods and services. If monetary estimates are made of an individual's preferences for such goods and services, these can be integrated into an economic format comparable to conventional economic costs and benefits. This will enable impacts generated in the sector to be accounted for in policy and decision making processes.

Because these values are not captured in traditional economic markets, and individuals do not pay money to acquire them, they are considerably more difficult to define and quantify, but they are part of the overall value of a cultural heritage site. The challenge of quantifying the socio-economic impact of cultural heritage sites emanates from the need to incorporate all these quantitative and qualitative values in its results.

3.2 A socio-economic framework

It is clear that, despite advances in the use of non-market valuation techniques in the last two decades, there is still a lack of coordination regarding how to classify the benefits of cultural heritage sites. There is increasing agreement on the types of values associated with cultural heritage sites, but there is no widely-used typology or classification system that can be applied to these impacts.

In Canada, considerable work has been devoted to developing just such a framework – one that can integrate the various forms of economic and social values derived from cultural heritage sites (The Outspan Group 1999). Using this work as a basis, the following simplified socio-economic framework can be applied to the cultural heritage sector. The framework allocates the impacts of cultural heritage sites to four different groups. These groups are the individual stakeholders, businesses, society in general, and the environment. The framework includes traditional economic impact analyses which cover consumption and investment expenditure and the multiplier effects, and direct user benefits (e.g. existence benefits), and societal benefits (e.g. cultural identity and educational benefits). Because of this, almost all of the impacts associated with cultural heritage sites can be inserted within one of the categories. This type of framework has been widely applied to various cultural goods in North America (The Outspan Group 1996, 1998a, and 1998b).

However, the framework was developed to be applied broadly to the arts and culture sector. The authors note that "while the concepts presented in the benefits framework can apply to the entire sector, there is also a recognition that individual sub-sectors will require more detailed specification of the framework or its adaptation in order for it to

function effectively" (The Outspan Group 1999: 11). The following application of the framework has been modified specifically for the cultural heritage sector.

3.2.1 Individual impacts and benefits

The individual stakeholders have an impact on the cultural heritage sites through their use of the site.

Use value

These use benefits and impacts can be direct, indirect, and future use.

- *Direct use impacts*: are those created by individuals using cultural heritage sites (these would be called 'consumers' in traditional economic theory). A visit to the Parthenon, in Athens, would be an example of a direct use of a cultural heritage site. Such direct use values may be accessible to market analyses such as visitor numbers or ticket sales. Direct impacts in the technological field could include interaction with technology at a site such, as touch-screen displays and other audio-visual technology.
- *Indirect use impacts*: are those derived from individuals making an indirect use of a cultural heritage site. As such these impacts do not require an individual to physically visit a site. Reading a book about the Parthenon would be an example of indirect use. Indirect impacts in the technological field could include viewing Web sites for cultural heritage sites.
- *Future use impacts*: are derived from individuals who know that they will be visiting cultural heritage sites in the future. These values have different implications depending on the perspective. An individual may gain a degree of satisfaction from the knowledge that they will visit a site, but the sites themselves will also gain future visitors, or future use. These sorts of values can only be determined through surveying a population.

The differences between direct and indirect impacts are not always clear-cut, and are often dependent on the perspective taken. For example, reading a book about the Parthenon could be an indirect use of the cultural heritage site, but could be a direct use of a heritage publishing house, or a cultural heritage industry. This could lead to double counting of duplicated direct and indirect benefits. This has led many to ignore these indirect values in summary frameworks (The Outspan Group 1999).

Non-use value

Non-use values refer to benefits to a person who has not visited a site but still values its preservation. Frey and Pommerehne (1989) identified a number of non-use values that individuals may attach to cultural heritage. These include option, existence, bequest, prestige, education, and altruistic benefits.

- *Existence value*: Is valuing the site for preservation even if no one visits it. Existence benefits are derived from individuals who are content that cultural heritage sites are available for others to enjoy.

- *Bequest value*: Benefits are derived from individuals who gain value from the fact that cultural heritage sites will continue to exist for future generations to appreciate.
- *Altruistic value*: Closely related to existence and bequest values, Ready and Navrud (2002a: 7) add another value called altruistic value, where an individual or group gains value from a site in knowing others can enjoy it.
- *Option value*: Option benefits are derived by individuals who gain value from the fact that cultural heritage sites are available for potential future use.
- *Prestige value*: Refers to the prestige a community derives from the site.

3.2.2 Economic impacts and benefits

Economic assessment of business benefits has been the traditional method used to support the need for funding cultural heritage institutions. These benefits are the result of spending within the cultural heritage environment which would not have occurred had the site not been there.

These are the changes in a defined community that are caused by spending attributed to a cultural heritage site or event. In the defined study economy the value of imported goods and services, and payments which do not remain within the defined economy are removed. Net economic impacts tend to result in smaller 'multiplier' values. This value is the actual value added that is kept by the defined economy. The net economic impacts derived from expenditure impacts:

- Spending by visitors or users, who are not from the study area, in the cultural heritage site.
- Spending by the cultural heritage site that uses funds which originated outside the study area.

The increased business benefits can include:

- Numbers of visitors and tourists.
- More guest house and hotel rooms occupied.
- Retail sales.
- Restaurant use.
- Use of public transport.
- Employment.

These business benefits can be captured using surveys of users, visitors, etc, in conjunction with financial data about funding and expenditure at the site. The type of economic impact model deployed will be crucial for the determination of net impacts. Various economic impact models calculate different impacts – it is important to consider the methodology used and its comparability with other economic models. For example, while most consider direct and indirect impacts, some also consider induced impacts.

3.2.3 Societal impacts and benefits

There is considerable debate as to whether the benefits to society can and should be quantified in monetary terms. Commentators such as de la Torre and Mason (1999: 2) have expressed concern that "by focusing narrowly on money, price and financial returns on investment, we lose sight of a whole universe of values that should be important to us, as members of society and as individuals." This sense of unease is shared by Smith (2002: 16) who wonders "Can we put a price or assign a number to memory, identity, a sense of place, or cohesive communities?" The benefits of cultural heritage sites to society are considerable, but not all of these benefits have associated methodologies for their measurement.

Table 3.1: Advantages and disadvantages of various impacts

Impacts	Advantages	Limitations
Educational	Users can learn about their own past and the heritage of other communities.	Some users feel excluded by perceptions of elitism. Museums have traditionally fallen into this category, although much has changed in this sector in the last decade (Stott 1998).
Identity	Cultural heritage sites are frequently viewed as a source of identity, at an individual, local regional and national level.	However, most European countries have cultural heritage sites that do not unify but repel elements of the community. The site of the battle of Culloden, in Scotland or the Auschwitz-Berkenau concentration camps fall into the category of 'dissonant heritage' (Tunbridge and Ashworth 1996).
Business location decisions	Businesses have been known to locate premises in the vicinity of cultural heritage sites in order to gain advantage from the users of that heritage.	
Skill retention	Cultural heritage sites help preserve specialist skill sets. The need for specialist stone masons to repair and maintain cathedrals and other heritage sites across Europe that have been damaged by air pollution is helping maintain a skill that is rapidly declining.	
Heritage revitalisation	The location of many cultural heritage sites in the downtown core has in many cases led to heritage revitalisation.	The gentrification of some regions has increased property prices, forcing out poorer members of the community and preventing all but the wealthy from moving in.
Quality of life	Cultural heritage sites can increase the quality of life by providing cultural venues for the population.	Increased quality of life could indirectly lead to the gentrification issues seen above.
Industry benefits	Cultural heritage sites are widely used as sets for the film and television industry, as well as for photographic backgrounds for the magazine and media industries. Many companies use cultural heritage sites to organise PR events, receptions,	

	conferences, and weddings. Cultural industries include film, broadcasting, music, written media, and new media.
Employment	The cultural heritage sector is highly labour-intensive. This is because it is both a service sector, and contains infrastructure that often requires regular maintenance, unlike many industrial sectors which can increase output with reduced workforce.

3.2.4 Environmental impacts and benefits

Few such frameworks have tried to include environmental impacts in the assessment. A point brought home by Klamer and Zuidhof (1999: 33) who note that "studies tend to overestimate the economic impact, since they usually leave out the negative effects of cultural projects (traffic congestion, the loss of economic value due to regulation) …"

Environmental impacts are an important area to study for any impact analysis even though many of these impacts are potentially negative. Environmental impacts can be evident either within a cultural heritage site (intra-site impacts) or in its immediate locality (inter-site impacts). These include:

Intra-site impacts

Site degradation: Too many visitors can cause physical damage to the fabric of a site because of erosion through excessive foot traffic or changes to humidity caused by visitor's breath (e.g. the prehistoric caves at Lascaux, France and Altamira, Spain).

Site congestion: Too many visitors can cause congestion within a cultural heritage site, reducing the quality of the experience that is provided because of queuing, noise, and inability to view the exhibits, etc (Maddison and Foster 2001).

Inter-site impacts

Pollution: Increased visitor numbers can cause wider pollution through increased transport use to gain access the site.

Congestion: Increased visitor numbers can also lead to congestion in the locality of cultural heritage sites which can affect the quality of life of local residents.

Sustainability: In some cases heritage sites can have a beneficial impact on the environment, where induced economic impacts cause an improvement in the environment and facilities in the locality of the cultural heritage site.

Environmental impacts can be measured and costed. These costs can then be integrated with the other impacts from the individual, economic, and societal domains.

3.2.5 A socio-economic framework

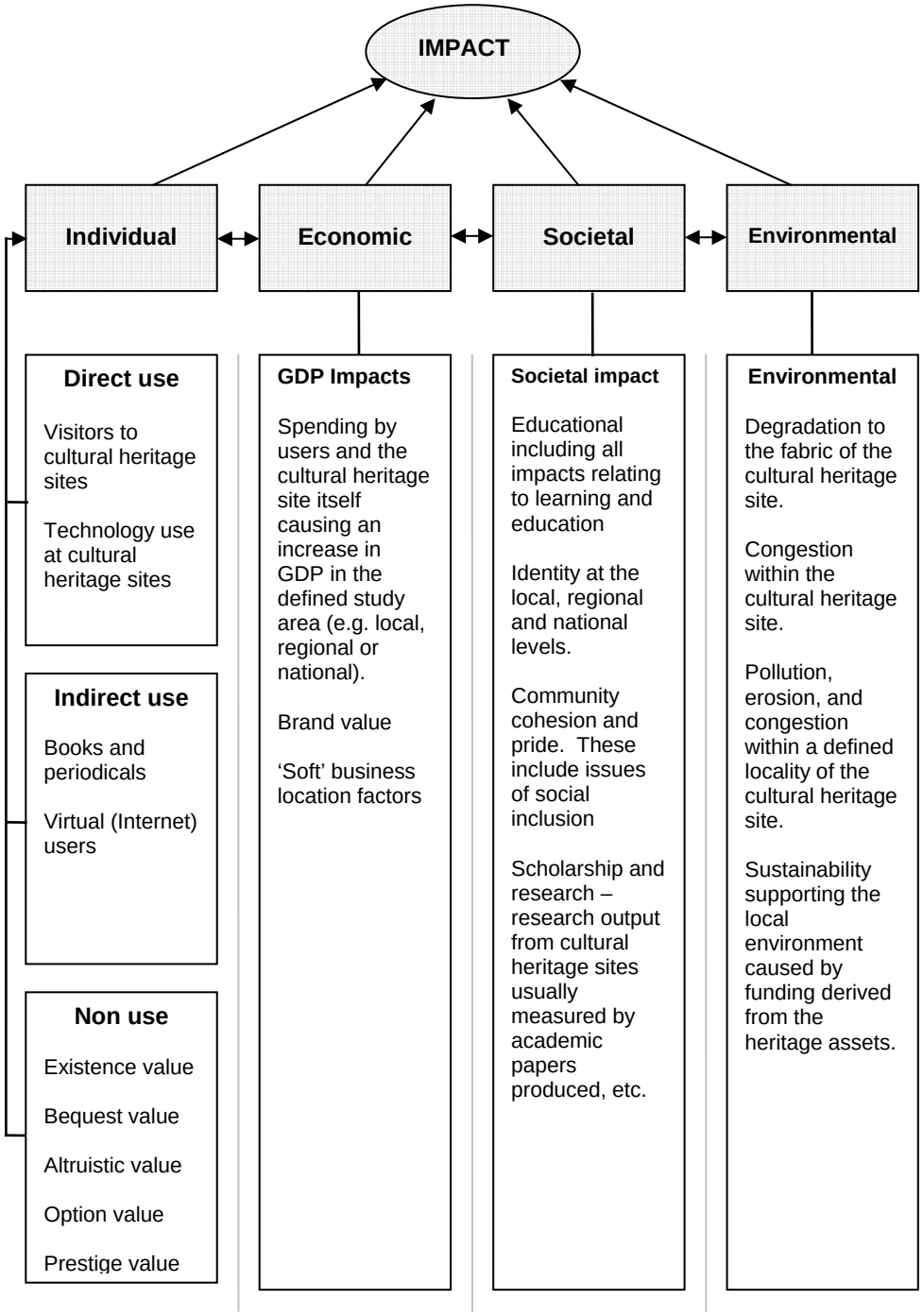


Figure 3.1: A socio-economic benefit and impact framework (adapted from the Outspan Group 1999: 7)

Table 3.2: A socio-economic benefit and impact framework (adapted from the Outspan Group 1999: 7).

Personal		
Values and impacts	**Definition**	**Measurements**
Direct use value	Personal visits to the institution for education, leisure, or research.	Visitor numbers. Visitor demographics. Visitor spending. Visitor consumer surplus. Visitor satisfaction.
Indirect use value	Use and enjoyment of the site not achieved through visiting. This includes use of Web sites, reading books, watching television programmes about the site, and 'consuming' site merchandise.	User numbers. User characteristics. User spending. Indirect user consumer surplus.
Existence value	Personal satisfaction in the value of maintaining the existence of a site or institution.	Number of users who derive this value. Estimations of this personal value.
Bequest value	Personal satisfaction in the value of maintaining the existence of a site or institution for future generations.	Number of users who derive this value. Estimations of this personal value.
Option value	Personal satisfaction in the value of maintaining the existence of a site or institution for potential future use.	Number of users who derive this value. Estimations of this personal value.
Economic		
Values and impacts	**Definition**	**Measurements**
GDP impacts	Spending by users and the site itself causing an increase in GDP within the study area.	User spending (direct spending effects) attributable to the site (e.g. travel costs). Institutional spending: capital expenditures, operations, maintenance and repairs. Indirect spending associated with a visit. Multiplier effects.
Societal		
Values and impacts	**Definition**	**Measurements**
Community pride and cohesion	Cultural heritage sites can provide a backdrop to common interests and identities.	
Business location value	Value derived from businesses deciding to locate in an area because of the presence of cultural heritage sites.	Numbers of businesses. Reasons for business location. The importance of cultural heritage sites for location decisions.
Identity	Benefits associated with sites enhancing feelings of identity. These	Studies on the impact of heritage sites on peoples

	can be locally, regionally, nationally, culturally, ethnically, etc).	perceptions of community and society. Studies of how sites can promote individual, local, regional, and national identity.
Social inclusion	Benefits associated with cultural heritage acting as a glue to include disparate groups within society.	
Educational	All the impacts associated with educational impacts (school curricula related impacts).	
Scholarship and research	Scholastic and research outputs including academic papers, new technologies and methodologies.	Output of academic papers. Output of new technologies and methodologies.
Environmental Values and impacts	**Definition**	**Measurements**
Pollution	Increases in visitors to a site can cause increased pollution because of the greater volume of traffic needed to bring the visitors to the site.	Studies of air quality.
Site degradation	Increased visitor numbers can cause stress on the very fabric of the cultural heritage. site itself.	Site monitoring and assessment.
Congestion	Increased visitor numbers can cause congestion within a cultural heritage site.	Site monitoring and assessment

3.3 Conclusions

Current market conditions now dictate that few decisions are taken in the field of cultural heritage without considering economic questions. This has caused unease with many in the cultural heritage field. Many commentators in the cultural heritage field have expressed concern that the increasing use of economics as the *lingua franca* of heritage conservation could undermine the 'cultural' rationales for conservation in favour of purely economic arguments. There has been a call from many in the cultural heritage field for a better balance between "economic, cultural and other values" (de la Torre and Mason 1999: 3). A framework such as the one shown above has the advantage of allowing all potential impacts of a cultural heritage site to be expressed.

4 Technology in the cultural heritage sector

4.1 Technology adoption at cultural heritage sites

The adoption of ICT in the cultural heritage field has generally been much slower that that seen in other sectors. According to Moore's (1991) technology adoption lifecycle, adoption and innovation can be divided into a number of phases. The early adopters of technology comprise two groups; the technology enthusiasts', more commonly known as leading edge users (von Hippel 1986) and the visionaries. Moore's lifecycle model also notes the existence of three further adopter communities, these are the 'pragmatists' or early majority, the 'conservatives' or later majority, and the sceptics or laggards. The cultural heritage sector has traditionally tended to fall into the later majority category conservatives or sceptics even. There have been a number of reasons for this:

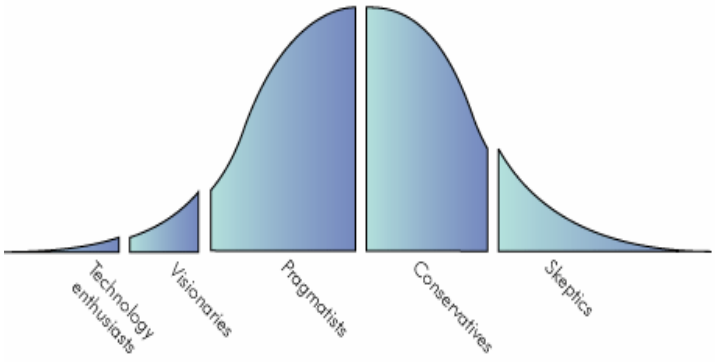


Figure 4.1: Moore's (1991) Technology adoption lifecycle

- The cultural heritage sector has limited financial resources.
- There is a relative lack of skills in ICT and technology in the sector.
- The sector has a culture that is often not conducive to leading edge innovation.
- There is a lack of competition within the sector that is not conducive to innovation.
- Rapid obsolescence of technology makes acquisition of resources problematic.

Financial resources

The limited financial resources of the cultural heritage sector are obviously a key factor in the conservative adoption of technology. Until recently computer equipment and services were relatively expensive to purchase. Hardware costs have certainly come down although commercial software costs continue to increase both in immediate financial terms and in the increasingly frequent need for software upgrades (the 'upgrade treadmill'). The expenditure associated with computer equipment and services has undoubtedly been a deterrent to rapid adoption of ICT in the cultural heritage sector.

Even in a technologically advanced country such as the US the adoption of technology in cultural heritage has been slow. For example, a survey of US museums and libraries conducted by the Institute of Museum and Library Services (IMLS) in 2002 revealed that; only 87% percent of the museums surveyed used some technology to automate operations compared to 99% of the libraries. The technologies included desktop computers, e-mail, Internet applications, Web-site development, office software, and collection databases. Of the 13% of museums that did not use technologies, 42% had no plans for incorporating ICT. A strong correlation was found between museum budget and use of technology. In medium and large-size museums technology was widely used, but the majority of museums with smaller budgets technology use was less evident. Sixty-seven percent of the museum respondents had budgets less than $250,000. Of these sites only 55% had access to the Internet, e-mail, and standard office software, and only 41% had a Web site. It was in the museums with lower budgets that the 13% of museums that had no technology use resided.

The research clearly indicates that museums have fewer sources of funds for investment in technology. The museums surveyed were reliant on operating capital, donations, and in-kind contributions. Furthermore, 20% of the museums that responded state that they have no funding for technology (IMLS 2002). This state of affairs is mirrored in Europe.

Lack of skills

Until recently there has been a relative lack of IT skills in the cultural heritage sector. This is partly a cultural phenomenon driven by the 'traditional' background of the sector and the cost of training staff in IT use. This is gradually beginning to change as an increasing throughput of graduates with technology skills enter the profession, and as staff at cultural heritage sites begin to import skills gained from home computer use into the work environment. The sector itself is also beginning to provide relevant IT training for staff, and of course many of the SMEs who support the sector have long provided training for their products.

Lack of competition

Because many cultural heritage sites are public or quasi-public goods there is often little need to 'compete' with other similar sites. In the open market competition is a key motivator in the adoption of technology in order for companies to gain 'competitive advantage'. Of course, many cultural heritage sites are privately owned. Here, where visitor attraction is paramount there is generally a more rapid adoption of technology such as Web sites.

Technology obsolescence

The rapid obsolescence of both hardware and software technology has made the purchase of equipment for cash-strapped cultural heritage sites problematic. Capital expenditure on computer equipment is less enticing if it is likely to become obsolete in a few years.

Non-innovative culture

Although it is obviously dangerous to make generalisations (for example the British Museum's Mummy exhibition is highly innovative) the culture in the sector has not traditionally been conducive to leading edge innovation and adoption. The sector has until recently tended to be 'traditional' in outlook. This is gradually beginning to change as technology becomes more mainstream in the home and the workplace, and is accepted as a necessary tool and value driver for the sector. There are signs that these issues are beginning to change.

4.2 Technology as a value driver

Rogers (1995) has identified four major factors that influence the diffusion process. These are:

- The innovation itself
- How information about the innovation is communicated,
- Time, and
- The nature of the social system into which the innovation is being introduced.

Empirical studies by Cohen (1995) identify that determinants of innovative activity include market power effects, demand pull effects and technology push effects. It should be noted that market power effects are largely inapplicable to the cultural heritage sector

It is apparent from these two studies that the innovative activity could be explained using the process of technology diffusion. In order to analyse the other two determinants identified by Cohen, a technology push and market pull matrix has been constructed. The evolutionary development of ICT use within the sector is shown in Figure 4.1.

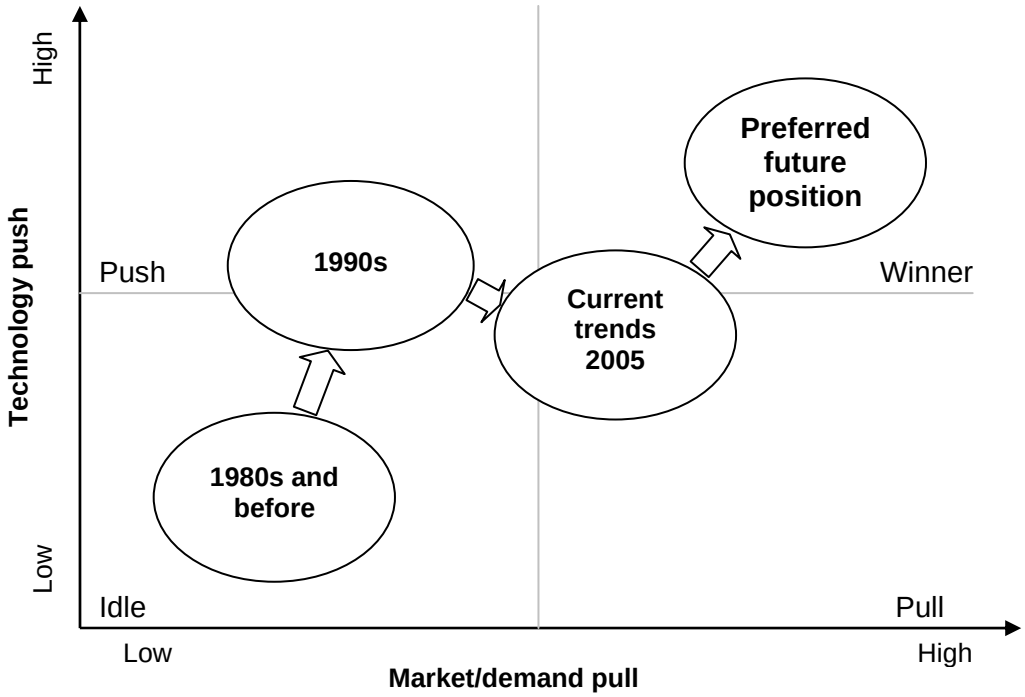


Figure 4.2: The technology push and pull matrix showing evolutionary trends in the diffusion of ICT technology in the cultural heritage sector.

The matrix explains the slow (laggard) diffusion of technology in the cultural heritage sector in the 1980s (cash-strapped, public funded institutions in the sector lacked the power of market forces to cause radical changes in innovation) followed by a relative boom in the 1990s. The boom occurred when the Internet and ICT revolution forced vendors to find new markets for their innovations. The cultural heritage sector provided just such an under-exploited market. This is depicted by the strong pull character as shown. As the value chain developed during the mid to late 1990s several easy-to-use versions of less expensive user end application packages became available. This has helped to narrow the gap between market pull and technology push.

This trend is likely to continue because of proliferation of technology through the Internet, increased availability, and exposure of media technologies, etc. This is likely to create a better balance between market pull and technology push in the cultural heritage sector.

It could be inferred that the impact of technology can be affected by the way technology is introduced and allowed to diffuse (for example, either through the force of user demand and requirement or through excessive empowerment of the technological innovation).

4.2.1 Technology value chain

The value chain development of the cultural heritage sector, as shown in figure 4.2, provides an overview of the type of technologies, and also some insights into the way these technologies are introduced in the sector.

Stages 1 and 2 depict technologies that form a platform for the development of further technologies which finally result in development of applications for the sector. Technologies in the cultural heritage sector would therefore include applications that are both sector dependent (e.g. customised applications targeting museums, etc.), and independent (such as video streaming software, imagine editors, etc.).

In the value chain, diffusion occurs both from the software and hardware elements of the technologies. Commoditisation of technologies at stages 1 and 2 during late 1990s and early 2000 has greatly reduced the costs of developing application thus providing easier and less expensive access to agencies at stage 4 and beyond which allows them to embrace technologies more easily than was previously possible.

This trend has allowed heritage site managers at stage 5, to approach closer to the ICT technologies and pick up elements which are in line with their requirements. This is beginning to cause a reversal in the trend of technology push which existed in the early 1990s to a more favourable demand-driven pull system. It is predicted that the number of easy-to-use applications will increase which will further strengthen this trend and thus create a balance between the push and pull systems.

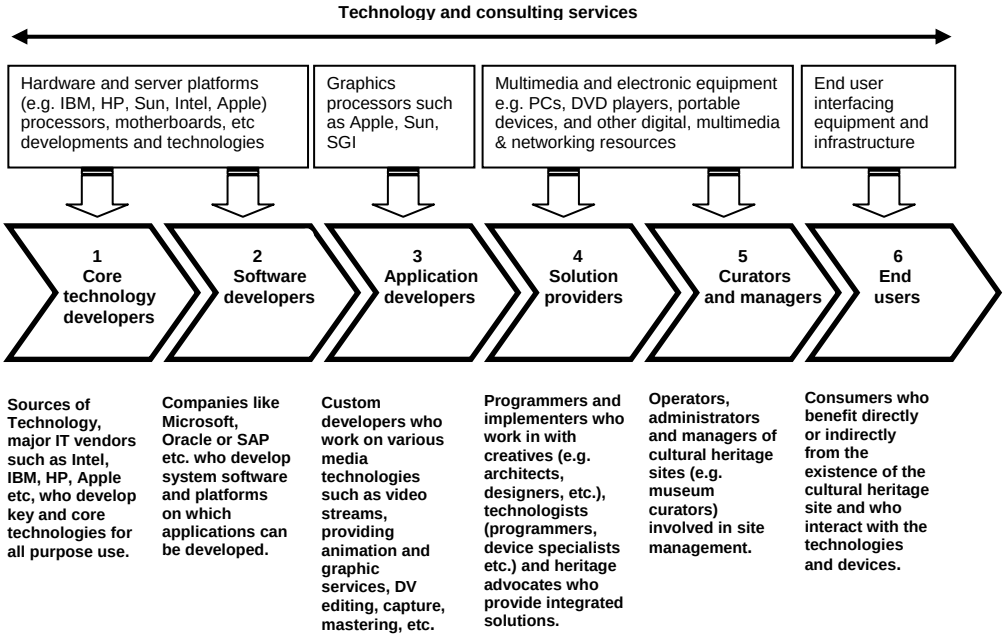


Figure 4.3: A typical technology value chain from a cultural heritage site

Thus one may conclude from the above value chain analysis that development of smaller packages specific to application areas and also sectors could aid in removing some of the diffusion barriers of innovation.

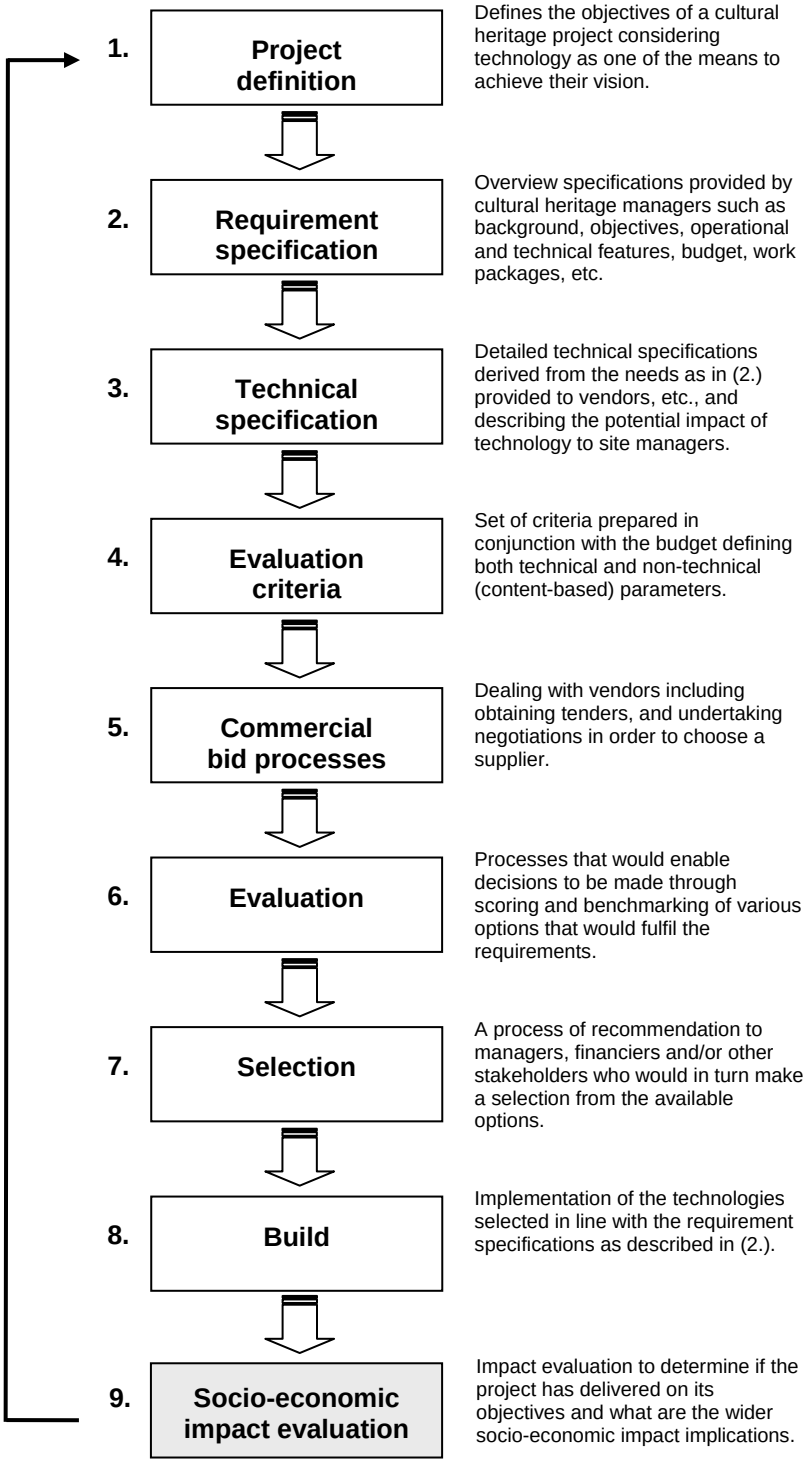
The relationship between the various agents at levels 1 – 6 could be complemented through professional service agents. The value chain also shows the role of professional services and consulting that could potentially bridge the diffusion gaps thus allowing the flow of technology to occur more smoothly. This would allow a non-expert in technology, such as a museum curator, to connect to professional service firms who could introduce technologies inline with the requirements of clients. Of course, in the cultural heritage sector limited funds can make this problematic.

The value chain analysis shows various possible ways of introducing technologies, pushing from upstream towards downstream or pulling from downstream towards upstream. In line with the current trends, it could be inferred that any approach that could pull the needed technologies from downstream according to user specifications is more likely to emerge a winner.

4.2.2 The technology introduction framework

The technology introduction approach is vital for obtaining reliable results from an impact study. As noted above, there has been a considerable change in the way technology has been introduced over the last 10 years. In the 1990s, it was more common to introduce technologies by creating a product first, such as a projector, and find a market for it afterwards. In the recent years, this has shown signs of turning around with the cultural heritage community taking a greater role in the decision making and business development processes. The example presented below in Figure 4.3 would act as guidance for developing and applying the technology impact measurement model. This framework could also serve as a basis for developing professionalism and standardisation in the sector.

Figure 4.4: Nine steps describing an approach to introduce technology in a cultural heritage site employing 'the pull'



approach

4.2.3 Development of an impact measurement model

Research by Geser (2004) reviews various technologies that could be adopted in cultural heritage sites in the short and long term. Certainly, with digital technologies developing at an increasingly rapid pace, the heritage sector needs a mechanism to be able to identify those technologies that would bring benefit and provide a certain amount of sustainability for different sized organisations in the short (2 years), medium (4 years), and long term (6 years+).

The value chain model developed provides a foundation for narrowing down technologies that would be of most relevance to cultural heritage sites. Stage 3 shows applications more relevant to the cultural heritage sector which form applications and on further course of development apply design and creative features (architects, designers, etc.). It is crucial to remember that technologists alone cannot create value, they need to create the right solution to deliver the requirements, and this may add to value. This allows us to define a broad bandwidth of technologies that could fall under impact measurement as shown in Figure 4.4 combining information technology, hardware, and creatives.

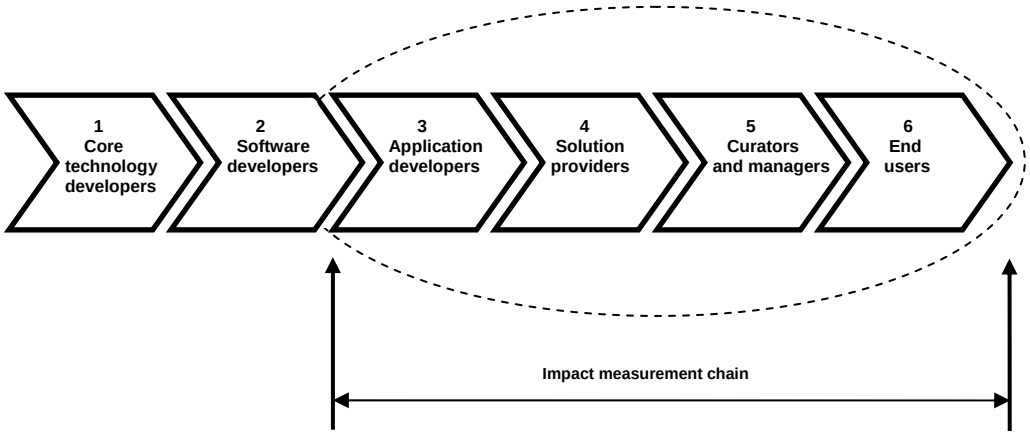


Figure 4.5: The area where technology introduced from level 3 could cause an impact on a heritage site.

Integrating the approach provided by Geser (i.e. assessing technologies in the context of long-term, short-term adoption potential and targeting institution size), and the value chain analysis considered above, a combination of technology categories (shown in figure 4.5) have been identified.

These technology 'categories' would be able capture the latest developments in those technologies with short, medium and long-term benefits in terms of impact measurement. The lists could be updated using sources such as DigiCULT technology watch reports or other sources at the time of execution of the study.

By defining and quantifying (both subjective and objective) technology impact parameters in detail using survey questionnaires and business research tools, the technologies that are likely to have the high impacts or heritage sites that are likely respond positively to technology introduction could be identified and benchmarked.

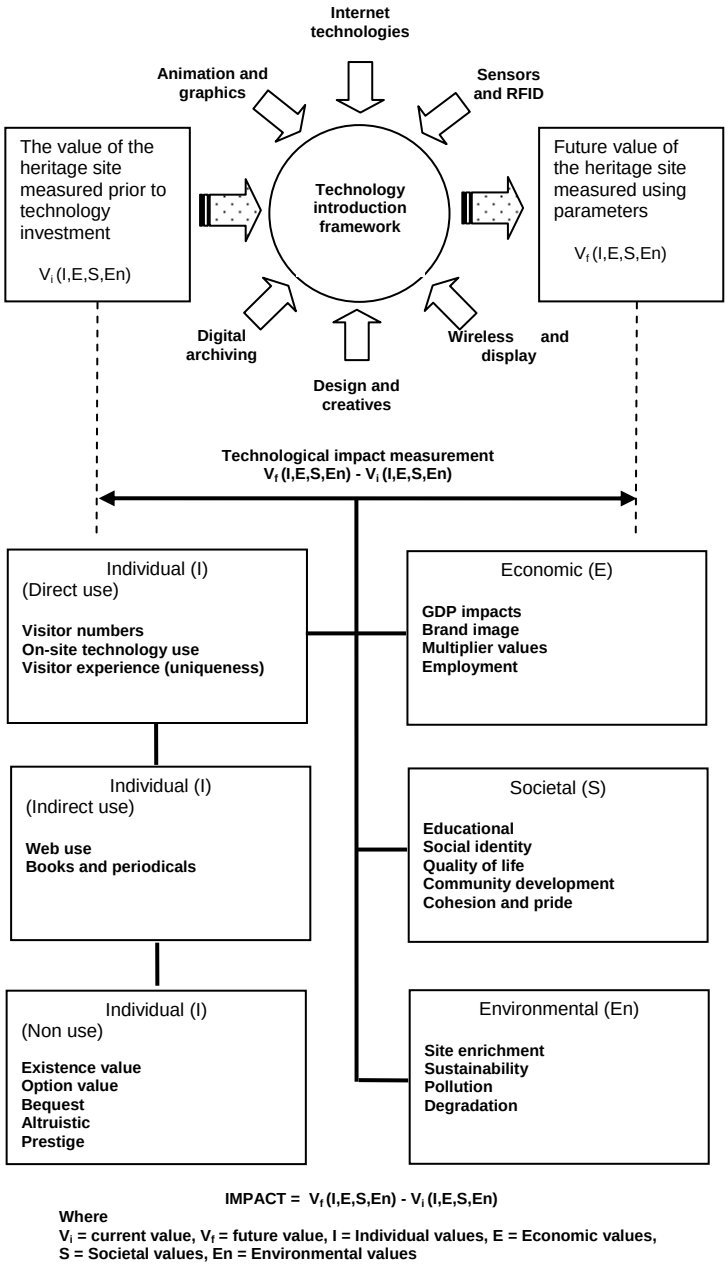


Figure 4.6: A technology impact measurement model.

4.3 Conclusions

It is event that technology at a cultural heritage site could be rapidly assessed using the above framework in conjunction with visitor questionnaires using a Likert Scale to determine social values. This could provide a much quicker assessment of visitor perceptions than a more complex and resource-intensive stated preference survey such as contingent valuation. Such a rapid assessment framework could be used to quickly gather data about visitor preferences 'in house'. This data could then be combined with economic data to provide a assessment of the impact of a cultural heritage site.

5 Conclusions

The cultural heritage sector is an emerging as an important industry sector in its own right and in some cases is already well established as a driver of economic development. Measures of socio-economic impact are increasingly in demand by policy makers but the techniques and capabilities are still relatively underdeveloped in this sector.

It would be convenient, and even perhaps desirable, to identify a single generic methodology that would capture, as comprehensively as possible, the economic impact of cultural heritage sites and that would be easily transferable to different contexts. Unfortunately, cultural heritage sites are highly diverse, and can feature for example the following differing characteristics:

- Scale and significance (local, regional, national or global).
- Geographical location.
- Competitive market.
- Policy and funding contexts.
- Missions.
- Governance and stakeholder influences.
- Approaches to strategic management and marketing.

It is immediately apparent that assessing social, learning and economic impact within the cultural heritage sector is a complex issue for which there is no single approach. However, it is apparent that broad analytical impact frameworks from which a menu of possible methodologies could be selected and applied depending on the specific case needs are feasible.

The methodology or methodologies chosen to determine value at each site will depend on the problem that is being studied. In most instances it is likely that a variety of techniques would be required to determine the range of benefits and values a site generates. These might be of special value for evaluating the impact of the use of various technologies on a site. However, there are many potential problems to tackle here. For instance, some of the complexities and research challenges of identifying socio-economic impact of technology in cultural heritage are:

- Obtaining relevant and accurate before and after impact data from technology focused investment projects.
- How to isolate the technology effects.
- The enormous variation in technology form and use.
- Life-cycle considerations.

The growing sophistication of technology and its potentially powerful application to cultural heritage, not least to enhance the visitor experience (virtual and real visitors),

throws up a need to evaluate its impact to help justify to policy makers the case for investment.

Future research directions

A number of case studies have been selected for research. These include:

- *The Ename Centre and museum, Belgium*: Representing a centre of ICT excellence in cultural heritage.
- *The British Museum mummy exhibition*: providing an example of an innovative use of technology in the cultural heritage sector.
- *The Royal Pavilion Palace, Brighton*: as an example of an essentially 'pre-technology' site that is considering the use of technology.

Appendix A

Threats to cultural heritage sites

Destruction of cultural heritage sites can take a number of forms[12]: accidental, deliberate, and natural. Digital preservation can provide a means of preventing complete data loss from a site.

Accidental

Accidental damage and destruction can be the result of:

Fire: Heritage buildings were not built with fire regulations in mind. The fabric of the buildings may be particularly prone to fire (materials such as wood and thatch), electrical services and wiring may be dated, and retrofitting of fire prevention services such as sprinklers may not be feasible. In 1992, a significant part of the upper ward of Windsor Castle in the UK (including St. George's Hall), was severely damaged by fire which broke out during building works on the State Rooms. In 1994, the Barcelona opera house, the Liceu, Europe's second biggest, burnt down. In 2001, the Sophiensäle complex in Vienna was badly damaged by fire.

Age: The age of many cultural heritage sites can also contribute to their demise. Gradual degradation of a building's fabric over time can lead to catastrophic failure. In 1902, the 10th century Campanile Di San Marco (the bell tower of San Marco) collapsed in Venice. In falling, it also damaged the Loggetta built at its foot by Sansovino.

Over use: Increased visitor numbers can be attractive to site managers; however, all cultural heritage sites have their own carrying capacity for visitor numbers. If these numbers are exceeded, then irreparable damage can be caused to the fabric of sites. The Palaeolithic cave sites at Lascaux, France and Altamira, Spain were both closed to the public, and replicas were created to prevent damage to the cave paintings caused by the increase in humidity from visitors' breath.

Deliberate

Deliberate damage to cultural heritage sites can include:

Arson: Arson is also a serious problem for cultural heritage sites. The La Fenice opera house in Venice, Italy was destroyed by arsonists in 1996. Poland's wooden churches, built between the 14th and 19th centuries, have been particularly vulnerable to fire. Between 1999 and 2000, 50 churches burnt down. Although some fires were accidental, mainly the result of faulty and aging wiring, a large number, including Miedzyrzec Górny, Laczna near Gliwice, Lekawica near Zywiec, Dluga Koscielna,

[12] The potential threats to cultural heritage sites in Europe are often different to those seen in many parts of the world. Political and economic stability means that war is less likely to cause the destruction of European cultural heritage.

and Wola Justowska in Cracow, are thought to have been the result of arson used to cover up break-ins and theft (ICOMOS 2003: 170-1).

Looting and vandalism: This can be a serious problem for cultural heritage sites. Although vandalism may not always contribute the complete destruction of an archaeological site, it may cause considerable damage. In the Czech Republic, there has been an enormous increase in the theft of moveable heritage, as well as vandalism and destruction of protected sites (Macháček 2001: 3). In 1997, three people were arrested for robbing stone from the 10th century Los Nogales Bridge, near Córdoba, Spain. The looters were looking for a source of stone for their nearby home, and destroyed about 20% of the bridge before they were stopped (Cacho and Sanjuán 2000).

War: Cultural heritage sites often have symbolic, national, or religious values that are a focus for deliberate attack. Although war is a one of the principal mechanisms through which cultural heritage sites can be deliberately destroyed, the current political stability of Europe has reduced the likelihood of this occurring. However, political upheavals can occur that have a direct impact on cultural heritage. The destruction of the Berlin Wall and other symbolic monuments of the GDR after the collapse of communism in East Germany show how close this can come to mainstream Europe.

Collateral damage: There is also incidental destruction during conflict and terrorism such as the complete collapse of the 10th century St Ethelburga's Church in London after an IRA bomb exploded nearby, in 1993.

Natural

So called 'acts of god' such as floods, earthquake, and volcanism have always been a threat to the built environment.

Floods: Europe is fortunate in having a relatively stable climate, which is not prone to severe storms. However, parts of Europe have long been prone to flooding. In 1966, Venice was subject to widespread flooding. In the winter of 1997-1998, floods in Poland caused significant damage to cultural heritage sites such as churches, especially in Silesia. Flooding of the River Elbe in Germany in 2002 caused considerable damage to heritage sites in Saxony and Sachsen-Anhalt (ICOMOS 2003: 95). It is probable that climate change will worsen the problem of flooding across Europe. Furthermore, as the boundaries of Europe expand, more countries are likely to be included that will be vulnerable to natural disasters.

Erosion: Erosion takes two forms, macro and micro. Macro erosion is the physical erosion of the environment due to the action of rivers and the sea. For example, an assessment of 20% of Scotland's coastline revealed 6646 archaeological sites, of which 37% (2727 sites) were to some degree vulnerable to coastal erosion. If these results were extrapolated to Scotland as a whole, there could be about 34,000 sites close to the coast, of which around 12,400 would be vulnerable to erosion (Ashmore 2003: 203). Micro erosion is the erosion of the site due to wind or acid rain. For example, the world heritage site at Tanum in Bohushin, Sweden contains over 10,000 rock carvings dating from the Bronze Age. These rock carvings have proven to be particularly vulnerable to erosion because of acid rain degrading the granite. In some cases, the

rock carvings were roofed over, and in others, the carvings were cleaned and filled with a non-destructive paint. This situation is not limited to Sweden – the Neolithic rock carvings at Gardom's Edge on the Peak District moors in Derbyshire, UK, have decayed since they were uncovered 30 years ago, because of the action of acid rain. To prevent further erosion, the rock carvings were re-buried and a replica was put in their place. Acid deposition can affect heritage of any age (Morey *et al*. 2002).

The importance of ICT

In a number of case ICT may be the only cost-effective, or practical, means of reconstructing cultural heritage sites that have been destroyed (i.e. the Buddas of Bamyian).

Appendix B

Non-market analyses of cultural heritage in Europe

The following literature review looks at non-market economic studies of cultural heritage sites that have been conducted in Europe. The most widely used non-market valuation technique in the cultural heritage sector is contingent valuation. The methodology has been widely used in the field of environmental economics since the 1960s. The adoption of the technique in the cultural heritage field has been much more recent.

The earliest application of non-market analysis in the 'cultural' field was the contingent valuation study undertaken in Australia to determine the value of support for the Australian arts, using increased taxes as a payment vehicle. The success of this early study was an impetuous to the use of contingent valuation techniques in the cultural arena. The technique was used increasingly for other cultural valuation studies throughout the 1980s, including a referendum on a Swiss municipal theatre, the value of performing arts and culture in Ontario, cultural attractions in Britain, and the purchase of two Picasso paintings by a Swiss city (Noonan 2002).

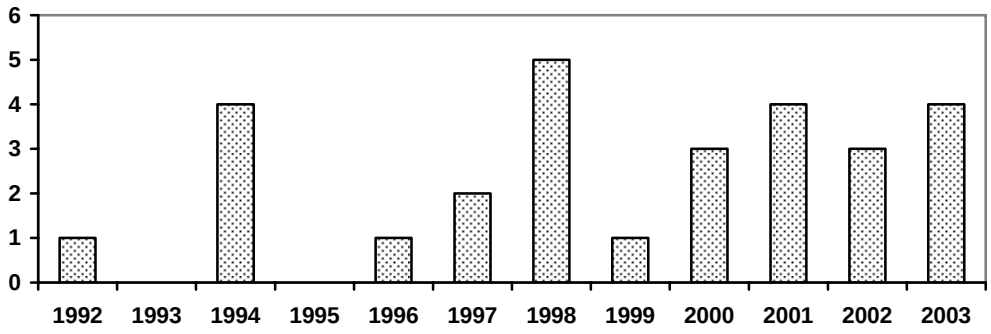


Figure A0.1: The *publication* of contingent valuation surveys conducted on cultural heritage sites in Europe

However, it was not until the early 1990s that non-market analyses began to be applied to cultural heritage sites. The earliest published study was a contingent valuation survey undertaken at Nidaros Cathedral, Norway (Navrud 1992, and Navrud and Strand 2002). This was followed by a blossoming of site valuations in 1994, including a valuation of the damage caused by air pollution at Durham Cathedral, UK (Willis 1994), the value of maintaining 16 historic buildings in Neuchatel, Switzerland (Grosclaude and Soguel 1994), and a valuation of three historic sites in Italy.

1996 saw studies of the renovation of buildings in Grainger Town, Newcastle, UK (Garrod *et al*. 1996), and the WTP to gain entry to Warkworth Castle, UK (Powe and

Willis 1996). It also saw the first publication of what was to become an extensive and sophisticated series of reports on the Royal Theatre in Copenhagen (Bille 1996).

The first valuation of an archaeological site was conducted in 1997, with the study of the archaeological complex at Campi Flegrei in Naples, Italy (Riganti 1997). The nineties closed with an evaluation of alternative road options for Stonehenge, UK (Mourato and Maddison 1999, Maddison and Mourato 2002).

Recently, contingent valuation has been used to determine WTP values for cleaning Lincoln Cathedral, UK (Pollicino and Maddison 2001), and retaining cultural services at various Italian museums (Bravi *et al*. 2002). The value of Italian heritage assets was assessed at Napoli Musei Aperti, Naples, Italy (Santagata and Signorello 2000, 2002), the baroque city of Noto, the Bosco di Capodimonte, and museum services in the Galleria Borghese museum, in Rome. Museums and archives have also been intensively studied, including the Surrey History Centre, UK (Özdemiroğlu and Mourato 2002), congestion at the British Museum (Maddison and Foster 2001), and the National Museum of sculpture in Valladolid, Spain (Sanz *et al*. 2003).

It is apparent that most types of cultural heritage asset have been valued using non-market valuation methods. These include:

Cathedrals

Some of the earliest applications of contingent valuation in the cultural heritage sector were carried out at cathedrals.

Nidaros Cathedral (Norway)

The first evaluation of a cultural heritage site using the contingent valuation method took place at Nidaros Cathedral, Tondheim, Norway (Navrud 1992, and Navrud and Strand 2002). Nidaros Cathedral is the oldest surviving medieval building in Scandinavia. Navrud (1992) used contingent valuation to estimate visitor's WTP values for reducing the deterioration of the building caused by air pollution. This was achieved using two different lines of questioning:

Individuals were asked exactly how much they would be willing to pay to reduce air pollution. As this was the cause of the degradation of the cathedral this method would solve the issue at its root. Individuals were also asked how much they would be willing to pay to restore the damage caused by air pollution to the cathedral.

Face-to-face interviews were conducted with individuals outside the cathedral between June and August 1991. An open-ended question format was used, and the payment vehicle was a one-off payment

It was found that respondents willingness to pay for the reduction of air pollution was 318 NOK, but the WTP for the repair of pollution damage to the cathedral was 278 NOK. It was noted that 65% of the respondents felt that the original structure of the cathedral had a greater meaning to them than a restored structure.

In order to test for whole-part bias the study compared the WTP for reducing damage to all Norwegian cultural heritage sites with the willingness to pay for reduced damages to Nidaros Cathedral.

Using the cathedral's 165,000 visitors in 1991 as a base the aggregated benefits of these results were calculated. Applying the mean WTP values provided estimations for visitors of 52.5 million NOK for preservation and 48.9 million NOK for restoration and repair. Approximately, 41,000 foreigners visited the cathedral in 1991, giving using the average WTP attributed to foreigners of 238 NOK and 174 NOK respectively the value of preserving and restoring the cathedral was 10 million and 7 million NOK (Navrud and Strand 2002: 38-9).

It has been suggested by Pollicino and Maddison (1999: 4) that because the study samples only the views of the cathedral's visitors rather than all Norwegians it represents an underestimate of the willingness to pay. They also note it is unclear if the respondents were valuing other benefits deriving from the reduction of air pollution in addition to the decrease in damage to the Cathedral.

Durham Cathedral (UK)

This study by Willis (1994) was used to determine WTP for access to Durham Cathedral in the UK. The survey was undertaken ascertain if visitors could be charged an entrance fee in order to obtain revenue for building restoration. The analysis was used to determine what the change in visitor numbers would be at different price levels. The survey was also used to find out about visitor motivations (for example, 71% of those surveyed were engaged in sightseeing). At the time of the survey, Durham Cathedral in the UK had free access. Donation boxes with a picture of a one pound coin were located near all entrances and exits. Ninety-two visitors were questioned when leaving the cathedral. The individuals were asked if they had already given a donation voluntarily. It was found that 51% of respondents had made no contribution, and only 12% had contributed more than the suggested amount of a pound.

A payment-card format was used to determine the WTP for access to the cathedral. When asked for a maximum WTP, 31% suggested that they would give more than the suggested donation. Furthermore, 49% said that they were willing to pay over £0.76. The optimum access fee calculated by Willis was £0.875. It was therefore evident that the maximum annual revenue that could be achieved from entrance fees was slightly lower that the revenue then obtained from annual donations. The reason that an entry charge would not raise significantly more than the donations was because many of the visitors who contributed less than the entrance charge would either cease to visit or visit less frequently. It should be noted that in this context, the benefit most visitors to the cathedral gain exceeds the revenue from donations. Therefore, a consumer surplus accrues to most visitors.

Lincoln Cathedral (UK)

This contingent valuation study by Pollicino and Maddison (2001, and 2002) was used to determine a WTP valuation for a masonry cleaning program at Lincoln Cathedral. Air pollution had caused much soiling on the cathedral's stonework. The mechanism used was a hypothetical increase in the cleaning cycle from 40 years to 10 years, and the payment vehicle was a rise in annual household tax. Face-to-face interviews were

conducted with 328 Lincolnshire residents. The survey instrument was designed to comply with the NOAA recommendations for contingent valuation design and use.

Photographs were presented to respondents to show the cathedral as it could look with 15 years of accumulated grime and pollution on the façade and after the stonework had been cleaned. Respondents were therefore valuing the change of appearance that followed the cleaning cycle.

A double-bounded dichotomous-choice method was used and found evidence of a starting point bias. The research concluded that respondents living in the region of Lincoln did place a high value on the preservation of the cathedral's appearance and supported a higher WTP for the increased cleaning cycle. Households in Lincoln had a mean WTP of £49.77 and an aggregate WTP of £1.8 million. Households outside of the city had a mean WTP of £26.77 and an aggregate of £5.5 million. The geographical extent of the WTP was estimated to extend to 40-53 miles from the cathedral.

Historic areas and buildings

Historic buildings, groups of buildings and localities have been widely studies using the contingent valuation technique.

Historic buildings in Neuchatel (Switzerland)

The research by Grosclaude and Soguel (1994) attempts to determine the WTP for restoration of damage to historic buildings in Neuchatel, Switzerland caused by traffic pollution. Sixteen buildings were included in the survey. Two hundred residents were surveyed. Those interviewed were told that the local authority could no longer afford to undertake all the restoration and maintenance required and so the residents would be required to contribute to a fund for the maintenance work. Each was shown photographs of the 16 buildings in order to ascertain which buildings respondents wanted restored. The survey used an open-ended question format to determine residents WTP an annual sum to maintain the buildings. A number of individuals could not provide a precise WTP and so iterative bidding was instigated by the interviewer. A multiple regression analysis using a Box-Cox transformation was used to identify the variables that affected individuals' willingness to pay. The mean WTP for the sample was 14.3 Swiss Francs and the median WTP was 5.0 Swiss Francs. Twenty-two individuals were unconcerned about the protection of the buildings. If these individuals were removed from the analysis the values for mean and median WTP increase to 16.0 and 7.5.

The authors estimated annual WTP for six buildings was 108 Swiss francs per household. The external aggregated cost for the whole town was SFr. 1.5 million or SFr. 250,000 per building.

Grainger Town, Newcastle (UK)

This study by Garrod *et al*. (1996) determined whether a sample of 202 taxpayers in Newcastle were willing to pay increased taxes for the restoration of historic buildings in Newcastle's Grainger Town. Those interviewed were presented with an open-ended

WTP question. The study found a median WTP of £10.00. The bid values were seen as a function of use, demographic, and other variables. Respondents were also asked to allocate financial resources to different areas of Grainger Town. It was found that precedence was given to parts of Grainger Town that had the highest levels of dereliction (Garrod and Willis 2002).

Napoli Musei Aperti (Italy)

This contingent valuation survey by Santagata and Signorello (2000, and 2002) was used to determine WTP values for a group of historic and cultural monuments, the Napoli Musei Aperti (NMA), in central Naples. 468 residents of Naples were questioned for the survey. Individuals were asked if they would contribute voluntarily to a non-profit organisation running the NMA heritage sites rather than relying solely on government support.

The survey was also used to obtain an estimate of individuals' annual expenditure on cultural goods and services. Respondents were reminded of this figure before being asked a dichotomous-choice WTP bid. An open-ended question was then asked in order to elicit WTP. This form of questioning identified an anchoring bias.

The study estimated mean WTP values of 17000 lire derived from the open-ended questions and 30000 lire from and dichotomous-choice questions. This was despite the city spending only 4800 lire per capita on the NMA. Various funding mechanisms were considered in light of these results.

Warkworth Castle (UK)

This study by Powe and Willis (1996) was used to determine visitor's WTP to enter Warkworth Castle, Northumbria. In this research 201 individuals were surveyed on leaving the castle. At the time of the survey the entrance fee for adults was £1.80, pensioners £1.35 and members of English Heritage gained free admission. The mean WTP for all visitors was £2.53, and the median £2.34. Of the sample groups paying visitors had a WTP of £2.62, pensioners £2.55, and surprisingly English Heritage members £2.30.

When questioned further over 90% of the respondents stated that they expected that some percentage of their entrance fee was used for preservation of the castle. In these circumstances, the visitor's mean WTP for entrance if the fee was not to be used for preservation of the site dropped to £1.62 and the median WTP to £1.50. The visitors were asked for their WTP if the funds were used exclusively for preservation of the fabric of the castle, assuming that they had already paid their stated WTP for entrance to the castle. The mean WTP for preservation was £0.50. It was concluded that visitors to Warkworth Castle have a mean WTP for preservation of £1.41 and a median of £1.84 (Garrod and Willis 2002). The total benefits provided to visitors at Warkworth Castle were estimated to be more than 2.5 times the revenue gained from the entry fees. The authors suggest that if "funding for heritage sites were to be purely determined by financial revenue, generated from entrance charges, then this would lead to less preservation of heritage than would be optimal or best for society." (*Op cit*: 274)

Archaeological sites

Archaeological sites have been poorly represented in non-market valuations in the cultural heritage sector. Two principal studies have been undertaken:

Stonehenge (UK)

Stonehenge is managed by English Heritage and is a UNESCO World Heritage Site. Constructed during the Neolithic and Bronze Ages (between 5,000 and 3,500 years ago) Stonehenge is a circular henge monument (bank and ditch) containing the world-famous stone circle. It is located in a well-preserved remnant prehistoric landscape containing 450 archaeological sites, mainly burial mounds, on Salisbury Plain, Wiltshire. However, two roads (the A303 and A344) pass very close to Stonehenge, causing noise pollution to the visitors, and breaking up access to the prehistoric environment complex.

This survey by Maddison and Mourato (2002 and Mourato and Maddison 1999) was used to determine if UK residents preferred the current road layout near Stonehenge or a tunnel option that would route the roads out of site from the monument. In total 129 UK visitors to the site and 228 UK households were surveyed to determine WTP values for the alternative road options. Those surveyed were shown photographs of the current road and a representation of what the new tunnel would look like. After the respondent stated a preference regarding the alternatives they were asked for a WTP value using a payment ladder format for a two-year tax increase to support their road preference.

The mean WTP per household for the tunnel option was £12.80 and £4.80 for retaining the current road layout (giving rise to an aggregate value of £265 million for the tunnel and £116 million for the current road). There was a fairly even split between respondents on which option they would prefer (144 preferred a tunnel and 126 wanted to retain the current road layout). Using the median WTP approach, the authors found the aggregate benefit of the tunnel to be essentially zero. Despite this result the UK government is planning to build a 2km tunnel to route traffic past the Stonehenge environs.

Campi Flegrei archaeological park (Italy)

This study by Riganti (1997) and later Riganti and Willis (2002) looks at the Campi Flegrei Archaeological Park in the city of Naples. The archaeological park is on the site of the first-century-AD summer residence of the Roman emperors, and contains extensive examples of Imperial Roman remains. The authors attempted to determine the maximum monthly amount that individuals were willing to pay to preserve the heritage site. The payment vehicle chosen was a monthly payment to an independent conservation body.

Two sets of interviews were conducted. 448 interviews were conducted in March 1995 with visitors to the site and residents of Naples (Riganti 1997), while a second survey was conducted in July 1997 which collected 497 interviews. In 1997, a double-bounded question survey format was used to retest the single-bounded format used in

the 1995 survey. The samples were split into two equally-sized groups, where one group was given more background information.

The survey elicited five different WTP responses for the following scenarios: conserving the entire area of Campi Flegrei allowing the restrictions on urban development to continue; conservation of parts of Campi Flegrei that were not yet publicly available; conserving Campi Flegrei for use by future generations, conserving the Bagnoli area only; and conserving the Bagnoli area for use by future generations.

The aim of the papers is to study the methodological issues associated with nested values associated with respondents' total value for conserving the area. When different tests were used to test the internal consistency, the results suggested that the respondents did not recognize the different scopes involved with the scenarios, but greater information did help them understand the goods being studied. The average WTP per household was 420,000 lira per annum.

Theatres

Theatres have been widely studied using non-market valuations in the cultural field. A few such sites can be considered historical entities such as the Royal Theatre, Copenhagen founded in 1748.

The Royal Theatre (Denmark)

A number of sophisticated econometric contingent valuation reports have been produced by Bille (1996, 1997, and 2002) regarding the aggregate WTP for the Royal Theatre, Copenhagen.

1,843 Danes were surveyed by telephone about their willingness to pay for the Royal Theatre in Copenhagen using tax as the payment vehicle. An open-ended WTP question was used in conjunction with a "too much, too little" question about government financial support for the Royal Theatre. Furthermore, in order to study the effect of information on WTP, a split sample was used to determine the effect on individual's WTP of being told what a Dane actually pays on average in tax for the Royal Theatre each year. The WTP difference between users and non-users of the Royal Theatre was also studied; it was found that theatre users were willing to pay at least three times as much as non-users.

The survey found that there was a mean WTP of 154 Danish Kroners (DKK). The median WTP was DKK 60. The median was found to be equal to the per capita tax expenditure on the Royal Theatre, regardless of the information that the individuals received. However, it was found that the provision of information to individuals led to an anchoring bias (45% of WTP responses equalled DKK 60). A sophisticated model is forwarded to explain the WTP, taking into account the selection issues resulting from theatre visitation (Bille 2002: 219-28).

Bille concludes that the Royal Theatre would be unable to exist if visitor income alone had to pay for operating costs. More interestingly, non-user WTP is the largest part of the total WTP. In this way Bille argues that it is possible to economically justify the public grant received by the Royal Theatre using the taxpayer's (non-user) WTP as the basis. Billie (1996) notes that "This valuation method is far preferable to economic

impact studies, which have often been used as an argument for public support of cultural activities. The Danish taxpayers value the Royal Theatre and are willing to pay the price."

Museums

Museums across Europe have been extensively studied using non-market valuation techniques.

The British Museum (UK)

This study by Maddison and Foster (2001) reports on work to value the reduction of congestion at the British Museum. The authors request that the paper is neither quoted nor cited, and it should be noted that the work is still in draft state.

The British Museum in London is a heavily visited national attraction with 5.4 million visitors recorded in 1999. These kinds of visitor numbers can affect the quality of the experience that is provided because of queuing, noise, and inability to view the exhibits. The research aimed to determine a value for the congestion costs imposed by visitors to the British Museum on other visitors. A number of potential solutions are forwarded to try to solve the issue of congestion. The possibility of charging was forwarded, and so was putting more artefacts on display. Interestingly, however, so was the use of an Internet-based virtual tour of the museum. The authors suggest considered that this would not eliminate congestion, because a virtual tour would not provide the same levels of satisfaction as an actual visit to the site. There was also a concern that the cost of technology might outweigh the benefits of reduced congestion.

A choice experiment was conducted on 400 visitors to the museum in August 2000. The visitors were shown photographs of three exhibits at their most crowded, and photos of the same exhibits when less crowded. The survey implied that the crowded photos were associated with free admission, and the less-crowded photos with an admission charge (these were randomly chosen at £3, £6, £12, and £20). The respondents then indicated a preferred option.

The authors suggest that there is an estimated congestion cost of £5.99 imposed by the marginal visitor (i.e. the individual's assessment of the congestion cost imposed by an additional visitor was estimated to be 0.04 pence, this was then multiplied by the number of visitors to obtain the aggregate congestion cost imposed by the marginal visitor on all other visitors). The marginal congestion cost does not, however, relate to the optimal charge, because if a charge were imposed, then the visitor numbers would fall and the congestion externality would change.

The authors consider that the methodology used could be applied to other sites struggling with issues of mass visitation.

The National Museum of sculpture (Spain)

This research by Sanz *et al*. (2003) used two different contingent valuation surveys to estimate the economic value of the National Museum of Sculpture in Valladolid, Spain. One survey was used to determine the direct use value of the museum and was

presented to visitors to the museum; and the other was used to try to capture the passive use value and was presented to potential users in the town of Valladolid.

Both surveys made use of a double-bounded dichotomous choice format for the valuation question, followed by an open-ended question. The payment vehicle was a contribution to a special fund for preservation and running of the Museum. The contingent valuation survey for estimating use value was a self-completing survey, so that visitors themselves were the ones who filled it in when they decided to collaborate. 1,147 surveys were conducted, of which 1,108 were considered valid. The passive use value of the museum was estimated using a telephone survey of the people of Valladolid. 1,014 usable surveys were obtained.

The mean WTP of direct users of the museum ranged between €25 and €30 using a conservative scenario, and between €33 and €40 using a more optimistic scenario; the value assigned by potential users of the museum (passive use values) was approximately €27 and €36 for each of these scenarios. It also showed that there was a degree of acceptance of the concept of the payment vehicle. Importantly, it was found that when parametric, non-parametric and semi-parametric valuation methods were compared in a single study (using the double-bounded dichotomous choice survey), there was no statistically-significant variation in the demand function for the analysed cultural good and its expected WTP, no matter what approach was used.

Galleria Borghese museum (Italy)

One of the first studies to measure the WTP associated with ICT (specifically multimedia services) at a cultural heritage site was conducted by Mazzanti (2003a, 2003b) at the Galleria Borghese museum, in Rome. The Galleria Borghese museum, located within the Villa Borghese Park in Rome, is considered by the author to be one of the most important of the state-owned cultural heritage sites in Italy. The site was refurbished between 1984 and 1997, and this research was the first major survey carried out since the restoration project.

The study was based on a survey carried out at the site in the summer of 2000, which collected 185 valid questionnaires (92% of the total conducted) after on-site interviews with visitors. The questionnaire was composed of three sections: the first looked at the subject of the study, the second contained a contingent valuation questionnaire, and the final was a choice experiment followed by a request for socio-economic information.

The survey actually valued a variety of elements, of which multimedia services was one. The author used a choice-based experiment in which the various attributes of the site were broken down so that visitors could provide willingness-to-pay for various hypothetical changes in the attributes. The two contingent valuation studies (using a payment ladder format) were carried out in order familiarise visitors with monetary valuation and to get information on (monetary) values attached to the current offerings for visit length and site conservation.

The various services offered by the Galleria Borghese museum were described to users including:

- The entry fee.

- The level of conservation activity at the site.

The visitors were asked to make choices about:

- Increasing the level of conservation and restoration.
- Increasing visit hours.
- The addition of multimedia services.
- The addition of multimedia services, plus a temporary exhibition.

It was found that visitors expressed a preference for an increase in spending on conservation, for an increase in the level of multimedia services and a possible temporary additional exhibition complementary to the main one. The visitors questioned were, on average, not prepared to pay for increasing the time of the average two hour visit.

Using the figures from 2000 for paying visitors and from WTP values, the author calculated the increase in economic surplus, which could be derived from a supply increase (i.e. and additional temporary exhibition and multimedia services and a conservation earmarked fund). The contingent valuation experiment revealed that the gross economic surplus, which could theoretically be captured by introducing new services and conservation funds, ranged between 21-121% of the direct revenue raised by fee charges, and between 15-88% of the total yearly economic surplus.

The Museum of Central Finland

This study by Tohmo (2004) aimed to determine the WTP for the Museum of Central Finland in Jyväskylä. The research also looked at the factors that could affect the residents willingness-to-pay for the museum. A contingent valuation questionnaire was sent by post to a random sample of 800 Jyväskylä residents aged 18 and over in November and December 1997.

The individual willingness-to-pay varied from zero to 1000 Finnish Markkas (FIM). The average WTP to retain the museum was FIM 103 (with a median of FIM 50). Almost 30% of the respondents provided a zero bid for their WTP for the Museum of Central Finland. It was hypothesised that this was a function of the fact that 46% of the respondents had never visited the Museum, and these non-users would tend to feel that they gained no benefit from the site. In fact, the author suggests that based on this percentage of non-users, the proportion of zero bids could have been expected to be even higher.

Unsurprisingly, the average WTP of non-users was only FIM 56 (median FIM 5). For non-users the average WTP was FIM 56. Although a large percentage of the respondents had not visited the museum very often, they did report some willingness-to-pay for its continued existence and for the possibility of making a future visit. The author argues that this non-use value of the museum can be used to further legitimize public support.

It was found that for each citizen (in 1996) FIM 78 in tax revenue was transferred to the Museum of Central Finland. The average amount the residents of Jyväskylä

reported being willing to pay to keep the Museum open was FIM 103. It is apparent that the residents actually contribute less in taxes to the upkeep of the museum than they report that they are willing to pay. The resident's willingness-to-pay is used to legitimise the upkeep of the museum, suggesting that at the very least the present amount of tax revenue can be directed towards the support of the museum.

Archives

Interest in archives has been a relatively recent phenomenon. The only non-market valuation that has been conducted is the pilot case study at the Surrey History Centre (UK).

Surrey History Centre (UK)

This research by Özdemiroğlu and Mourato (2001) studied the Surrey History Centre, a local authority archive in Woking, UK. The History Service collects and preserves archives and printed material of relevance to Surrey history, and makes them available for reference. The archives include county and government records, newspapers, magazines, journals, books, manuscripts, prints, drawings, letters, sound archives, oral histories, music collections, photographic collections, film, microfilm, maps, and collections in electronic format.

A pilot study of sixty interviews was conducted with 'users' and 'non-users' of the site in May 2000. Thirty-eight interviews were conducted with 'users' of the centre itself, and 22 interviews were conducted with 'non-users' who had never visited the centre in the local town of Woking. The intention was to determine if use and non-use values could be determined for the recorded heritage conserved at the Surrey History Centre. The authors stress that this was a pilot study with a correspondingly small sample size (60), and that a properly-conducted CV study would require between 500-1000 interviews rather than 60. The values should not be considered as final results.

Two valuation scenarios were studied: the WTP to prevent the closure and dispersal of the collections and WTP to prevent the closure of the site to users but the retention of the collections. A payment ladder format was used to elicit WTP. In line with NOAA recommendations of best practice respondents were also reminded of their budget constraints. Respondents who were not willing to pay for the preservation scenarios were questioned as to their reasons.

It was found that no respondents felt that they did not benefit from the recorded heritage, while the majority indicated that they 'strongly' or 'almost strongly' benefit. The authors found that in order to prevent the closure of Surrey History Centre and the loss of its collection users were willing to pay on average £34 per annum, and in order to prevent the closure of access £24 per person per annum. On average 'non users' were willing to pay £13 per annum, for both scenarios (Özdemiroğlu and Mourato 2001: Table 11). The median of was approximately £20 for 'users' and £10 for 'non-users', because the median was lower than the mean, this was seen as an indicating that the responses are skewed towards the lower end of the willingness to pay distribution.

The authors concluded that recorded heritage is a complex good that provides multiple benefits. People are willing to pay significant amounts to preserve the recorded

heritage; and, access to recorded heritage assets (or the information contained within) is crucial. The preservation of recorded heritage assets for future generations (bequest value) seems to be the dominant benefit, the WTP for access (use value) exceeds willingness to pay for preservation (existence value).

Libraries

Although libraries technically fall outside of the definition of pure cultural heritage sites, some institutions can make a case for inclusion. One such example is the British Library, London, which contains books and manuscripts dating back to the ninth century.

The British Library (UK)

This study by Pung *et al*. (2004) uses contingent valuation to measure the economic impact of the British Library, London on the UK economy. The research was undertaken between August and October 2003. Three principal attributes of the library were valued. These were:

- The reading room services
- The document supply services, and
- Public exhibitions.

Recent digital and Web initiatives were not evaluated so as not to bias the results, and non-UK library users were excluded from the survey.

In total 2,359 individuals were interviewed for the study including, 229 reading room users, 100 remote users, in addition to 2,030 members of the general public who did not make use of British Library services.

The author's found that the questions attempting to determine 'Willingness to Pay' gave lower value estimates compared to questions attempting to determine 'Willingness to Accept'. This is a function of the fact that Willingness to Pay estimates are constrained by respondents disposable income.

For non-users general public a random sample of the population of all regions of the UK was conducted. 84% of respondents felt that the British Library had value for society as a whole. Individuals were willing to pay on average £6.30 in taxes, which is double the current average contribution of approximately £3.00. The willingness to pay was found to be strongly linked to income and region with the southeast having the highest WTP, although all regions were willing to pay more on average than they currently pay through taxes (Pung *et al*. 2004: 88).

Overall the study revealed that the British Library generates £363 million worth of value per annum, both in direct value to the library's users (£59 million) and the indirect value to society (£304 million). This is 4.4 times the annual government funding of £83 million. This study is the first example of the use of contingent valuation to provide a figure for the total economic value of a major national research library.

Conclusions

The use of contingent valuation is now widely accepted as a non-market valuation technique in the cultural heritage sphere. The methodology has been used across all domains of cultural heritage, from archaeological and historical sites to museums and archives. However, to-date only one non-market study has attempted to value ICT at a cultural heritage site (Mazzanti 2003a, 2003b). Here the author attempted to put a value on multimedia services (in addition to other non-ICT services) at the Galleria Borghese museum in Rome using a choice experiment.

The low number of studies of ICT at heritage sites is considered to be a function of the relatively recent application of ICT to enhance the visitor experience at cultural heritage sites, in conjunction with the comparatively low number of non-market valuation studies that have been conducted on such sites.

The use of other non-market valuation techniques, such as the travel cost and hedonic pricing techniques, have had fewer applications in the field of cultural heritage, despite having much more widely-accepted economic principles. European studies using travel cost methods are rare. An exception is the work of Bedate *et al*. (2004), using the travel cost method to estimate the demand curve for a historic village, a museum in the provincial capital, and a historic cathedral in the Castilla y León region of Spain. Travel cost appears to be more widely used in North America (i.e. Martin 1994, Poor and Smith 2004). Hedonic pricing has been used even less frequently as an evaluation technique (Clark and Herrin 1997, Deodhar 2004).

It is apparent that contingent valuation and contingent choice are techniques that could be applied to the study of how information technology can affect the impact of cultural heritage sites.

Figure A2 European non-market valuations conducted at cultural heritage sites

Site	Study	Publications	Survey type	Survey date	Number surveyed	Breakdown	Survey method
Nidaros Cathedral (Norway)	WTP for air pollution damage to Nidaros Cathedral	Navrud (1992), Navrud and Strand (2002).	Contingent valuation	June-August 1991	163	Individuals outside the cathedral	Face-to-face interview
Durham Cathedral (UK)	WTP for entry to Durham Cathedral	Willis (1994)	Contingent valuation	1993	92	Cathedral visitors (users)	Face-to-face interview
Royal Theatre, Copenhagen (Denmark)	WTP for current services at the Royal Theatre	Bille (1996, 1997, 2002)	Contingent valuation	Autumn 1993	1,843	Danish households (users and non-users)	Telephone and some interview
Neuchatel (Switzerland)	Damages caused by air pollution to 16 buildings in Neuchatel	Grosclaude and Soguel (1993, 1994)	Contingent valuation	1992	200	Neuchatel residents	Face-to-face interview
Warkworth Castle (UK)	WTP for entry to Warkworth Castle	Powe and Willis (1996)	Contingent valuation	June-September 1994	201	Potential site visitors	Face-to-face interview
Grainger Town, Newcastle (UK)	WTP for restoration of buildings at Grainger Town, Newcastle	Garrod *et al*. (1996)	Contingent valuation	1995	202	Newcastle taxpayers	Face-to-face interview
Campi Flegrei (Italy)	WTP for the conservation of the archaeological park	Riganti (1997), Riganti and Willis (2002)	Contingent valuation	March 1995, July 1997	448 + 497	Site visitors (users) and Naples residents	Face-to-face interview
Napoli Musei Aperti (Italy)	WTP for the preservation of the Napoli Musei Aperti	Santagata and Signorello (2000, 2002)	Contingent valuation	Autumn 1997	468	Naples residents	Face-to-face interview

Museum of Central Finland	WTP for current services at the museum	Tohomo (2004)	Contingent valuation	November-December 1997	800	Local residents (users and non-users)	Postal survey
Stonehenge (UK)	WTP for routing nearby roads through a tunnel or retaining the *status quo*.	Maddison and Mourato (2002)	Contingent valuation	March 1998	357	129 on-site users 228 UK residents	Face-to-face interviev
Lincoln Cathedral (UK)	WTP for cleaning air pollution damage to Lincoln Cathedral	Pollicino and Maddison (1999, 2001, 2002)	Contingent valuation	April-July 1998	328	220 Lincoln residents, 108 residents of surrounding towns	Face-to-face interviev
Surrey History Centre (UK)	WTP to prevent the closure of the Surrey History Centre	Özdemiroğlu and Mourato (2001)	Contingent valuation	May 2000	60 (pilot)	Site users and local residents (non-users)	Face-to-face interviev
British Museum (UK)	WTP to reduce congestion in the museum	Maddison and Foster (2001)	Choice experiment	August 2000	400	Museum visitors (users)	Face-to-face interviev
National Museum of Sculpture, Valladolid (Spain)	WTP for current services at the museum	Sanz *et al*. (2003)	Contingent valuation	December 2000-May 2001	1,147 (total)	Museum visitors (users)	Self-completing surve museum (users), telep
Galleria Borghese Museum (Italy)	WTP for entry to the Galleria, and additional services	Mazzanti (2003a, 2003b)	Contingent valuation, choice experiment	Summer and autumn 2000	185 (valid)	Museum visitors (users)	Face-to-face interviev
British Library (UK)	WTP for current services at the library	Pung *et al*. (2004)	Contingent valuation	August-October 2003	2,359	Reading room users and UK residents (non-users)	Telephone (users), fac (public)

Figure A3 Values derived from European studies

Site	Study	Currency	Mean WTP	Mean WTP (Euro equivalent)[13]	WTP	Method	Payment vehicle	Methodological questions
Nidaros Cathedral (Norway)	WTP for preventing or repairing air pollution damage to Nidaros Cathedral	Norwegian Kroner (NOK)	318 NOK (preservation) 278 NOK (restoration)	39.64 ECU (preservation) 34.66 ECU (restoration)	Individual	Open-ended question	Tax, donation to fund	Embedding, scope and payment vehicles
Durham Cathedral (UK)	WTP for entry to Durham Cathedral	Pounds Sterling (£)	£0.77	0.99 ECU	Individual	Open-ended question	Entry fee	n.a.
Royal Theatre, Copenhagen (Denmark)	WTP for current services at the Royal Theatre	Danish Kroners (DKK)	DKK 104	13.74 ECU	Individual	Open-ended question	Tax	Identification of factors affecting WTP
Neuchatel (Switzerland)	Damages caused by air pollution to 16 buildings in Neuchatel	Swiss Francs (SFr)	108 SFr for 6 buildings	59.55 ECU	Individual	Open-ended question	Donation to fund	n.a.
Warkworth Castle (UK)	WTP for entry to Warkworth Castle	Pounds Sterling (£)	£2.53 (entry) £1.41 (preservation)	3.27 ECU (entry) 1.82 ECU (preservation)	Individual	Open-ended question	Entry fee	n.a.
Grainger Town, Newcastle (UK)	WTP for restoration of buildings at Grainger Town, Newcastle	Pounds Sterling (£)	£13.76	16.80 ECU	Household	Open-ended question	Tax	n.a.

[13] The Euro equivalent exchange rate has been calculated using the average annual exchange rate (Interbank rate) for the year of the *survey*. The ECU rate has been used between 1991 and 1998, and the Euro rate from January 1, 1999 to the present.

Campi Flegrei (Italy)	WTP for the conservation of the archaeological park	Italian Lire (L)	n.a.	n.a.	Individual	Single bounded dichotomous choice + double bounded dichotomous choice	Donation to fund	The role of information availability, embedding
Napoli Musei Aperti (Italy)	WTP for the preservation of the Napoli Musei Aperti	Italian Lire (L)	n.a.	n.a.	Household	Single bounded dichotomous choice + open ended question	Donation to fund	n.a.
Museum of Central Finland	WTP for current services at the museum	Finnish Markkas (FIM)	FIM 103	18.24 ECU	Individual		Tax	Identification of factors affecting WTP
Stonehenge (UK)	WTP for routing nearby roads through a tunnel or retaining the *status quo*.	Pounds Sterling (£)	£12.80 for the tunnel £4.80 for the current road	18.92 ECU for the tunnel 7.10 ECU for the current road	Household	Payment card / conjoint analysis	Tax, entry fee for non-UK nationals	n.a.
Lincoln Cathedral (UK)	WTP for cleaning air pollution damage to Lincoln Cathedral	Pounds Sterling (£)	£49.77 Lincoln residents £26.77 Lincolnshire residents outside Lincoln	€ 73.58 Lincoln residents € 39.57 Lincolnshire residents outside Lincoln	Household	Double-bounded dichotomous choice	Tax	n.a.
Surrey History Centre (UK)	WTP to prevent the closure of the Surrey	Pounds Sterling (£)	£34 for loss of collections (users) £24 for loss of	€ 55.85 for loss of collections (users) € 25.64 for loss of	Individual	Payment card	Tax	n.a.

	History Centre		access (users) £13 both scenarios (non-users)	access (users) € 21.35 both scenarios (non-users)				
British Museum (UK)	WTP to reduce congestion in the museum	Pounds Sterling (£)	£5.99 congestion cost imposed by the marginal visitor	€ 9.84 congestion cost imposed by the marginal visitor	Individual	Conjoint analysis	Entry fee	n.a.
National Museum of Sculpture, Valladolid (Spain)	WTP for current services at the museum	Euros (€)	€ 25-40 (direct use) € 27-36 (passive use)	€ 25-40 (direct use) € 27-36 (passive use)	Individual	Double bounded dichotomous choice + open ended question	Donation to fund	Comparison of parametric and non-parametric methods
Galleria Borghese Museum (Italy)	WTP for entry to the Galleria (CV), and additional services (CE)	Euros (€)	€ 1.47-4.03 (conservation) € 0.46-0.75 (multimedia) € 1.14-2.55 (multimedia + exhibition) Total € 8.7	€ 1.47-4.03 (conservation) € 0.46-0.75 (multimedia) € 1.14-2.55 (multimedia + exhibition) Total € 8.7	Individual	Payment ladder, choice experiment	Entry fee	Relevance of using a choice experiment
British Library (UK)	WTP for current services at the library	Pounds Sterling (£)	£116 for reading room users £6.30 UK residents	€ 167.75 for reading room users € 9.11 UK residents	Individual	Open-ended question	Donation	n.a.

Appendix C: Socio-cultural aspects

Contributed by Peter Burns
Centre for Tourism Policy Studies, The University of Brighton.

Overview

A major objective of WP 2.6 is 'To analyse and improve the impact of the CH [Cultural Heritage] domain in *improving the quality of life* for citizens, and appreciation of multi-cultural European society through improved education and tourism' (EPOCH contract Attachment 1, 41, 15th December 2003 – italics added). The rationale behind this desired outcome is the recognition that 'despite significant IT investments of national and regional governments and local authorities in sites, monuments and museums, *only a few of them have proved to be of clear economic and social benefit to the community* (*ibid* – italics added). The project meeting of September 2004 (following up the January 2004 meeting which explored ways of reinterpreting the research focus) concluded that 'Identification and development of methodologies/frameworks to evaluate the socio-economic impact of cultural heritage sites (CHS)' was a primary objective for 2.6. Thus the case for clearer and more effective ways of investigating socio-economic impacts is made; the purpose of the present paper is to support the economic impact methodologies chapter prepared for 2.6 by providing ideas on analysing the socio-cultural aspects. The paper starts with an analysis of the relationships between tourism and cultural heritage, followed by a review of potential methodologies for investigating socio-cultural impacts at cultural heritage sites.

Social identities, globalization and the cultural politics of tourism

The potent mix of politics, culture, and questions of social identity raises important issues for cultural heritage and its growing significance within the shifting patterns of an increasingly mobile Europe. If we accept the premise that tourism is a form of mobility framed by sets of cultural, economic, and political phenomena, its meanings and applications loaded with ambiguities and uncertainties (Franklin and Crang 2001), then we also have to accept that the rapid growth of cyber-media and digital interpretation has exposed tourists and host communities to a bewildering array of images, interpretations, and histories.

Such matters cannot be simply dismissed in neo-Marxist fashion as the manipulative determinacy of the market produced by those in power. It would be a caricature to imagine the co-presence of place, space, tourists, and residents being occupied only by passive consumers and a congenial, compliant local population. Cultural heritage is simply too important and valuable to be dismissed in this manner. As a multi-layered, complex global phenomenon, tourism deserves a more nuanced analysis than the familiar binary divisions ('left-right', 'good-bad', 'right-wrong', and indeed 'hosts-guests') can provide.

However, while a plethora of social scientists have spent decades dealing with social issues of tourism, there is very little evidence to suggest that cultural sustainability in the form of harmonious relationships between host communities, especially in poorer regions, tourists, and the supplying tourism business sectors has gained the same level of importance as the physical environment.

Within this context, underpinned by the fact that leisure mobility and cultural consumption does not simply 'impact' upon ossified local cultural heritage but interweaves them into the changing global situation, four themes emerge that could frame the discussion on the critical issues of tourism and cultural heritage (See Table 1).

Table A3: Critical issues for analysing cultural heritage

Element	Description	Substantive implications
Cultural politics	Where culture becomes political as increased competition among travel firms forces them to seek further for more undiscovered destinations, or to reinvent existing destinations (Hall 1998) and their populations according to the latest market intelligence reports on consumer trends.	Representation of local cultures is a political act; Localization and globalization are inseparable; The cultural narratives of destinations are ambivalent and cannot exist without reference to tourism; Multiple relationships mean multiple narratives. Inevitably some will be stronger than others.
Social identities	Perceptions of race, nation, and ethnicity can engender a simplistic view of Other (Said 1978) creating a global problem of new forms of discrimination, racism, and exclusion when juxtaposed with a) the commercially constructed identities used in the travel industry, and b) the social realities of local peoples at the destination.	Social identity is a global 'project' that has some parallel to appropriation of Other; Difference is synchronously emphasized (as toured Other) and homogenized (as local culture is drawn into networks of global social behaviours and consumption patterns); Tourism can be expressed as a series of superficial encounters resulting from a desire on the tourists' side for self-actualization and for economic opportunity on the receiving side.
Contested cultures	As the private and local, backstage space sought after by tourists in their search for the authentic is violated by their presence (Boissevain 1996). And, contested in the sense that local people may comprise groups or minorities who disagree with tourism or feel excluded from the identity on display (Richter 2001).	There is a collision between local realities (expressed through social and economic ambitions) and globally-driven capitalism; The collusion between the state and the tourism sector can construct social identities that exclude minorities considered inappropriate to the image of tourism at particular destinations; Histories of sending and receiving populations become intertwined, fused, and muddled.
Mediated culture	Culture becomes mediated as locals, academics, planners, and managers seek solutions to some of these problems especially in the context of transforming political economies and post-modern and postcolonial conditions cultures (Higgins-Desbiolles 2003).	The mediation of culture need not necessarily lead to homogenization (the 'end of history' approach) but rather hybridization (whereby cultures learn and adapt from each other); Tourism can be read as a historically produced discourse; The challenge of mediating culture for tourism in a global context, lies in finding appropriate responses to the shift away from state capitalist structures (as found in many developing countries) to the more ambivalent, borderless culture of corporate capitalism.

The four aspects shown in Table 1 represent a focus for thinking about the broad range of issues to be dealt with in analyzing the relationship between cultural heritage and tourism. Just by way of a further introduction, Figure 1 shows a scenario for the way in which culture, mobility, and business might come together to form a new paradigm for tourism,

Figure A0.1: The future shape for tourism?

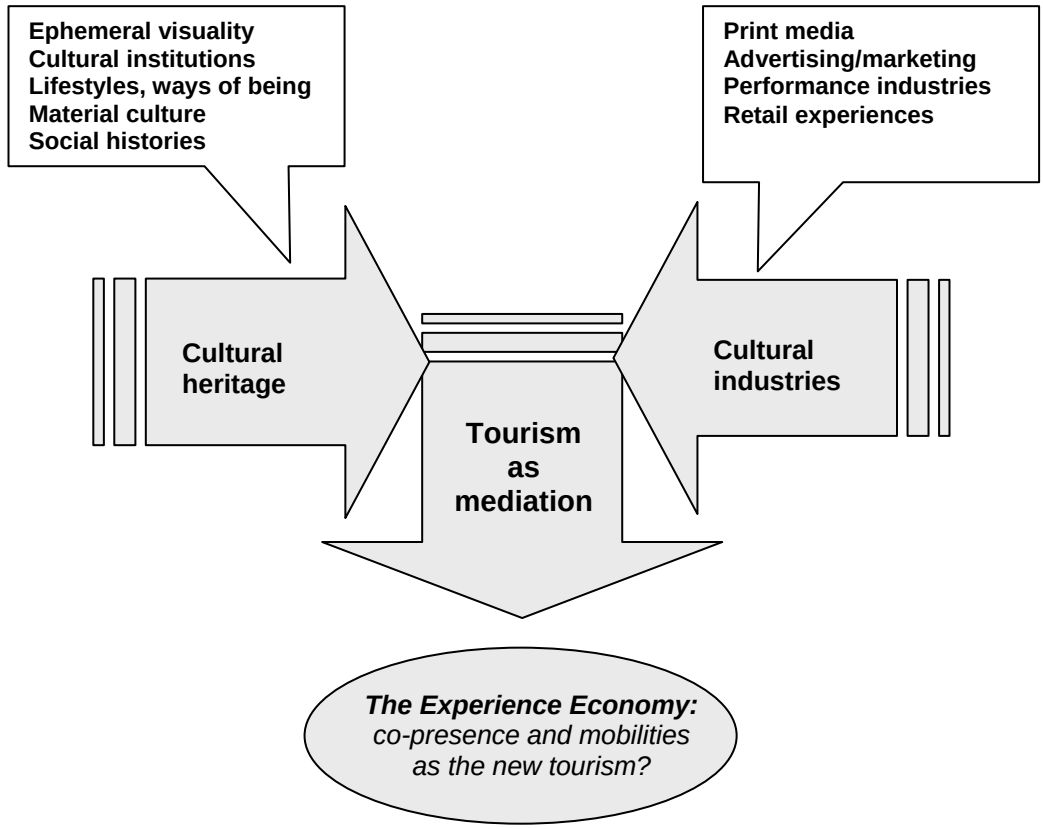


Figure 1.1 shows a schematic whereby tourism acts as a mediator between cultural heritage and 'cultural industries' coming together as an expression of co-presence and mobilities which contribute (somewhat tentatively) towards an emerging 'experience economy' (Pine and Gilmore 1999) as a new form of tourism. At the juncture of tourism and culture (Figure 1, left) constituents blend together to act as a reminder as to the components of cultural heritage. On the right hand side, a variety of commercial media, events, and experiences form the 'cultural industries' – in this case being defined as 'those institutions' (profit and non-profit) being 'directly involved in the production of social meaning (Hesmondhalgh 2002: 11).

Four elements in summary

Cultural politics: framing the narratives

Cultural politics happen at the intersection between culture, heritage, and power, the space where civil society meets the body politic; culture, heritage, power, and politics are not simply inseparable, but are elements of the same amorphous whole that form societies and identities. For societies with contested or multiple identities, cultural politics will also refer to the ways in which power relations and systems of production frame and maintain the various layers of culture. This approach suggests that it is possible to examine tourism not as a true

'object' that science progressively uncovers, but as an historically produced discourse (Torgovnick 1990) present as the global meshes with and locks into the local, the local-global nexus as Burns (2001), among others, has termed it.

Social identities: *moments of tourism*

The idea of building a social identity in a post-modern world of co-presence and fluid mobility without 'abutting it against the identity of others' (Lanfant *et al*. 1995: 7) is an impossibility. Issues of representation and commoditization create fundamental problems for tourism. Representation (in a metaphoric sense) without consultation is a phrase normally associated with politics, but for tourism there are an unimaginable number of cases where representation (in the literal, visual sense) of Other, as harmless, decorative background material to visual travelogues or advertisements for travel (Dann 1988) can take place as a sort of cultural appropriation without reciprocal benefit or understanding (Crick 1996; and Franklin 2003). The role of commoditization and social identity in tourism has been extensively discussed (Franklin 2003 and Greenwood 1989) and many commentators agree that cultural reproduction at a local level for global markets emphasizes shallow and fleeting 'moments of tourism', where exchange is based on money for vulgarized culture. However, such negative interpretations have to be balanced against the possibility for the nexus of culture and tourism as a form of identity boosterism that can lead people to rediscover or reinforce identity through engagement with tourism and cultural heritage (Stanton, 1989; and Bricker 2001).

Contested cultures: collision, collusion, and the fusing of histories

If it is argued that culture (and nostalgia) can be appropriated as a resource by the tourism sector, tourism needs to be understood in terms of contested cultures, created by a) the collision of local realities and globally-driven commercialism, and b) the collusion between state and the tourism sector to construct social identities and to fuse (and perhaps, muddle) histories. For a prime example of this we need look no further than Jerusalem where culture has been contested by three major religions (Christian, Jewish, and Islam) that have engaged in violent resistance and contestation for the past millennia. This example is not so extreme as might at first be thought. In modern times, each of the faiths has blurred the distinction between religious pilgrim and secular tourist to create a tourist infrastructure that, in effect, seeks to legitimate their respective moral authority over the Holy city. Tourists become pawns in a cultural-political chess game (Aziz 1995, Wahab 1996). What remains within the contested cultural borders of social identities, which are central to the notion of the cultural politics of tourism, is the question of how local identity is compromised in the face of tourism promotion (whether from inside or outside of national boundaries); a question that leaves us with a major paradox: the assumption that minority (or poor) cultural groups are vulnerable, a generalization that does not always stand up to close examination.

Mediated culture: the local-global nexus?

Dean MacCannell has argued that the 'empty meeting grounds' of tourism (1992) have not only supplied new conditions for the appropriation and conversion of tangible objects and intangible elements of culture into commodities, but that tourism is a post-modern, organic system that provides no alternative to itself, almost a synonym for Fukuyama's 'End of History' (1992) as cultures come together forming a bland, homogenized whole. But in a sense, this does not account for the ways in which culture is mediated in various ways and by diverse agencies including the individual. The resulting mediated culture and meanings inform, but are constantly changing and reconfiguring. Thus, far from the claims of the end of culture that can be inferred from the writings of Greenwood (1989), MacCannell (1992), and Selwyn (1996), Wood's (1993) analysis of culture and tourism, which relies on identifying and understanding systems, argues that "The central questions to be asked are

about process, and about the complex ways tourism enters and becomes part of an already on-going process of symbolic meaning and appropriation" (Wood 1993: 66).

Critical issues: substantive implications

The present contribution has attempted to strike a balance between the anti-globalization, anti-change perspective and the other side of that particular coin which seems to view unfettered markets as a particular salvation.

The critical issues arising then can all be found in the overarching problem: the approach to research on this topic. There still remains a rift between academics (in the field of social sciences) who still tend to view tourism with suspicion and the industry (and academics in marketing, management, and economics) who see tourism either simply as business or as panacea and perhaps even museum curators who are being pressured to produce viable business models whilst maintaining cultural integrity of the communities they represent. Both sides, from time to time get in wrong on local cultures, either from a patronizing 'stop the world' perspective or from a simplistic 'markets rule' point of view that fails to allow for the complexities and the need to develop beneficial relationships to underpin social responsible attitudes towards commerce.

Any analysis of tourism must take account of the structures that frame the relationships between nation-states and global markets. Susan Strange (1988), in the context of her work on the International Political Economy (IPE), identified these structures as: security; production, finance, and knowledge. In all of this, the key question is, as Strange asks, *cui bono*? – who benefits? (Balaam and Veseth 1996: 101) describe why this seemingly simple question is fundamental:

> "Asking this question forces us to go beyond description to analysis. To identify not only the structure and how it works, but [also] its relationship to other structures and their role in the international political economy [an understanding which] therefore becomes a matter of holding in your mind a set of complex relationships and considering their collective implications."

The idea of 'collective implications' is one that holds great resonance for tourism and is one to be borne in mind when considering the cultural politics of tourism taking into account tourism's role in development and in fostering the rights and aspirations of the local communities. Tourism has a role in the legitimization and affirmation of cultures through principles of beneficial relationships, autonomy, and self-determination. Tourism strategies can positively contribute to civic pride and positive social identities by helping develop decision-making capacity, creativity, solidarity, pride in their traditions, and rightful attachment to their place, space, and identity.

Conclusions: tourism, culture and the local-global nexus

This contribution generally concludes that while presentations of cultural heritage must necessarily dwell on past histories, they should also articulate a vision of both the present and a possible future based on inclusive ('collective' being a little far-fetched) aspirations.

EPOCH recognizes the fragmented and ephemeral nature of cultural heritage, together with its historic paradoxes and therefore, suggests a view of co-presence and leisure mobilities as a complex construction constituting a mediation between cultural heritage and societies. Despite their precariousness, the confluences between cultural politics, social identities, contested culture and mediated culture constitute an alternative analytical framework for discussions on the future sustainability of tourism and cultural heritage in the broadest context.

The approach to tourism analysis from the perspective of cultural heritage constructions in a locality can be seen in terms of the defence of local modes of production and traditions as

articulated by many social scientists. From the perspective of government institutions, there is room and the need for creative thinking and policy-making alternatives that create frameworks for beneficial interaction with the 'rest of the world.' From the tourism industry perspective, it is time for them to take on the challenge of working with a far greater range of social actors at the destinations they do business with, from social movements to progressive academics and international/local NGOs.

While the gap between academy and industry remains, the spaces of encounter and debate are increasing and ways for academics, business-people, NGOs, local people, and their representatives in government to reflect on, and support alternative frameworks for tourism development that are emerging rather than wait for a universal theoretical solution (a meta-narrative) to the problems arising from the cultural politics of tourism that clearly acknowledge the need to stop thinking about and indeed interpreting cultural heritage as though it were stuck in time and space.

Having set out some of the theoretical ideas underpinning the relationships between cultural heritage and tourism, the next section attempts to scope the problem areas (illustrated as Figure 2) so as to set the stage for the overview of a range of investigative methodologies.

Scoping/problematising the issues

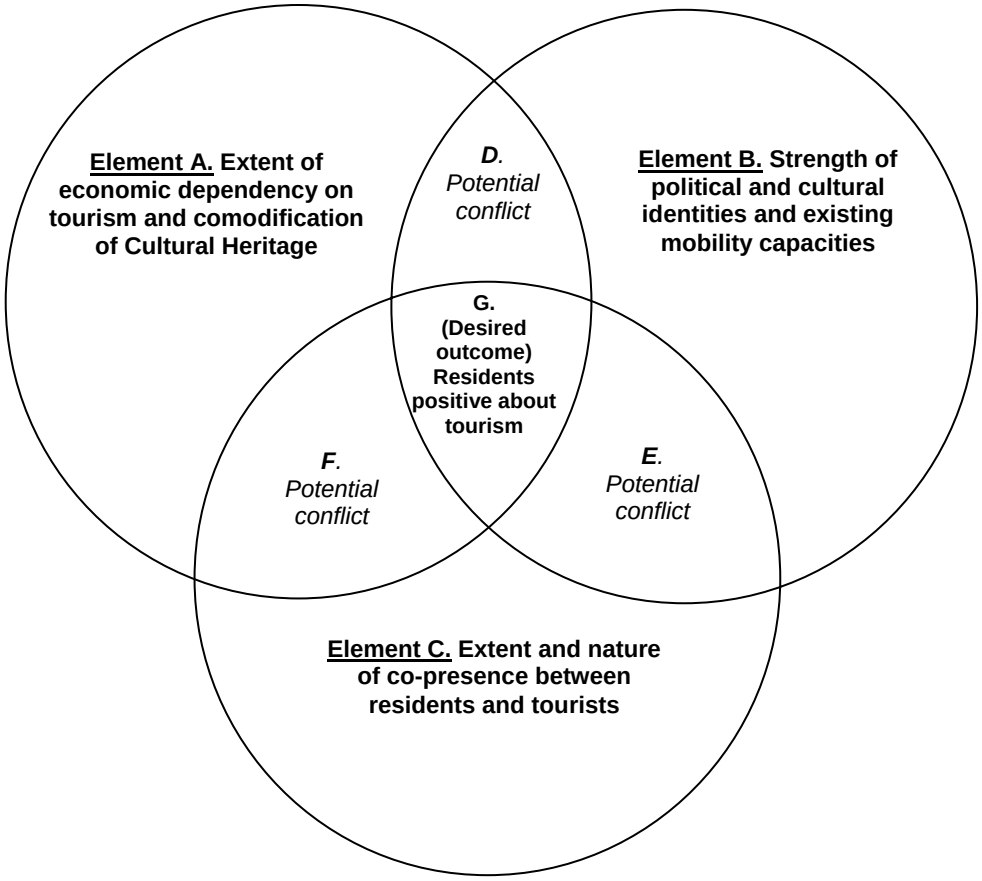


Figure A0.2: Cultural heritage, co-presence and potential conflict

Figure 2 is comprised of three main elements:

- The extent of economic and employment dependency on tourism in a locale and the extent to which this dependency 'forces' reliance on the 'packaging' of culture and

history for tourists. The opposite situation is a relatively wealthy population choosing freely to present elements of their past as a kind of public information/education act.

- The overall strength and belief in political and cultural identities (especially conservative versus liberal views and knowledge of tourism), the existing extent of population mobility including tourist experiences.
- Extent of and attitudes towards co-presence whereby residents sharing space with tourists may lead to potential competition for leisure resources and the extent to which people have virtual exposure to other worlds, attitudes, and ideas.

Where the three main elements overlap (parts 'D', 'E', and 'F') potential for conflict exists. These potential conflicts are not inevitable and simply highlight the areas to focus on when thinking about socio-cultural impacts of the commercial exploitation of cultural heritage. If the areas noted above are properly addressed and managed then desired outcome "G" (*residents positive about tourism*) is reached. Note the use of the word 'positive' rather than its alternative 'accept', which does not imply a positive socio-cultural environment and could indicate passive resentment.

With the background material on the relationship between cultural heritage and tourism being contextualised and problematised by the foregoing, we now turn to an overview of possible methodologies that could be used on site (fieldwork) for examining the socio-cultural impacts of the commercial exploitation of cultural heritage.

Tourism and community analysis: the questions

With the general model shown in Figure 2 acting as a starting point, this section briefly overviews some of the pertinent questions that may be asked of a community regarding the interaction or relationship between itself and cultural heritage. However, before starting this task some caveats are in order:

- First, each community, its power structures and relationships are unique – which is why the theoretical underpinnings must be understood.
- Second, the notion of community carries all sorts of connotations and myths the most powerful one being that 'communities' are homogenous entities that can easily be identified and interrogated.
- Finally, the research outcomes can be prejudiced by poorly produced questions – especially (as is stated elsewhere in this paper) where the questions arise, decontextualised, from the researcher rather than from the context of the range of community concerns.

With these caveats in mid, the following list is an attempt to describe the type of questions that could be asked of a community regarding the socio-cultural impacts of specific types of cultural heritage tourism:

- Size, nature and demographic profile of the host population.
- The extent of mobility within various sectors of that population.
- Emic descriptions of tourism and cultural heritage (self-perceptions to some extent).

A questionnaire (to provide baseline, benchmarking data) would have the following basic questions about the perceptions of tourism on it but would have to be thoroughly contextualised at each site with questions that exactly match expressed concerns of residents (see Table 2):

Table A4: Potential questions to provide benchmarking and baseline data

Do you generally support the presence of tourists?*
Has your quality of life been made better by tourism presence?
Are the numbers of tourists visiting [here] about right?
Do you see a difference between you and the type of tourists visiting?
Have job opportunities increased?
Have your language skills increased?
Do you have a better understanding of the world outside [of here]?
Has your standard of living improved?
Has transport and other infrastructure improved?
Does the presence of tourists present opportunities for meeting new people?
Has your understanding of your cultural heritage improved through the attention given to it by tourists?
Have local/regional facilities improved because of tourists?
Have property prices changes because of tourists?
Has your cultural identity changed because of tourism?*
Are historic sites and building better looked after because of tourism?*
Has publics safety and security changed?
Have societal 'morals' changed?*
Have you materially gained because of tourism?*
Is there greater mutual confidence among people?*

* Clearly none of the above questions are in their finished format and especially those marked with an asterisk.

Potential methodologies: an overview

Group/Grid Method

Given the relational complexities between the eclectic modes of mobility that characterises tourism and the societies/communities in which it takes place the need for constantly testing novel approaches to analysing these impacts and relationships is self evident. One approach, developed by the British anthropologist Mary Douglas (1987), is grid/group analysis. Originally designed to help field work in non-industrialised societies, it is now most closely associated with organisational culture. The model is simple to understand, seems to be intuitive and yet is sophisticated enough to allow for the idea that 'communities' are not necessarily homogenous and that there will be conflicting interests. The model also allows for multiple empirical sources.

The model explained

The model attempts to particularise relational modalities of individual behaviours, attitudes, perceptions, and belief systems that are informed, shaped, and controlled by regulating factors that can be framed by a matrix with horizontal and vertical coordinates, 'group commitment', and 'grid control'.

Group

All societies, to different extents, have their lives driven by or restricted by their commitment to a social unit larger than the individual. If people attach great importance to interacting with other members of their unit and consider it 'right' and important, then such a situation can be described as High Group Strength (e.g. academics belonging to a virtual network, or the social interactions in a traditional tribal village in a non-industrial society). Conversely, an emphasis on 'freedom' and 'individual rights' may indicate that interaction (networking) becomes optional, rather than the norm. Organisational anthropologist Gerry Mars (*pers. comm.*) who cites four aspects of group strength: frequency, degree of mutuality, and scope of interpersonal interactions, and the group's boundary tightness (inclusion/exclusion). A

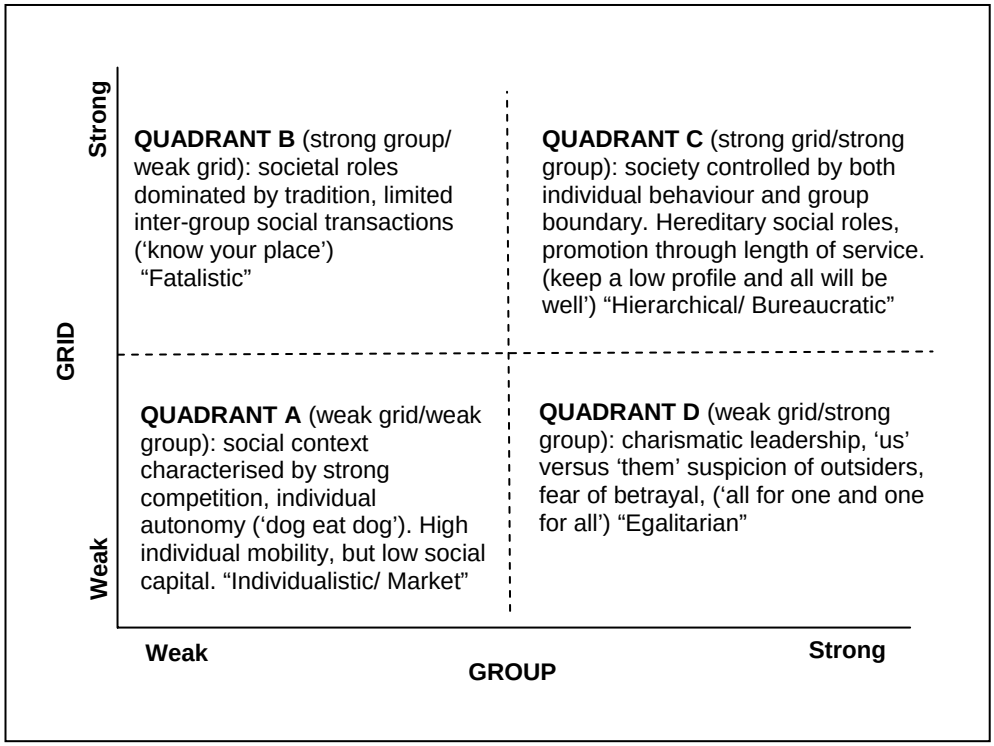
situation where people negotiate their own way on the basis of individual choice, and they do not feel pressured or influenced by 'the greater good' or 'common weal' can be described as Low Group Strength.

Grid

If group aspects are somewhat conceptual and even emotional, then the vertical axis, 'Grid' has a harder edge and is concerned with constraints on social interaction. For example, if roles (at work and home) are 'assigned' on the basis of explicit classifications and social constructs such as gender, class, colour, lineage (descent), or age, the there exists High Grid Strength. On the other hand, if life and work are 'allocated' on the basis of merit and individual effort and not affected by the social classifications mentioned above then a Low Grid Strength exists.

The Douglas model proposes that an individual's behaviour, perception, attitudes, beliefs, and values are shaped, regulated, and controlled by constraints that can be grouped into two domains, labelled as: group commitment and grid control. Combined, these project four possible scenarios of social life. These prototypes are presented in Figure 1.3.

Figure A0.3: Group/Grid Model



Key questions and weaknesses for Grid/Group Method

Having briefly described the method/mode of analysis, the key question for EPOCH is how to make use of this set of normative-behavioural-attitudinal attributes in a 'community' setting:

- First, we should put the model to test on two criteria: How would it stand up to an overall community/culture mapping (meta-analysis) and what does it add to our understanding of key cultural processes (such as community restructuring and change)?
- Second, we should make use of an anthropological-related methodology – such as participant observation and the collection of critical incidents – which would be in line with a qualitative approach.

The measures/factors for each quadrant would have to be decided/ negotiated. It can be seen that grid/group method has both application and limitations for EPOCH.

Rapid Rural Appraisal (RRA)

The Food and Agricultural Organisation[14] define RRA as *"a systematic but semi-structured activity out in the field by a multidisciplinary team and is designed to obtain new information and to formulate new hypotheses about rural life."*

Rapid Rural Appraisal is an empirical method that has its roots in the realities of contemporary anthropology where drawn-out time for fieldwork is no longer an expectation but rather a seldom-achieved aspiration. While it was developed in the 1970s to examine agriculture and rural areas in developing nations, it has the potential for much wider use that has been somewhat neglected. Of course, the rapid nature of the fieldwork means that the results tend towards the *etic* view of a society (i.e. an outsider's perspective on the extrinsic concepts and categories important to that society or system) rather than the more desirable insider view (*emic*) of intrinsic cultural distinctions view. Nonetheless, it has several advantageous characteristics such as:

- Multidisciplinary in nature.
- Provides richer data than traditional survey method.
- Cost-effective with researcher's time.
- Emphasises the importance of local knowledge (action-oriented 'listening research').
- Focuses on getting an accurate 'broad overview' rather than traditional anthropological micro-detail.
- Its iterative approach enables triangulation and thus verification.

Its techniques/approaches include:

- Close analysis of secondary data.
- Direct and participant observation.
- GIS (mapping, diagramming) for social networks as well as physical attributes.
- Biographies, local histories, and case studies.
- Interviews with key informants, and focus group discussions.

Disadvantages of RRA

The range of techniques can be effective, but it remains fundamentally an extractive, externally-driven process. Many researchers who use standard RRA methods claim that they are using PRA, when the 'participation' is restricted to provision of information to the researcher by the community. The simple test is what is the value added and who owns the product. If the community draws a map because you ask them to, it is RRA. If they realize that the map belongs to them, and want to keep it for their own use, then it is PRA.

The results can inform policies and future direction (evidence-based policy making) and support decisions made by, and on behalf of, a community as well as providing impact assessment knowledge.

Discussion

In an examination of the existing literature on the general field of tourism community analysis, Pearce and Moscardo (1999) identify three major problems:

[14] www.fao.org

- Definitional and measurement problems with the concepts of tourists, tourism, and community especially given the tendency to conflate the terms ‘community’ and ‘place’.
- Many existing impact studies have asked residents to rate various impacts, however, there is almost no evidence that the elements of such lists and questionnaires came from or were derived from the residents themselves but rather were imposed in a kind of a standards impacts format thus not allowing residents to voice their concerns directly (thus the research delivers an *etic*, outsider, view rather than the desirable *emic*, insider, view.
- Repetitive surveys and case studies have led one researcher (Ap 1990: 165) to say ‘unless [tourism] researchers launch out of the elementary descriptive stage of current research and into an explanatory stage where research is developed within some theoretical framework they may find themselves none the wiser in another ten years’.

Given these concerns, it can be seen then that EPOCH presents a great opportunity to not only ask the right questions but to develop methodological approaches and advance theory.

From the above two potential methods, plus the need for a baseline survey for benchmarking purposes (i.e. the data from a survey giving the benchmark from which to measure change) it can be deduced from the limitations of both methods that a hybrid approach is best used. Perhaps such a hybrid could be called *Rapid Cultural Heritage Situation Analysis* (RCHSA). This would draw on the insights provided by Grid/Group method together with the multi-disciplinarity afforded by RRA. RCHSA would need to be further developed and piloted.

Glossary

Because this research covers the fields of cultural heritage, information technology, and economics, the following glossary has been included for reference.

ARR

Accounting Rate of Return. See *ROI*.

Adaptive re-use

The recycling of an older building, or structure, often for a new function. This can involve extensive restoration or rehabilitation of both the interior and exterior.

Altruistic value

In economics this is a non-use value where an individual is willing to pay a sum in order to enhance the wellbeing of others.

Analogue data

Data represented by a physical quantity that is considered to be continuously variable and whose magnitude is made directly proportional to the data or to a suitable function of the data.

Anchoring bias

In the determination of WTP values anchoring bias is the process where the values respondent give are influenced by the starting values or succeeding values provided in the survey instrument.

Benefit transfer

A secondary economic analysis methodology that uses the results from previous valuation studies and applies those results, with or without modification, to the same or similar good in a different context.

Bequest value

In economics this is a non-use value in which individuals place a value on the preservation of a resource for others in the future.

Capital equipment

These are goods that an institution does not consume during everyday use and provide operating benefits over time (such as touch-screen displays, projectors and audio-visual equipment, etc.). This type of equipment is considered an asset or capital asset of the institution.

Capital expenditure

Financial expenditure on capital assets rather than on operating expenses. These expenditures will contribute to the property and equipment of an institution thereby enhancing its value.

Conservation

All the processes devoted to the preservation of cultural heritage for the future. Conservation activities include examination, documentation, treatment, and preventive care, supported by research and education.

Closed ended contingent valuation

A contingent valuation methodology in which individuals are given a single value, they only have the option of responding ‘yes’ or ‘no’ to this value. The value is varied across the sample, and is used to determine averages.

Coercive payment vehicles

Payment vehicles in that involve some degree of compulsion, such as rates, taxes, or fees. This contrasts to non-coercive payment vehicles such as donations.

Cultural sector

The cultural sector comprises four elements; heritage, arts, cultural industries, and libraries and archives.

Cultural industries

These include the film and video industry, broadcasting, sound and music recording, book and periodical publishing, theatre, and new media (including multi- and interactive media).

Consumer surplus

The net difference between the actual cost of a good or service to a consumer and the price that they would be willing to pay for that same good or service. This is the net benefit an individual receives from the consumption of a particular commodity. For non-market goods, the WTP is equivalent to the consumer surplus.

Contingent choice

A stated preference methodology similar to contingent valuation. Like contingent valuation it requires individuals to make rank choices based on a hypothetical scenario. Unlike contingent valuation it does not directly ask respondents to state their values in financial terms. These values are inferred from the hypothetical choices (or tradeoffs) that people make.

Contingent valuation method

A stated preference technique in which a hypothetical market is constructed and individuals are questioned as to how much they would be willing to pay to conserve the non-market benefits or their willingness to accept compensation for the loss of those goods. This preference can then be used to infer the value that individuals place on the non-market benefits in the scenario, this can then be used to estimate the value of these goods to society.

COO

Cost Of Ownership. See *TCO*.

Cost-benefit analysis

An economic valuation method that tries to assess all of the major economic impacts associated with an investment decision, including non-market impacts. The techniques can be used to determine if a project represents a net social benefit to society.

Council of Europe

Founded in 1949, the Council of Europe was set up to defend human rights, parliamentary democracy and the rule of law, in addition to standardising member countries' social and legal practices, and the promotion of a European identity based on shared values.

Cultural heritage

Things and places associated with the heritage of human activity. This includes everything from monuments, buildings, relics, towns, landscapes, and movable items.

Culture

The distinctive spiritual, material, intellectual and emotional features that characterise a society or social group. This includes everything from the arts, to modes of life, value systems, traditions, and beliefs.

Cultural landscapes

These can include natural environments that have been exploited using a particular means of agricultural or pastoral activity. They can be aesthetically-pleasing areas such as gardens and parks, or apparently natural regions that have associated religious, artistic or cultural meanings.

CV

See *Contingent valuation*.

CVM

Contingent Valuation Method. See *Contingent valuation*.

Digital data

Data represented by discrete values (i.e., '0' or '1'), as opposed to analogue data.

Direct use

The actual on-site use and consumption of the resources of a cultural heritage site.

Direct valuation method

Methodologies that use data collected through surveys to determine values.

Disposable income

The income individuals retain after they have paid their tax. Individuals can spend this money however they wish.

DOCOMOMO

International Working Party for Documentation and Conservation of Building Sites and Neighbourhoods of the Modern Movement. Founded in 1988 DOCOMOMO is an international non-profit organization dedicated to the conservation and recording of modern movement buildings (www.docomomo.com).

Economic impact

In the context of cultural heritage these are changes in a defined economy that result from spending attributed to a cultural heritage site or event.

Economic value

The maximum amount an individual is willing to pay in order to retain a good or service, or the minimum that an individual is willing to accept as compensation to sell a good or service.

Educational value

A value that encompasses all the benefits the site offers in terms of learning.

English Heritage

Officially known as the Historic Buildings and Monuments Commission for England, Founded in 1984, English Heritage is an executive non-departmental public body sponsored by the Department for Culture, Media and Sport (DCMS). English Heritage has responsibility for all aspects of the protection and promotion of the historic environment (www.english-heritage.org.uk).

EVRI

Environmental Valuation Reference Inventory. Developed in Canada, EVRI is an international database of economic studies of environmental benefits and health impacts. It has been specially developed in order to allow policy analysts to use the benefits transfer technique as an alternative to doing original valuation research (www.evri.ca).

Existence value

A non-use value in which individuals place a value on the protection of the existence of the actual resource.

Free riding

In the context of group performance, where all the group members receive equal reward (such as access to a service or pay) and it is difficult to ascertain the actual contribution of individuals to the performance of the group, then it is rational for group members who can get away with it let other individuals do most the work, or free ride.

FTE

Full Time Equivalent employees. Statistics for total employment often include part-tine workers, these can be converted to FTEs in order to enable effective comparisons.

GDP

Gross Domestic Product. A measure of the total output produced in a given period. GDP is equivalent to total income and total expenditure.

Hedonic pricing method

A revealed preference methodology that uses a parallel market (usually the property market) to determine the value of non-market benefits. The technique is based on the hypothesis that the value of property is related to the non-market benefits in the locality.

Hedonic property value method

HPV is a specific application of the hedonic pricing method. Because property is the principal parallel market used in hedonic pricing studies the term is usually used synonymously with the hedonic pricing method.

ICA

International Council on Archives. Founded in Paris in 1948 the mission of the ICA is to promote the preservation and use of archives around the world. The ICA works for "the protection and enhancement of the memory of the world and to improve communication while respecting cultural diversity" (www.ica.org).

ICBS

International Committee of the Blue Shield. A joint initiative of the ICA, ICOM, ICOMOS, and the IFLA. Started in 1996 to provide authorities with expertise in the event of conflict affecting cultural heritage sites (www.ifla.org/blueshield.htm).

ICCROM

The International Centre for the Study of the Preservation and Restoration of Cultural Property. ICCROM is an intergovernmental organization, established in Rome in 1959 to improve the quality of conservation practice as well as raising awareness about the importance of preserving cultural heritage. The ICCROM acronym refers to the International Centre for Conservation in ROMe (www.iccrom.org).

ICOM

International Council On Museums. Created in 1946, ICOM is an international organisation of museums and museum professionals which is committed to the conservation and communication to society of the world's natural and cultural heritage. It is a non-governmental organisation maintaining formal relations with UNESCO and having a consultative status with the United Nations' Economic and Social Council (www.icom.museum).

ICOMOS

International Council On Monuments and Sites. Founded in 1965, ICOMOS is an international, non-governmental organization dedicated to the conservation of the world's historic monuments and sites. ICOMOS is UNESCO's principal advisor in matters concerning the conservation and protection of monuments and sites (www.icomos.org).

IFLA

International Federation of Library Associations and Institutions. Founded in 1927, in Edinburgh, Scotland, the IFLA is the principal international body representing the interests of library and information services and their users (www.ifla.org).

IMLS

Institute of Museum and Library Services. Created in 1996 by the 'Museum and Library Services Act', the IMLS is an independent US federal agency that fosters leadership, innovation, and lifelong learning through support of the nation's museums and libraries (www.imls.gov).

Indirect valuation methods

Methodologies that are based on the observation of behaviour in order to determine the willingness to pay for non-market goods or services.

Intangible heritage

The traditional forms of expression of many societies. These can include; languages, music and song, rites and beliefs, the performing arts, oral traditions, festive events, and even culinary traditions. Many of these are threatened by a trend towards cultural uniformity in contemporary society.

Market

A context where goods and services are purchased and sold.

MARS

Monuments At Risk Survey. Commissioned by English Heritage, in the UK and originally published in 1995, the survey catalogued threats to ancient monuments in the UK.

MCN

Museum Computer Network. Based in the US, the MCN is a non-profit organisation of professionals devoted to supporting the cultural aims of museums through the use of computer technologies (www.mcn.edu).

MLA

The Museums, Libraries and Archives Council. The MLA was launched in April 2000 and is the UK's strategic body representing museums, archives, and libraries. The new institution replaces the Museums and Galleries Commission and the Library and Information Commission (www.mla.gov.uk).

Moveable cultural heritage

A vast range of non-fixed cultural heritage items such as paintings, sculptures, ancient jewellery, grave-goods, sacred art, sculpted stone, and all kinds of works of ancient art.

Multiplier

The knock-on effects of an expenditure injection into an economy.

Museum

An institution that is open to the public, which acquires, conserves, communicates, researches, and exhibits, for purposes of study, education and enjoyment, material

evidence of people and their environment. Museum collections now constitute a significant part of the cultural heritage.

National Archives

The National Archives of the United Kingdom, was formed in April 2003 with the amalgamation of the Public Record Office and the Historical Manuscripts Commission. Its primary responsibilities are the records of central government and the courts of law (www.nationalarchives.gov.uk).

National Trust

Founded in the UK by three Victorian philanthropists in 1895 to protect places of historic interest and natural beauty for the nation. The National Trust is now the largest conservation charity in Europe (www.nationaltrust.org.uk).

NEMO

Network of European Museum Organisations. This is an independent network representing the European museum community. NEMO provides information to museums on relevant EU initiatives, key legislative policy and funding concerning cultural heritage (www.ne-mo.org).

NOAA

National Oceanic and Atmospheric Administration. A US federal agency under the Department of Commerce responsible for weather monitoring and warnings (www.noaa.gov).

Non-exclusive

These are goods where a user cannot be stopped from 'consuming' that good. Public goods fall into the category of being both non-exclusive and non-rival.

Non-market goods

Goods which have no market and no market price. Sometimes called non-monetary goods.

Non-market values

Benefits obtained by individuals without paying money to acquire them. These are often personal values that are not captured in traditional economic markets. Their value is usually estimated through survey techniques such as contingent valuation and choice.

Non-rival

Goods where the quality of consumption by one user is not reduced by other users enjoying it simultaneously. Public goods fall into the category of being both non-rival and non-exclusive.

Non-use value

The value placed on a site by individuals that do not use the site or intend to use the site in the future. Non-use values include existence, bequest, prestige, and altruistic values. Also known as passive-use value.

Open ended contingent valuation

A contingent valuation technique where individuals are asked how much they would pay for a particular cultural good.

Opportunity cost

The theoretical sacrifice that is made when resources are allocated to one specific project and so cannot be used for other projects.

Option value

A non-use value related to the value an individual attaches to keeping open the option of using a resource in the future.

Passive use values

See *Non-use value*.

Prestige value

A non-use value based on the prestige a community derives from cultural heritage.

Profit

The net earnings or income of a company or institution.

Public goods

These are goods that are non-excludable and non-rival. They are available to all, without excluding anyone, and a number of people can enjoy the good simultaneously without interfering with each other's satisfaction.

Restoration

This is the process by which the fabric of a structure is returned to a specified earlier state, by reassembling the material from that site. This differs from reconstruction in that no new material is used.

Reconstruction

The use of digital technology to reproduce the exact form and details of all or part of existing or vanished structures as they were at a specific period in time. Alternatively, in the physical world, this is the process by which the fabric of a structure is returned to a specified earlier state, by reassembling the material from that site and incorporating new material.

Recreation

This is the creation of a structure or building using surviving evidence to extrapolate the nature of a presumed earlier state using new material.

ROCE

Return on capital employed. See *ROI*.

Revealed preference

These methodologies rely on actual consumer behaviour to determine values and benefits.

Return On Investment

The profit (or return) that an institution gets from spending capital. ROI is widely used to evaluate IT investments and provides an approximation on the return of a project without the use of more sophisticated economic analyses.

ROI

See *Return on investment*.

Sequential bid

A type of Contingent Valuation methodology where individuals are presented with a number of financial amounts that are increased until the respondent is no longer willing to pay.

Socio-economics

Socio-economic research analyzes economic phenomena by studying variables both inside and outside the economy. It is based on the premise that politics, culture, and history provide a context in which contemporary economics function.

SPAB

The Society for the Protection of Ancient Buildings. Founded by William Morris in 1877 to address the destructive 'restoration' of medieval buildings in the UK. Today it is the oldest national pressure group fighting to save old buildings from decay, demolition, and damage (www.spab.org.uk).

Stakeholder analysis

The process through which the groups and individuals (stakeholders) who may be affected by a change are identified, and their gains and losses are quantified.

Starting point bias

The issue in valuation studies when an individual's stated value is influenced by the starting bid.

Stated preference

A number of demand theory methodologies that are based on how consumers say they would react to changes in price.

SWOT analysis

This is an analysis of the internal and external environment of an organisation for strategic planning purposes. Internal factors are classified as strengths (S) and weaknesses (W), while factors external to the organisation are classified as opportunities (O) and threats (T). The SWOT matrix created can be used as the basis for strategy formulation.

TCM

See *Travel cost method*.

TCO

See *Total cost of ownership*.

TEV

See *Total economic value*.

TICCIH

The International Committee for the Conservation of the Industrial Heritage. An organisation dedicated to the promotion, preservation, conservation, investigation, documentation, research, and interpretation of the world's industrial heritage (www.mnactec.com/TICCIH).

Total Cost of Ownership

This is the sum of all the costs associated with an item over its lifecycle. These costs include acquisition, installation, licensing, running costs, maintenance and sometimes even disposal. TCO is widely used in the business world for expensive capital items. TCO is sometimes referred to as Cost Of Ownership (COO).

Total Economic Value

The total of direct and indirect use values, option values, and existence values.

Travel Cost Method

A revealed preference valuation methodology that is based on the hypothesis that the travel costs an individual incurs in order to visit a cultural heritage site are related to the value of the non-market benefits of the site.

Urban heritage

The heritage of urban areas and its accumulation over time, including the history of its buildings, streets, districts, and residents.

Underwater heritage

This includes wrecks, such as ships, boats, aircraft, other vehicles and their cargo, in addition to other traces of human existence such as submerged cities, lake settlements, and associated human objects. This heritage can be found in lakes, rivers, seas, and oceans.

UNEP

United Nations Environment Programme. A UN programme designed to provide leadership and encourage partnership in caring for the environment by supporting nations and peoples to improve their quality of life without compromising that of future generations (www.unep.org).

UNESCO

United Nations Educational, Scientific and Cultural Organisation. Created in 1946 as an agency of the United Nations, whose remit was to promote world peace through its work in the areas of culture and communication, education, natural sciences, and social and human sciences (www.unesco.org).

Use value

The value placed on a site and resources by users of the site. Use value includes direct use, indirect use, and option values.

Value

The intrinsic worth of a commodity.

WHIN

World Heritage Information Network. An information network about the natural and cultural heritage sites on the World Heritage List (www.wcmc.org.uk/whin).

Willingness to accept

The willingness of an individual, group or society to accept compensation for the loss of a good or service.

Willingness to pay

The willingness of an individual, group or society to pay for a good or service. In a conventional market, individuals who express a WTP equal to or higher than the market price for a good will purchase the good in question, while those with a WTP lower than the market price will not purchase the good.

World Heritage Convention

Officially known as the 'Convention concerning the Protection of the World Cultural and Natural Heritage', although more commonly known as the World Heritage Convention. It was first proposed by the United States in 1972 and adopted by UNESCO in 1975 in order to protect the world's natural and cultural heritage.

World Heritage Fund

The World Heritage Fund was established by UNESCO to provide international assistance to protect the world's heritage. It is sustained by fees derived from member states, and voluntary contributions from countries, private organisations and individuals.

World heritage list

The UNESCO list of World Heritage sites. Cultural and natural heritage sites outstanding universal significance defined according to the World Heritage Convention.

World heritage site

A site designated by UNESCO as being of outstanding universal value from the point of view of history, art, or science.

WTA

See *Willingness to accept*.

WTO

World Tourism Organisation. The WTO was founded in 1974 out of the International Union of Official Travel Organisations (IUOTO). In 1976, WTO became an executing agency of the United Nations Development Programme (UNDP) and in 1977 a formal cooperation agreement was signed with the United Nations itself. The WTO is now a specialised agency of the United Nations (www.world-tourism.org).

WTP

See *Willingness to pay*.

WTTC

World Travel and Tourism Council. Represents the private sector in all parts of the world travel and tourism industry. The mission of the WTTC is to raise awareness of the full economic impact of travel and tourism (www.wttc.org).

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