Heritage Economics in Historic Cities

Christian Ost
Ph.D. in Economics, Professor and Former Dean of ICHEC Brussels Management School, Getty Conservation Institute Scholar 2008-09

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9:30 am – 12:30 pm
Room MC4-100
World Bank Headquarters, Washington, DC

ECONOMICS is about
a careful use of limited resources
allocating non-renewable resources in a sustainable way
understanding individual or collective behavior
collecting information to help decision-makers

ECONOMICS OF HERITAGE CONSERVATION is about
= Preserving a Cultural Capital
   for Improving Sustainable Growth
   and Social and Economic Welfare
Every historic city had its own pattern of evolution. Only recently have cities been recognized and protected as historic cities. Recognition has been either an opportunity, or a thread.

Historic cities are probably the most complex issues but also the most challenging cases for testing tools and improving best practices in heritage conservation.

There are thousands of historic cities on five continents. Historic cities differ considerably: large, small, rich, poor, global, local. 242 Unesco’s World Heritage Cities face challenges.
The outstanding cultural value is acknowledged. But economic growth and poverty alleviation remain the main priorities.

Many challenges are faced simultaneously: poverty, urban regulations, land and housing markets, climate change, heritage conservation.

Economic growth attracts new investment, financial services, real estate developers, with less emphasis on conservation.

The outstanding cultural value contributes to the economic growth. Focus is on sustainable tourism.
<table>
<thead>
<tr>
<th>GNP per capita</th>
<th>Cultural Value</th>
<th>HERITAGE</th>
<th>EVICTS</th>
<th>DEVELOPMENT</th>
<th>SUSTAINABLE</th>
<th>GROWTH</th>
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Many challenges are faced simultaneously: poverty, urban regulations, land and housing markets, climate change, heritage conservation.

From Economics applied to Culture

To Economics applied to Conservation

And to Economics applied to Conservation in Historic Cities
Cities compete with each other in times of globalization and economic crisis.

« The demands of poverty alleviation, climate change and sustainable growth will put today's developing cities to the test. »

Historic cities are blessed to possess heritage capital, but face the financial challenge of preserving it.
Heritage Economics in Historic Cities

Over the last 40 years the conceptualization of historic cities and urban settlements has progressed from considering primarily the tangible fabric to including a city’s intangible social, cultural and economic values. The city’s value arises from its unique combination of physical, social, cultural and economic conditions and is not confined to architectural merit.

Heritage Economics of Historic Cities require to apprehend correctly the peculiar features of urban ensemble, its fabric, its inhabitants, and its activities.

in particular

VALUES
How economic values can be assessed in historic cities?

MARKET FAILURES
Is the market efficient in dealing with the heritage of historic cities?

INTEGRATION
How comprehensive an economic approach needs to be?
From the field of environmental and natural resource economics

Economic values consist of two categories:

- Non use values
- Use values

Use (marketable) and Non-use (potentially marketable) Values

From « Very Special Places », Serageldin, World Bank, 1999, p.27
Non use values as a prerequisite to use values

Revealed-preference methods draw and analyze data from existing market or past behavior for heritage-related goods and services:
- **Hedonic pricing method**: gives an implicit price, or measurement of the willingness to pay for heritage. This estimate is based on several attributes (location of a building, its size, its function,...) and gives an estimation of real estate value and house prices.
- **Travel-cost method**: measures time and resources allocated by people to go and visit a city or a monument.

Stated-preference methods rely on the creation of hypothetical markets in which survey respondents are asked to make hypothetical choices:
- **Contingent valuation method**: in which consumers are surveyed for their willingness-to-pay for the provision of a public good. The survey must be constructed in such a way as not to understate or overstate this willingness-to-pay.
- **Choice modeling method**: in which study participants are asked to select between choice sets which differ by attributes and levels, generating an overall value.

How to measure Non Use Values?

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- **Choice modeling method**: in which study participants are asked to select between choice sets which differ by attributes and levels, generating an overall value.
MARKET FAILURES

From the field of public economics

Economic values consist of two categories:

Individual values versus Collective values

Inhabitants on the Mont-Saint-Michel (41 in the 2006 Census) experience simultaneously positive and negative externalities.

They enjoy the setting as a wonderful living place and are annoyed by tourists. Both externalities need public regulations. On one hand, the setting is protected to maintain positive externalities, and these regulations are sometimes considered as a burden for inhabitants. On the other hand, the mass of tourism has to be regulated to avoid exposing the monument to risk, and these regulations are sometimes considered as a burden for visitors.

The fact that both categories of people complain demonstrates that they both contribute to correcting market failures.
Does the economic status of heritage imply management rules?

<table>
<thead>
<tr>
<th>Heritage Status</th>
<th>Cultural Perspective</th>
<th>Economic Perspective</th>
<th>Management</th>
<th>Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A World Heritage (Unesco’s site or monument with outstanding cultural and architectural value)</td>
<td>An international public good (its cultural value is shared by all, must be conserved for its own sake)</td>
<td>A collective good, the world community being its reference (with very high non use values all over the world)</td>
<td>Managed by the national government, on behalf of international community, regulated by international organizations (Unesco)</td>
<td>Direct public funding, with international aid: Unesco, World Bank, NOG’s (Getty, Aga Khan, World Monument Funds,...)</td>
</tr>
<tr>
<td>A National Heritage</td>
<td>A public good at national level (the site or the monument is part of the national identity)</td>
<td>A collective good, to the national community (with non use values shared mostly by national citizens)</td>
<td>Managed and regulated by national government, or by private-public partnerships (National Trust,...)</td>
<td>Direct and indirect public funding, private funding, and patronage</td>
</tr>
<tr>
<td>A Local Heritage</td>
<td>Definition as public good unclear (nevertheless, a cultural value may exist)</td>
<td>A collective good, at the size of a local community (non use values can be intense for local people, but small in volume)</td>
<td>No public regulation. Managed at local level, mostly by groups of people, or private caretakers</td>
<td>Very little public or private funding. Mostly third sphere intervention (gifs, volunteers,...)</td>
</tr>
</tbody>
</table>

INTERCONNECTED AGGREGATE BEHAVIOR

From the field of macroeconomics

Historic city considered as system or entity
where integrated conservation interconnects people and activities, and provide sustainable growth
Towards New Diagnostic Frameworks

Collecting information to help decision-makers

- Designing training schemes and training service providers to help governments identify and prioritize urban development activities.
- Developing a system for monitoring urban development and providing technical assistance to local governments.
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Collecting information to help decision-makers

Heritage Indicators

- Simplify the interpretation of complex systems
- Used widely today for measuring and monitoring cities
- Do not substitute the use of databases
- Effective when direct documentation is time intensive
- Test city performances and help decision-makers
### Heritage Indicators

<table>
<thead>
<tr>
<th>Non use values</th>
<th>Option values</th>
<th>Direct use values</th>
<th>Indirect use values</th>
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<tr>
<td>Assess the value of heritage to the city stakeholders (inhabitants, city authorities, tourists, city at large, national and international community,...)</td>
<td>Assess the potential (the « marketability ») of the heritage in the city</td>
<td>Assess the benefits from occupancy of the heritage (housing, shops, offices, museums,...) and from visits to the heritage</td>
<td>Assess the benefits induced by the use of the heritage (transportation, lodging, food, souvenirs shops,...)</td>
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### Heritage Indicators (Cont’d)

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<td>Bequest value</td>
<td>Occupancy option value</td>
<td>Use value related to occupancy</td>
<td>Impact on other sector/activities</td>
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<tr>
<td>The city is regarded as a cultural patrimony</td>
<td>People are willing to pay to preserve the heritage the option to use it at some time</td>
<td>Income/Revenue from housing, commercial, and other activities</td>
<td>Income/Revenue from induced spending related to the use of the heritage</td>
</tr>
<tr>
<td>Existence value</td>
<td>Visit option value</td>
<td>Use value related to visit</td>
<td>Impact on city’s performance</td>
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<tr>
<td>People care about the existence and the preservation of the city</td>
<td>People are willing to pay to preserve the option to visit the city at some time</td>
<td>Income/Revenue from visits</td>
<td>The city improves social cohesion, aesthetic quality, its image, and welfare</td>
</tr>
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### Heritage Indicators (Cont’d)

#### Non use values

Some bequest value indicators
- Inhabitants’ willingness-to-pay to pass the heritage to future generation
- Authorities’ ability to keep a consistent heritage conservation policies in the long-run
- Level of inheritance tax on heritage property

Some existence value indicators
- Inhabitant’s awareness of the cultural status of the heritage
- City authorities’ commitment to protection and conservation
- Awareness of the cultural status of the heritage outside of the country

#### Option values

Some indicators for occupancy option
- Inhabitant’s willingness-to-pay for heritage conservation projects
- Excess demand for housing / commercial spaces
- Level of investment projects in urban transport infrastructure and services

Some indicators for visit option
- Level of potential demand for visit
- Willingness-to-pay to preserve the option of visiting the heritage in the future
- Level of tourism-related investment projects
Heritage Indicators (Cont’d)

Direct use values

Some indicators for use related to occupancy
- Rental and property values of historic buildings
- Long-term vacancy rate of historic buildings
- Resident’s housing affordability in historic buildings

Some indicators for use related to visit
- Visitor capacity utilization rate of monuments
- Visitors’ willingness-to-pay for the visit of the city
- Quality of access and visit-related services in the monuments

Heritage Indicators (Cont’d)

Indirect use values

Some indicators for impact on other sector/activities
- Volume of induced spending per visitor
- Number of local jobs related to visitor expenditures
- Rental and property values for non heritage buildings

Some indicators for impact on city’s performance
- Heritage spaces in need of improvement
- Inhabitant’s level of satisfaction
- Environmental quality / Sustainable urban growth
Measuring Indicators

Example of Rental and property values of historic buildings

**Statistical data**
- Rental and/or property values, raw numbers, indices
- Changes of values over time
- Premium/discount between values on heritage and not heritage buildings

**Survey data**
- Sample results in raw numbers
- Subjective assessment of level / changes

**Expert opinion**
- Qualitative assessment of rental / property values
- Assessment of level / changes (positive, neutral, negative)

### Non-use values
Some bequest value indicators
- Inhabitants' willingness to pass the heritage to future generations
- Authorities' ability to fund a consistent heritage conservation policies in the future
- Level of interest for non-heritage property

Some existence value indicators
- Inhabitants' awareness of the cultural status of the heritage
- City authorities' commitment to protection and conservation
- Awareness of the cultural status of the heritage outside of the country

### Use value

#### Some indicators for occupancy
- Rental and property values of historic buildings
- Long-term vacancy rate of historic buildings
- Level of investment for rental and property values of non-heritage buildings

#### Some indicators for use related to occupancy
- Inhabitants' willingness to pay for heritage conservation projects
- Level of interest in historic buildings
- Level of investment for non-heritage buildings

### Option values

#### Some indicators for occupancy option
- Inhabitants' willingness to pass the heritage to future generations
- Authorities' ability to fund a consistent heritage conservation policies in the future
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#### Some indicators for visit option
- Level of potential demand for visit
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- Level of tourism-related investment projects

### Indirect use values

#### Some indicators for impact on other sectors/activities
- Volume of induced spending per visitor
- Number of local jobs related to visitor expenditures
- Level of investment for non-heritage buildings

#### Some indicators for impact on city's performance
- Real estate market performance
- Inhabitants' level of satisfaction
- Environment quality / sustainable urban growth
Direct use indicator for visit: towards benchmarking

Visitors / Residents ratio (in number)

Venice (core) Venice (total) Edinburgh Brugge Salzburg

Using Indicators in Urban Strategy

Strategic positioning of historic cities in a matrix based on two criteria
Horizontal axis: increasing « tangibility » of values
Vertical axis: increasing exported values

Exports (higher international values than local)
Cities with higher economic values, mainly from external benefits
Cities with high international visibility but lower economic values
Cities with high heritage-related development at the local level
Tangibility (high direct and indirect use values)
Using Indicators in Urban Strategy – Benchmarking and development path

Strategic positioning of historic cities. Indicates population size.

**Exports (higher international values than local)**

**Tangibility (high direct and indirect use values)**

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How has the inscription as World Heritage City generated economic and tourism-related values?

Kathleen Louw, Getty Conservation Institute, with OWHC, 2006
FROM HERITAGE INDICATORS TO HERITAGE MAPS

“The analytical potential of mapping techniques has been made more powerful by the introduction and wide use of desktop geographic information systems (GIS) and the digital databases linked to them. GIS systems are not in themselves a method of value elicitation, they are a tool for organizing and analyzing data in the service of planning and management.”


<table>
<thead>
<tr>
<th>A parallel GIS runs parallel to and entirely separate from a city’s existing infrastructure, planning, and zoning GIS.</th>
<th>A dispersed GIS is an entirely separate system, but with a formalized data transfer protocol between the historic resource GIS and the city’s primary GIS.</th>
<th>A centralized GIS is an approach that enables a city building and maintaining a single, central GIS that serves as the hub for all of its infrastructure, planning, zoning, and historic resource data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTML, PowerPoint, PDF, Word, Excel</td>
<td>MS Access, Filemaker Pro, SQL</td>
<td>AutoCAD, ArcView, Multimedia, VRML</td>
</tr>
</tbody>
</table>
Graphic presentation at various levels

Parcels / Blocks

Grid / Cells

Districts / Zones

Economic values in successive layers

Indirect use values
Direct use values (visits)
Direct use values (occupancy)
Option values
Non use values
Historic Centre of UZES, France.
A parcel-based GIS estimate of three indicators related to direct use values from occupancy visualizes the correlation between economic factors, and shows the undervalued heritage in the east area of the city.

Analyzing layers

Occupancy of buildings (darker parcels = unoccupied)

Property prices (blu < average, red > average)

State of conservation of heritage buildings (good, fair, bad)

Correlating layers of indicators

Mapping the correlation between visits and tourism expenditures in historic city

Tourism direct use
Ratio between number of visits and total capacity (in %)
Dark blue = Most visited places

Tourism indirect use
Ratio between tourist sales and total sales (in %)
Dark red = Shops with the highest tourist sales
Helping city authorities or heritage caretakers in their assessment or implementation of conservation projects, by visualizing geographic expected impacts of conservation projects, or economic development projects.

Urban networks of economic data

TOWARDS ECONOMIC LANDSCAPES (3-D GRAPHICS)

Historic Center of Diest, Belgium - Map is presented to enhance the areas of the city with high heritage economic values (Market place on the left, the Beguinage on the right)
The ancient town of Djenné is located 600 km north east of Bamako, the capital of Mali, one of the poorest country in the world. The city is situated in the interior delta of the river Niger, and is annually surrounded by the rising waters of the Bani and Niger during the rainy seasons. Djenné was traditionally a trading post for trans-saharan trade, and a religious centre for the study of Islam. Djenné’s economy relies primarily on agriculture, fishing, cattle, artisanship, and more recently, tourism. Its earthen architecture style reflects centuries of acquired knowledge, know-how, traditions, and lifestyles of its population. Djenné as well as three nearby archaeological sites were inscribed on the list of World Heritage in 1988. Its Grande Mosquée –the world’s largest earthen building- was originally built during the 13th century, rebuilt in 1907, and dominates the market square.
Analysis diagram for heritage economics in Djenné

- Database
- Surveys
- Mapping tools
- Pre-analysis
  - Main indicators
  - Values indicators
  - Maps
- Expertise
- Urban strategy
- Strategic analysis
- Business lines
- Expertise
- City authorities

Djenné (Cont’d)

- Some Figures:
  - GNP per capita: US$ 379.00
  - Population: 33,000 (2009 estimate), with annual growth of 4.9%
  - Size: 200 acres for the historic center (main island)
  - Number of heritage buildings: 1,500
Heritage Indicators (Cont’d)

Non use values

Some bequest value indicators
- Inhabitants’ willingness-to-pay to pass the heritage to future generation
  - No monetary estimate has been made. But homeowners are attached to their house
- Authorities’ ability to keep a consistent heritage conservation policies in the long-run
  - Local governance lacks professional urban management
- Level of inheritance tax on heritage property
  - No indication of inheritance tax

Some existence value indicators
- Inhabitant’s awareness of the cultural status of the heritage
  - Survey indicated that only 50 % are aware of the WHC status
- City authorities’ commitment to protection and conservation
  - Public investment for the heritage estimated at US$ 80,000 in 2008
- Awareness of the cultural status of the heritage outside of the country
  - The cultural value of Djenné is recognized out of the country

Heritage Indicators (Cont’d)

Option values

Some indicators for occupancy option
- Inhabitants’ willingness-to-pay for heritage conservation projects
  - No estimate. But probably very low financial capacity
- Excess demand for housing / commercial spaces
  - Data shows an average of 2% of housing units occupied by non residents
- Level of investment projects in urban transport infrastructure and services
  - Volume of public investment estimated to 10 millions CFA francs (US$ 20,000) in 2008

Some indicators for visit option
- Level of potential demand for visit
  - Tourism is expected to rise steadily in the nest decade
- Willingness-to-pay to preserve the option of visiting the heritage in the future
  - No estimate. But probably very low financial capacity
- Level of tourism-related investment projects
  - Although there are some initiatives, new tourist-related projects remain feable
Heritage Indicators (Cont’d)

Direct use values

Some indicators for use related to occupancy
- Rental and property values of historic buildings
  - Average annual rental value = 200,000 CFA Francs (US$ 400) in 2008
- Long-term vacancy rate of historic buildings
  - Vacancy rate steadily low (less than 5 %)
- Resident’s housing affordability in historic buildings
  - Affordability remains good

Some indicators for use related to visit
- Visitor capacity utilization rate of monuments
  - 35,000 visitors in 2008, among which 10% from Malian visitors
- Visitors’ willingness-to-pay for the visit of the city
  - Apart from the Museums, other visited places not fully accessible; No admission fees
- Quality of access and visit-related services in the monuments
  - Survey revealed no investments related to visits

Indirect use values

Some indicators for impact on other sector/activities
- Volume of induced spending per visitor
  - Survey covered the Djenné’s six hotels (3,712 nights in 2008, 148 millions CFA francs)
- Number of local jobs related to visitor expenditures
  - 27 registered guides, 500 artists (embroiders, jewelers, potters), punt river-crossing
- Rental and property values for non heritage buildings
  - Dense and compact city, non heritage buildings benefit from the inscription

Some indicators for impact on city’s performance
- Heritage spaces in need of improvement
  - Infrastructure, sewage and water evacuation are challenging issues
- Inhabitant’s level of satisfaction
  - Protection regulations are often not compatible with modernization of housing
- Environmental quality / Sustainable urban growth
  - Less emphasis on environmental issue
Heritage Indicators (Cont’d)

Need to improve all categories of values

Non use values
Option values
Direct use values
Indirect use values

Priority for improvement

Selected indicators can be listed in a dashboard to provide a monitoring tool to city authorities

Digitalized map for Djenné
Digitalized map for Djenné - Neighborhoods

- Dioboro
- Algassouba
- Djoboro
- Seymani
- Samsey
- Konofia
- Yroboukaina
- Sankoré
- Ndiassina
- Sambiré
- Diawalé
- Dioboro
- Konofia
- Dambugalsorria
- Sankoré

Digitalized map for Djenné - GIS Maps

Direct use values
Rental values
(darker tones display higher values)

Indirect use values
Revenue from tourism
(Parcels in red)
A comprehensive heritage map for Djenné, adding together the different layers

This landscape map displays values not equally distributed across the city, and reveals two areas of concentration (Marketplace with the Great Mosque, and the Campement)

Strategic positioning with the use of a multi-criteria analysis

Expertise assessment based on indicators and maps analysis
Criteria assessment: Scale from 1 (low) to 5 (high)

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>SIGNIFICANCE</th>
<th>SCORE</th>
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<tbody>
<tr>
<td>« Brand » awareness about the city</td>
<td>From low knowledge of Djenné’s cultural heritage value (1) to high knowledge (5)</td>
<td>4</td>
</tr>
<tr>
<td>Tangibility of economic values</td>
<td>From low tangible values (1) to high tangible values (direct + indirect) (5)</td>
<td>2</td>
</tr>
<tr>
<td>Export-oriented capacity</td>
<td>From low level of foreign resources (1) to high level of foreign resources (5)</td>
<td>3</td>
</tr>
<tr>
<td>Local government involvement</td>
<td>From no public management (1) to developed public management (5)</td>
<td>2</td>
</tr>
<tr>
<td>Equity</td>
<td>From private outcome (1) to community oriented outcome (5)</td>
<td>2</td>
</tr>
<tr>
<td>Urban development</td>
<td>From low urban implications (1) to high urban implications (5)</td>
<td>3</td>
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<tr>
<td>Sustainability</td>
<td>From low sustainable development (1) to high sustainable development (5)</td>
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Strategic positioning with the use of a multi-criteria analysis

Using indicators for urban strategy

Strategic positioning of historic cities in a matrix based on two criteria
Horizontal axis: increasing « tangibility » of values
Vertical axis: increasing exported values

Exports (higher international values than local)
Cities with high international visibility but lower economic values
Tangibility (high direct and indirect use values)

Djenné’s strategic goal
HERITAGE S W O T Analysis for Djenné

**STRENGTHS**
- Heritage with outstanding cultural value
- Population in the historic center estimated to increase by 45% in 2025
- Skills of 200 masons and 100 apprentice masons

**WEAKNESSES**
- Poverty, lack of resources
- Governance: conflicting mandates between national and local actors, improve urban and local management
- Lack of tourist infrastructures for food, lodging, services

**OPPORTUNITIES**
- Expected increase of visitors and tourists
- Financial aid available (Aga Khan Foundation, Dutch renovation project, European Union, …)
- World heritage status

**THREATS**
- Urban and building regulations not always compatible with economic development
- Exodus of the younger population to bigger cities
- Droughts / Flooding of the area

**Deriving business lines from SWOT results**

<table>
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<th>CONSOLIDATE STRENGTHS</th>
<th>STAKEHOLDERS</th>
<th>BUSINESS LINES</th>
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<td>Heritage with outstanding cultural value</td>
<td>City at large, World community</td>
<td>Advertising the city, Promoting heritage events</td>
</tr>
<tr>
<td>Population estimated to increase by 45% in 2025</td>
<td>Inhabitants, City authorities</td>
<td>Stimulating housing market, Keeping housing affordability</td>
</tr>
<tr>
<td>Skills of 200 masons and 100 apprentice masons</td>
<td>Masons, Masons’ Guild, Homeowners</td>
<td>Promoting conservation through incentives and subsidies</td>
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<td>Poverty, lack of resources</td>
<td>Inhabitants, City authorities</td>
<td>Developing microfinancing, Redirecting tax to conservation</td>
</tr>
<tr>
<td>Professional governance for urban and local management</td>
<td>Local government</td>
<td>Training for municipal staff, Data and management system</td>
</tr>
<tr>
<td>Lack of tourist infrastructures for food, lodging, services</td>
<td>Tourists, Entrepreneurs</td>
<td>Attracting new businesses, Encouraging local investment</td>
</tr>
</tbody>
</table>
### Deriving business lines from SWOT results

<table>
<thead>
<tr>
<th>SEIZE OPPORTUNITIES</th>
<th>STAKEHOLDERS</th>
<th>BUSINESS LINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected increase of visitors and tourists</td>
<td>Tourists, Local businesses</td>
<td>Attracting more tourists, Developing new accommodations</td>
</tr>
<tr>
<td>Financial aid available for renovation projects</td>
<td>Homeowners, International NGO’s</td>
<td>Promoting rehabilitation, Blending financial instruments</td>
</tr>
<tr>
<td>World heritage status</td>
<td>National government</td>
<td>Advertising the city, Encouraging open access</td>
</tr>
</tbody>
</table>

### Avert Threads

<table>
<thead>
<tr>
<th>STAKEHOLDERS</th>
<th>BUSINESS LINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>City authorities</td>
<td>City and heritage planning, Municipal contracts</td>
</tr>
<tr>
<td>Inhabitants</td>
<td>Community engagement, Scaling up urban services</td>
</tr>
<tr>
<td>Local and national government</td>
<td>Filling knowledge gaps, Improving infrastructures</td>
</tr>
</tbody>
</table>

#### Analysis diagram for heritage economics in Djenné

```
Analysis diagram for heritage economics in Djenné

Database → Pre-analysis, Main indicators → Expertise → Values indicators → Expertise → Maps → Urban strategy → Strategic analysis → Business lines

Urban strategy → Expertise → City authorities

Project Evaluation

Cost-Benefit analysis → Multi-Criteria analysis
```

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5/11/2010

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Cost-Benefit Analysis

« For CBA to be implemented, the values of all the costs and all the benefits arising from an investment need to be estimated, added up and weighted up to give a net value. Costs are more easily identified and measured than benefits. For instance, in terms of costs, it is comparatively easy to see what a property costs and what it costs to maintain and run it. The benefit side of the equation is more difficult to measure. Defining and measuring the benefits is really the cutting edge of the application of CBA in heritage contexts ».

Jeff Bennett

Multi-Criteria Analysis

« Instead of valuing the various project outcomes in monetary terms, this non-monetary evaluation method takes into consideration the multiple dimensions of a decision problem. Project effects are addressed in their own dimensions, and a weighing procedure is used to compare or assess the various project effects against each other. Clearly, the weighing procedure depends on the relative priorities attached to the various decision criteria of the project plan. Such a method is therefore called a multi-criteria method ».

Peter Nijkamp
A Survey of Methods for Sustainable City Planning and Cultural Heritage Management
Vrije Universiteit Amsterdam, 1998

Figure 2. An example of a spider model for determining the driving forces of future urban transport systems.
Heritage Economics feed a project evaluation method by providing tools (indicators, maps) for assessing the outcomes (or impacts) of the project on multiple stakeholders.

List project items → Table of impacts → List stakeholders → Identify economic values → Impact assessment → Select indicators and maps → Project evaluation → Cost-Benefit Analysis ↔ Multi-Criteria Analysis

Practicing a simulation of project evaluation for Djenné with a selected business line from the SWOT analysis

**STRENGTHS**
- Heritage with outstanding cultural value
- Population in the historic center estimated to increase by 45% in 2025
- Skills of 200 masons and 100 apprentice masons

**WEAKNESSES**
- Poverty, lack of resources
- Governance: conflicting mandates between national and local actors, improve urban and local management
- Lack of tourist infrastructures for food, lodging, services

**OPPORTUNITIES**
- Expected increase of visitors and tourists
- Financial aid available (Aga Khan Foundation, Dutch renovation project, European Union, ...)
- World heritage status

**THREATS**
- Urban and building regulations not always compatible with economic development
- Exodus of the younger population to bigger cities
- Droughts / Flooding of the area
<p>| STAKEHOLDERS | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| Owners/Occupiers |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Nearby owners/Occupiers |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| New residents |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Developers/Preservationists |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Local contractors |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| External contractors |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Conservation specialists |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Local craftsmen/Masons |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Local workers |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| External workers |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Visitors |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Tourists |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Passers-by |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Graduates |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Graduates |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Graduates |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
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<tr>
<td>1C</td>
<td>New residents</td>
<td>Advertising the city abroad will increase demand for housing</td>
<td>Direct value</td>
<td>Private consumption</td>
<td>Rent and property values of historic buildings</td>
<td>Map of heritage building s where new residents live</td>
<td></td>
</tr>
<tr>
<td>1L</td>
<td>Tourists</td>
<td>Advertising will increase visits</td>
<td>Direct value</td>
<td>Option value</td>
<td>Visitor capacity utilisation rate of monuments</td>
<td>Map of the capacity utilisation rate of visit</td>
<td></td>
</tr>
<tr>
<td>1O</td>
<td>Tourism agencies</td>
<td>Advertising will increase business and jobs for tourism agencies</td>
<td>Indirect value</td>
<td>Private investment</td>
<td>Number of local jobs related to visitor expenditures</td>
<td>- -</td>
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<td>Map of new businesses (shops, hotels, ...)</td>
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<td>International community</td>
<td>Advertising the city will increase the awareness for the existence of Djenné</td>
<td>Non use value</td>
<td>-</td>
<td>Inhabitants’ awareness of the cultural status of the heritage</td>
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</table>
## Table of Impacts
### Economic values, Indicators and Maps

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<td>Option value</td>
<td>Visitor capacity utilization rate of monuments and level of potential demand for visit</td>
<td>Map of the capacity utilization rate of visit</td>
<td>-</td>
</tr>
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<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Impact assessment by stakeholders by project items

| PROJECT ITEMS | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
| Worldwide city advertisement | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Temporary exhibitions, Festivals, Events | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Potential partner cities | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| City website and Communication | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Public, spaces, Cleaness, Safety | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Historic/tourism trails and tours | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Touring information center | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Signage, Orientation, Outdoor information | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Admission fees | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tax on tourism-related accommodations | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Museums marketing | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Staffing capacities | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Audio-equipment and guides | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mosque visit | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lodging, Hotels, Bed and breakfast | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cafes, Restaurants | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Retail, Souvenir shops | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Craftsmanship | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Market and outdoor shops | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Banking and Postal services | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Medical, First aid, Pharmacy | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Public transportation | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Boot (Ferry transportation) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
Breaking down strategy into business lines
Breaking down business lines into projects
Breaking down projects into project items
Breaking down project items into stakeholder’s outcomes

Expected values or benefits could be summarized by a single row

Monitoring heritage economics of historic cities by using indicators and maps

An Outcome table or a Table of impact can also be considered as a dashboard for monitoring and decision-making
Heritage Economics in Historic Cities

Thank you for your attention