RSA

Action and Research Centre

Heritage, Identity and Place

Technical Report:
Heritage Index

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- TCV (The Conservation Volunteers)
- Historypin
- The Wildlife Trusts
- Scottish Civic Trust
- Heritage Open Days
- Cadw
- Department for Communities and Local Government (DCLG)

About the RSA

The RSA (Royal Society for the encouragement of Arts, Manufactures and Commerce) believes that everyone should have the freedom and power to turn their ideas into reality – we call this the Power to Create. Through our ideas, research and 27,000-strong Fellowship, we seek to realise a society where creative power is distributed, where concentrations of power are confronted, and where creative values are nurtured. The RSA's Action and Research Centre combines practical experimentation with rigorous research to achieve these goals.

Background

This short report serves to explain the methodology behind the RSA's groundbreaking dataset which maps the strength, breadth and diversity of heritage in England, Scotland and Wales.

The best way to explore the Index is online, through interactive maps and data downloads, at www.thersa.org/heritage.

The Heritage Index is the first output of a wider programme of work, called Heritage, Identity and Place (HIP). The objective of this programme is to ensure that heritage – broadly defined – is better able to provide the 'local USP' to support places in defining and realising their social, economic, and environmental aspirations. This is particularly relevant in the current political context of accelerating devolution to cities, counties and councils across the UK.

To meet our objective we are developing resources which support people to make robust strategy and investment decisions at a local, city-region and national level. To develop these resources we are working with three UK cities to look in depth at how heritage can play a stronger role in helping places achieve their social and economic objectives – Bristol, Oldham and Dundee.

The Heritage Index is designed to be a resource which can support better decision-making by stimulating better informed conversations about the extent of heritage assets and activities, and the ability to measure and influence them. It is designed to facilitate access to a range of heritage data through a single access portal, and to make data easier to interpret.

Methodology

The Heritage Index was designed to quantify the strength, breadth and depth of heritage at a local level, allowing for comparisons between places. This required the following steps, explained in this section.

1. Creating a framework for understanding heritage.
2. Finding indicators which measure heritage within this frame work.
3. Assessing the best geographical scale at which to understand heritage.
4. Collating and cleaning data.
5. Building a spreadsheet model.
6. Weighting indicators, adjusting for geography and demographics.
7. Representing results.

Creating a framework for understanding heritage

There are many ways in which heritage can be defined, understood and measured. None of these are definitive or 'correct', but any data-led process has to create a framework in which indicators measure progress or performance for what is to be measured.

The first step we took was to understand that heritage involves a set of activities – things done by people – as well as the traditional physical assets that many people associate with heritage (such as castles, palaces, museums and national parks).

Second, we sought to define a set of categories which would be inclusive to a wide range of assets we have inherited from the past. This was designed to accommodate built heritage assets and natural heritage as well as memories and practices such as the archiving of artefacts from the past or the designated protection of a place-based practice of food production. Investment in heritage assets and activities is included – Heritage Lottery Fund (HLF) grants, alongside capital and non-capital expenditure on things like parks, museums, archives and tourist information centres.

Our framework was designed to work alongside HLF's own categorisation of funding, and was finalised as shown in Table 1:

Table 1:
Example indicators within the Heritage Index framework

Domain	Asset	Activity
Historic built environment	▪ listed buildings ▪ monuments ▪ World Heritage Sites	
Museums, archives and artefacts	▪ museums ▪ archives ▪ archaeological finds	▪ funding/spending ▪ volunteering ▪ participation ▪ awards ▪ Heritage Open Days
Industrial heritage	▪ railways ▪ canals ▪ continuous trading businesses	
Parks and open space	▪ parks ▪ gardens	
Landscpae and natural heritage	▪ designated protected areas ▪ ancient woodlands ▪ local nature reserves	
Cultures and memories	-	▪ Blue Plaques ▪ protected food designations ▪ stability of local resident population
General and cross cutting	-	▪ tourism ▪ civic societies ▪ jobs in heritage industries

Finding indicators which measure heritage within this framework

Within each of the 'domains' of heritage (eg historic built environment assets, parks and open space activities) we sought to obtain data which covered the most important features as well as indicators which represented the breadth of assets and activities that indicate the strength of heritage in a place. For example, listed building status, conservation areas, and a range of designated areas which protect the natural world, are all associated with a legal framework which gives them implications on the way the inherited physical environment can – or cannot – be adapted in the present day.

UK coverage

It was apparent early in the process that because many datasets are not comprehensive across the four nations of the United Kingdom, a single UK-wide index would be limited in the number of indicators that could be employed, and therefore be curtailed in being able to achieve the objective of serving as a useful resource for local government bodies, community groups and citizens. Using incomplete and incompatible indicators would make comparisons between local areas across borders unfair. Feedback from our workshop in Dundee indicated that stakeholders in Scotland would find a heritage index providing Scotland-wide comparisons adequate. Efforts to pursue a Northern Ireland index were abandoned at an early stage, for several reasons.[1]

1. The absence of GIS shapefiles for local authority districts limits the usability of datasets which are published in GIS format (see below). Secondly, the value of the exercise is diminished in Northern Ireland because of recent reorganisation into 11 local authorities; some datasets compiled in previous years will use the smaller, pre-reorganisation district geography, at which scale survey-based data often does not provide reliable sample sizes.

We sought data that met the following criteria:

- **Quantifiable** – Many aspects of heritage are qualitative, for example the attractiveness of an urban street or a rural view which remains similar to that which would have been evident in previous centuries. However, you can't put a number to measure attractiveness. Instead, we rely on indicators such as the proportion of urban areas covered by conservation areas, or the proportion of land which is part of a designated Area of Outstanding Natural Beauty. In effect, these indicators are based on a judgement about quality, justifying the protection being introduced.

- **National coverage** – so that the index scores would not unfairly discriminate against places for which data did not exist. For example, Bristol has mapped all of its public sculptures as part of the Know Your Place initiative. Most places, however, don't have this data, or don't publish it or even hold it in an accessible format; however most towns do have a public sculpture.

- **Up-to-date** – nothing older than five years (2010).

- **Clearly 'directional'** – where it would be commonly considered that a higher number or concentration would be better.[2] For example, having a relatively high number of archaeological finds in your local area is assumed to represent greater historic activity, as well as greater contemporary efforts to explore the past.

- **Related to a place** – for example the listed location for most professionals in heritage crafts will be a business address (often, for the self-employed, their home address). This therefore provides a poor representation of the geography of where their skills are deployed, the location of their projects, or the historical origin of their craft.

For efficiency, we tended to favour data which was compiled by a single data owner. For example, many local authorities have undertaken an exercise to compile a 'local list' of heritage assets not covered by statutory protections such as listed building status. However, this data is not centralised – each authority has tended to publish a report in pdf format,[3] or an online map. A single database of locally-listed assets would require hundreds of downloads and hours of work transcribing from documents into spreadsheets.

We found there were a greater range of interesting datasets, providing useful indicators, than we had anticipated – far beyond the directory compiled in a recent initiative of the Open Data Institute in partnership

2. The Index includes several indicators with a negative weighting, where a higher number is not positive in heritage terms: for example, buildings and parks defined as 'at risk' – due to decay in their physical state.

3. See, for example, Epsom and Ewell's list

with Nesta as part of the Open Data Challenge Series.

Assessing the best geographical scale at which to understand heritage

We chose to report data at the level of 'lower-tier' local authorities.Local councils have the power to decide on matters of planning and development control, and provide funding for parks, roads, public realm and other aspects of the built environment which influence how land and property is used, developed and redeveloped, therefore shaping the future of the historic environment.

This role is growing. Many of the new powers for communities introduced since 2010 involve the local authority, such as the designation of Assets of Community Value and arrangements to give effect to Neighbourhood Plans.

Notably, many of the deals being struck in the current parliament between central government and local authorities involve new Combined Authorities (such as in Greater Manchester) taking on the running of additional public services including health and adult education. These responsibilities expand the range of place-shaping powers available to local government, and provide an additional reason to undertake efforts to understand the way residents and visitors understand a place.

Collating and cleaning data

In constructing our index, all data needed to relate to a local authority scale. This meant we often needed to translate the data as published (eg the postcodes of Scottish museums) into a count per local authority.

Often, data is collected and published in a format which is difficult for others to access and use themselves. We used Geographical Information System software (GIS) to obtain data at the local authority scale, using different layers of information to calculate – for example – how many hectares of local nature reserves exist in each district.

There were several datasets which could have provided useful indicators, but we were unable to work with, due to formatting issues (see below). In other cases, we were able to find a way to 'scrape' data from websites efficiently, for example using import.io to quickly pull down information on 1800 museums in England accredited by the Arts Council.

In several instances, organisations provided data usually unavailable to the public, for example the information which sits behind the Historypin map, allowing us to analyse on a local authority basis. We requested a bespoke data analysis from the Office for National Statistics (ONS) to investigate the Interdepartmental Business Register for employment and turnover of businesses in sectors of the economy which we defined as relevant to the heritage industry.[4] We used a similar approach to analyse the records of live businesses registered with Companies House data – recently made open to the public – to identify continuously trading businesses (over 75 years) as an indicator of economic history in the industrial heritage domain.

4. Available for public download as .xls Excel file

Building a spreadsheet model

We used Microsoft Excel to build a spreadsheet model which arranged the indicator data into the different domains, separating assets from activities.

You can download a simplified, user-friendly version of the model (with many of the calculations locked) from www.thersa.org/heritage.

The model contains internal hyperlinks which display results in a number of formats (eg league tables), and allow for weightings to be changed easily (see below).

Weighting indicators, adjusting for geography and demographics

The overall score for a local authority is constructed using a composite of scores for each of the six domains of heritage, plus a seventh domain considered 'general' – relevant to the entire heritage sector (see Table 1).

Each of the six domains is weighted as 15 percent of the overall total, with 'general' accounting for the remaining 10 percent of the total score.

Within each domain, 50 percent of the score for that domain is made up of a score which measures local assets, and 50 percent of the score for that domain is made up of a score which measures local activities.

The number of indicators which measure assets or activities varies – from three to 14 – depending on how many available datasets were obtained which met the criteria outlined above. However this does not affect the weighting for the domain, it simply means the domain score may be calculated on a wider basis.

Not all the data is treated as an equally weighted indicator in determining the domain score (and, by extension, the overall index score). Some measures are considered to represent more heritage value than others. For example, Grade I listed buildings are given a weight of twice the strength of Grade II* listed buildings, representing their status as heritage assets considered to have greater significance.

We have published a full list of indicators and their weightings, at www.thersa.org/heritage.

To compare data, which in its 'raw' form is measured in many different ways, data is adjusted into an index score based on whether a place is above or below the average for all local authorities.[5] This allows us to draw results together from across different indicators, which might measure the extent of a park in square kilometres or the size of a community group in terms of number of volunteers.

Finally, for the index to successfully represent the strength of heritage in a given local authority area, results need to be adjusted once more, to account for the differences in size (land area) and residential population among local authorities.[6]

The addition of this denominator effectively translates the index from a measure of overall heritage assets and activities into an index which

5. The relevant 'average' might be the mean or median score among authorities, for a given indicator. For metrics against which most local authorities score zero, an average score is calculated among scores above zero.

6. For London local authorities, daytime population figures are used, which include commuters (but exclude tourists). This reflects the fact that in many parts of London, the presence of heritage assets and activities is largely driven by the commercial function of the area, rather than a smaller residential function.

– more usefully – measures the intensity or density of heritage assets and activities. Different indicators are adjusted by different denominators. For example, landscape assets are converted into a per square kilometre measure, while museums are converted to reflect both their density per square kilometre and per resident in the district. The rationale is that such assets are rivalrous and that proximity matters to the utility of the asset. In other words, for every museum in a given land area, having more people depletes the value of the resource. For every museum for a given population, having it further away (located in a larger land area) depletes the value of the resource.[7]

Without this adjustment, heritage scores are largely a function of having a large land area (and thus capturing a high number of assets) and a large population (thus capturing a large extent of activities). Just looking at 'raw' data, the top 10 English authorities would look very different, and would include the two most populous authorities – Leeds and Birmingham – and four of the territorially largest districts: Northumberland, Cornwall, Wiltshire and Herefordshire. Heritage is everywhere and involves everyone; reporting the data without adjustment would be equivalent to reporting that Cornwall and Birmingham have the For London local authorities, daytime population figures are used, which include commuters (but exclude tourists). This reflects the fact that in many parts of London, the presence of heritage assets and activities is largely driven by the commercial function of the area, rather than a smaller residential function. most roads and the most cars, respectively – it would shed no light on the prevalence of transport choices or traffic conditions.

Indicators

What is included

- All major statutory designations for built heritage: including listed buildings, ancient monuments, conservations areas and

7. Note that certain UK districts, including extensive parts of Scotland and Wales, have land with a very low density of heritage assets and activities, across very large land areas. This means that the methodology used (with the objective of calculating heritage density, per square mile) serves to the disadvantage of heritage scores calculated for districts where land is predominantly rural and remote, and this is particularly noticeable in Scotland and Wales where there are a higher proportion of districts with large rural land area.

world heritage sites.

- Natural heritage protections such as national parks, nature reserves and sites of special scientific interest.

- Physical infrastructure for heritage such as museums, archives, heritage attractions (such as heritage railways) and tourist information centres.

- Public participation in heritage: how many people visit museums, archives, go birdwatching etc.

- Measures of heritage activity such as number of societies and their membership – including young archaeological groups and thousands of blue plaques.

- Over 1m archaeological finds and 50,000 digital artefacts shared on social media.

- The economic footprint of heritage: the scale of the heritage industry in firms, workers and turnover, and the number of holiday nights spent.

- The economic history of an area, as carried through by continuously-trading businesses.

- The social history of an area, as carried through by the continuity of resident population from one year to the next, and the official European Commission recognition to protect the naming rights for local food and drink products. Local authority spending (capital and non-capital) in relevant categories – such as on parks, tourism and protecting land from flooding.

- HLF funding in the last five years.

- Arts Council funding for major museum partners.

What isn't included

It is important to remember that although it contains over 100 indicators, the Heritage Index is not – and could never be – a fully comprehensive representation of heritage at the local level.

What counts as heritage is always contested, and the construction of the Index has inevitably been subject to the limitations imposed by what people have, throughout history, decided is worth recording and providing with protective status and resources.

Although we capture many activities which relate to heritage – the proportion of people who visit archives, who volunteer to help with nature conservation – the Index is limited in being able to capture the continuity of activities and practices over time.

What we learned along the way

Some official datasets have been published incorrectly, or are based on highly inaccurate methods. In the course of our research we notified the relevant authorities to seek to correct this error.

It's a great waste of resources when organisations invest resources into compiling data and making it accessible, but do not make it transferable to other users. For example organisations had compiled fantastic maps of relevant assets across the UK, but were not able to respond to our request to access the underlying information on which this map is undoubtedly constructed.

This could be explicable in a number of ways: data protection concerns mean many organisations are reluctant to provide data, even if they have already made it public; some data has commercial value which discourages sharing.

Representing results

The calculations associated with the indexing exercise described above produce results as numbers, which are hard to interpret without the context of the methodology.

At the most basic level, following weightings and adjustment for land and population, within each sub-domain (ie assets and activities are the two sub-domains within each domain) the district with the highest indexed score is given the value 1. The scores of other districts are understood as fractions of this maximum. This process is undertaken separately within activity and asset sub-domains, and subsequently these two independent scores (both calculated as fractions of 1) are summed and then recalculated to again represent proportions (fractions of 1) of the maximum score. However, in two domains (cultures and memories, and general), there are no relevant assets, therefore activities scores represent the domain score.

Combined sub-domain scores (assets and activities) are weighted equally, 50:50, as described in a previous section. The highest score possible is 6.67 – achieving the maximum points in each domain. In England, for example, the City of London achieves the highest score, at 2.67 (40 percent of the possible 'perfect score').

An asset score, across all five domains in which assets form part of the calculation, is calculated by simply summing across assets (so that the maximum theoretical district score would be 5.00 – if a district achieved the maximum indexed result for each asset domain). In England, for example, the City of London scores highest, at 2.21.

An activity score is calculated in an identical way, albeit with a maximum score of 7.00: composed of six heritage domains plus a 'general' activity score. In England, for example, Scarborough scores highest, at 3.57.

To make results more accessible, scores are ranked from highest to lowest (within each nation), and then reported as percentiles: indicating whether a district scores, for example, in the top 5 percent or the bottom 40 percent of scores for a metric.

Notably, assets are distributed more unequally than activities, and assets and activities are distributed very differently across different

domains. For example, the incredible density of historic built environment assets in the City of London, means that the average score for other districts is less than 1 percent of this impressively high maximum score. By contrast, activity around parks and open space is distributed more equally.

The impact of this uneven distribution means that districts scoring particularly poorly in domains with relatively well-distributed assets will score particularly poorly on the assets-only index. For example, landscape and natural heritage assets are relatively well-distributed; districts more commonly score higher proportions of the maximum points in this asset domain than in other asset domains.

Considering distribution further, the reverse effect is also true. Landscape and natural heritage activities are the most unequally distributed among domains when looking just at activities. Areas with high levels of activity in this domain will score particularly well in the activities index, since districts more commonly score low proportions of the maximum points in this activity domain.

In short, both the assets score and activity score are calculated in a way which accounts for the size of 'winning margin'.

The combined Heritage Index score is a composite score. Assets and activities are balanced 50:50 within domains before combining domains to calculate an overall score. This changes the extent to which a wide winning margin in one sub-domain impacts on the overall combined score.

One example of this effect is evident in the Top 10 scores. Oxford scores higher than Cambridge in both the assets-only scoring and the activity-only scoring. However, the components of Cambridge's asset score includes exceptionally high performance in the assets sub-domain within the museums, archives and artefacts domain. Cambridge scores higher than Oxford in the composite scoring which is used to calculate the overall Heritage Index headline results.

In effect, the index methodology 'super-scores' assets and activities by accounting for the uniqueness of high scores within a domain. Cambridge outscores Oxford in the composite Heritage Index because in the sub-domains where it scores well, high scores are particularly rare. Cambridge's strengths are more unique than those of Oxford. Despite Oxford's high performance when summing across all assets, and across all activites, the overall Heritage Index score reflects the principle that performance in a single domain of heritage should be measured through equal weight given to assets and activities.

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