

# Mixed methods in evaluation

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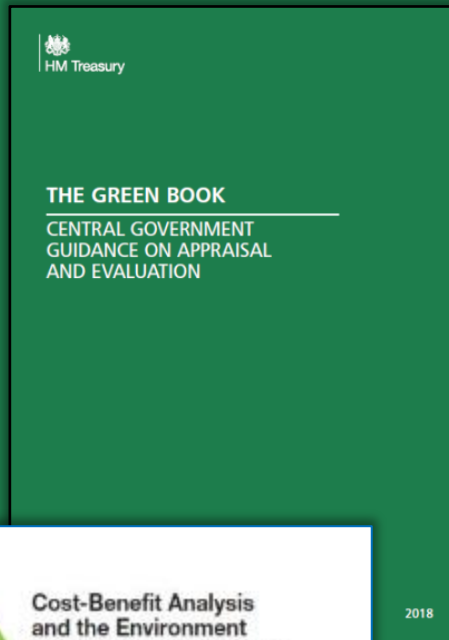
<https://twitter.com/ricky1awton>

January 2022

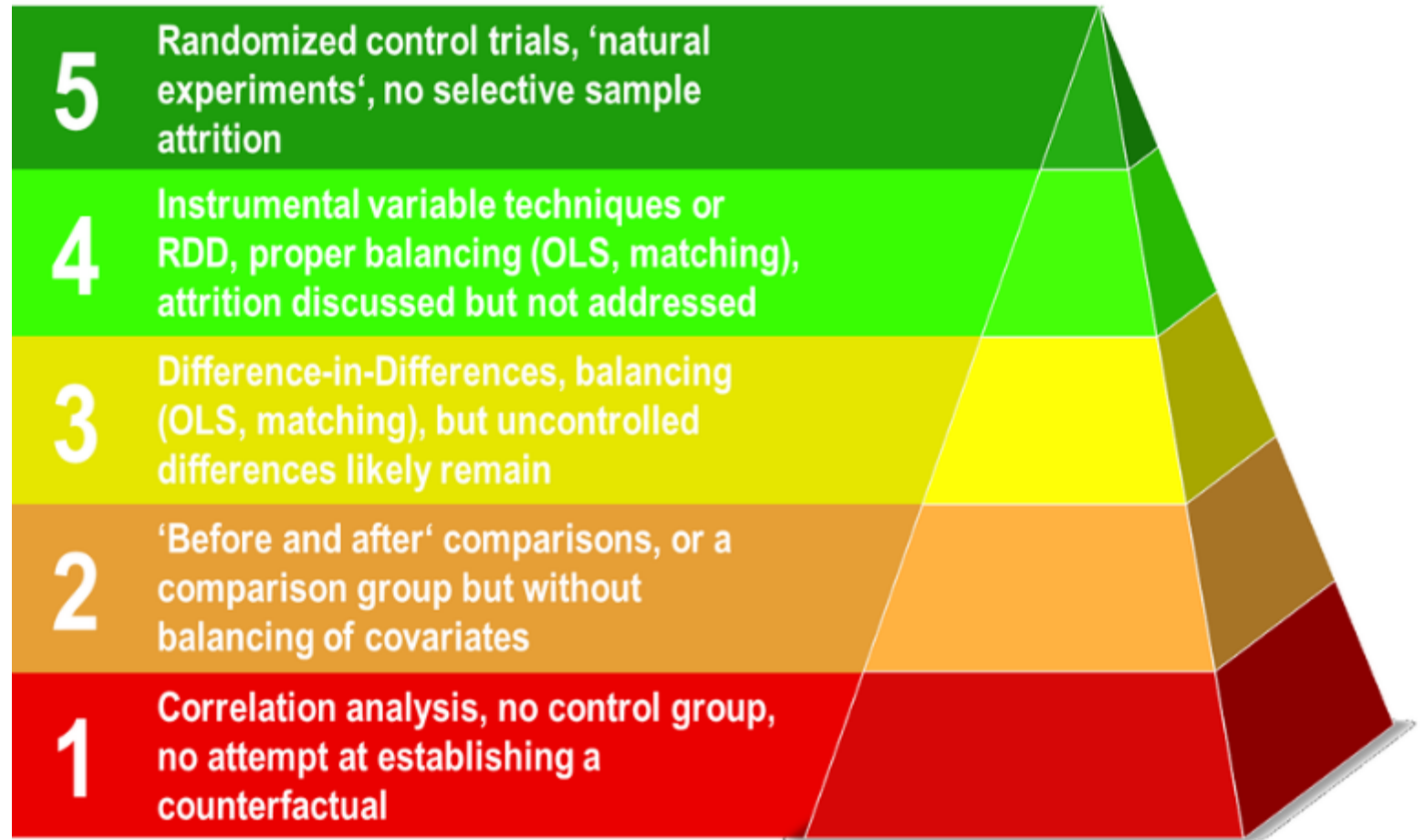
Ipsos MORI



# Economic Evaluation Methods



# Scientific Evidence Scale



# HM Treasury Green Book (2020)

- The Green Book (2020) provides the rationale, framework and methodology for measuring social value: HM Treasury define as how “*government can improve social welfare or wellbeing*”.
- **Social Cost Benefit Analysis**: Includes Economic, Social and Environmental values
- **Consequentialism** = Only the outcomes of an invention matter when assessing social impact and social value.
- Policy to be assessed based on the **outcomes** generated for society.
- **Welfarism** = The ultimate outcome of interest is (human) welfare or wellbeing



# GDP=

Household  
spending

+  
Investment

+  
Government  
spending

+  
Net exports\*

\*net' exports is the value of UK exports **to** other countries *minus* UK imports **from** other countries

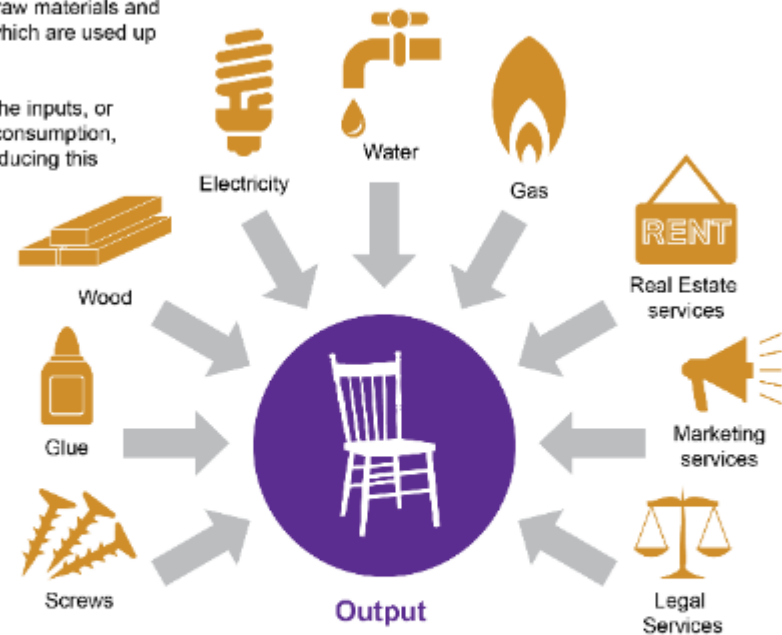
# GVA=

**Output – Intermediate consumption = GVA**

## Intermediate consumption

is the cost of raw materials and other inputs which are used up in production.

The value of the inputs, or intermediate consumption, going into producing this chair are **£30**.

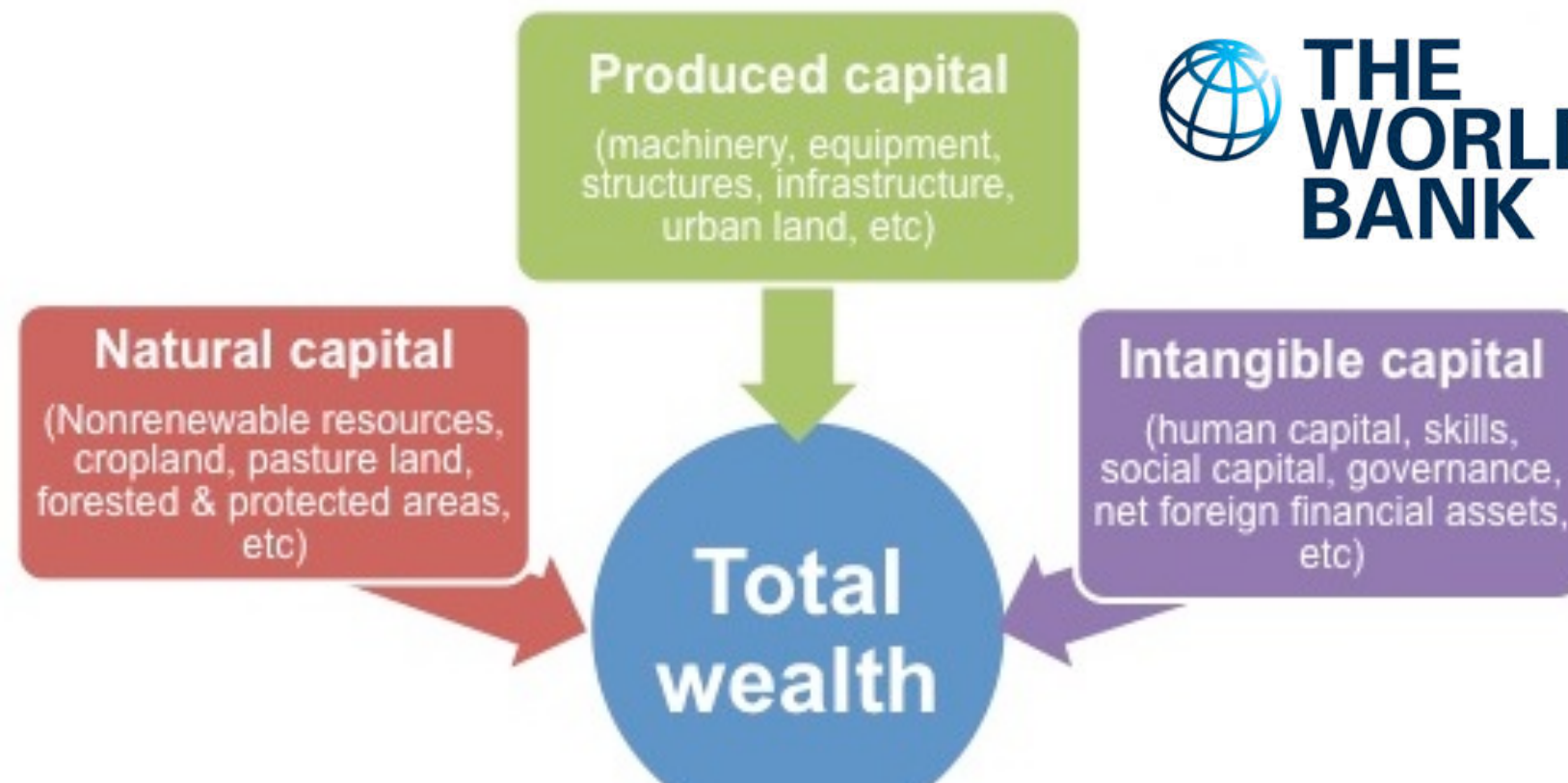


**Output**

is the goods or services which are produced.  
In this case the **chair** is the output and is worth **£50**.

This means that the **GVA** from this chair is:

**£50** – **£30** = **£20**


**2 UK Natural Capital Accounts 2021: Annual values**

3 £ million, 2020 prices

| 4   | 1998     | 1999    | 2000     | 2001     | 2002    | 2003     | 2004     | 2005     | 2006     | 2007     | 2008     | 2009     | 2010     | 2011     | 2012     | 2013     | 2014     | 2015     | 2016     | 2017     | 2018     |
|---|----------|---------|----------|----------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>5 Provisioning Services</b>                          |          |         |          |          |         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 6 Agriculture <sup>1</sup>                              | £ 7,018  | £ 5,726 | £ 6,320  | £ 5,144  | £ 8,268 | £ 8,674  | £ 6,638  | £ 2,824  | £ 3,749  | £ 2,298  | £ 4,693  | £ 3,664  | £ 2,550  | £ 4,683  | £ 3,976  | £ 4,168  | £ 6,881  | £ 4,539  | £ 4,545  | £ 4,895  | £ 4,539  |
| 7 Fish capture <sup>1</sup>                             | -        | -       | -        | -        | -       | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | £ 182    | £ 353    | £ 389    | £ 389    | £ 389    |
| 8 Fossil fuels <sup>1</sup>                             | -£ 2,908 | £ 2,075 | £ 22,290 | £ 17,227 | £ 9,999 | £ 11,557 | £ 11,745 | £ 22,647 | £ 23,453 | £ 20,948 | £ 47,346 | £ 18,613 | £ 21,279 | £ 26,377 | £ 20,993 | £ 12,275 | £ 7,840  | -£ 438   | £ 2,112  | £ 4,801  | £ 13,611 |
| 9 Minerals <sup>1</sup>                                 | -£ 139   | -£ 495  | -£ 214   | -£ 269   | £ 23    | £ 23     | £ 217    | £ 134    | £ 339    | £ 403    | £ 394    | £ 12     | -£ 87    | £ 68     | £ 273    | £ 423    | £ 341    | £ 492    | £ 565    | £ 490    | £ 611    |
| 10 Timber <sup>1</sup>                                  | £ 195    | £ 129   | £ 124    | £ 118    | £ 108   | £ 87     | £ 85     | £ 90     | £ 104    | £ 118    | £ 169    | £ 125    | £ 142    | £ 215    | £ 219    | £ 219    | £ 266    | £ 290    | £ 261    | £ 296    | £ 311    |
| 11 Water abstraction <sup>1</sup>                       | £ 1,794  | £ 1,311 | £ 920    | £ 492    | £ 1,510 | £ 1,909  | £ 1,543  | £ 2,377  | £ 2,202  | £ 1,553  | £ 3,178  | £ 2,347  | £ 2,616  | £ 2,933  | £ 3,551  | £ 3,240  | £ 2,767  | £ 2,347  | £ 4,272  | £ 3,739  | £ 4,011  |
| 12 Renewables <sup>1</sup>                              | -        | -       | -        | -        | -       | -        | -        | -        | -        | -        | £ 79     | £ 157    | £ 62     | £ 63     | £ 147    | £ 181    | £ 241    | £ 546    | £ 427    | £ 548    | £ 811    |
| 13  |          |         |          |          |         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| <b>14 Regulating Services</b>                           |          |         |          |          |         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 15 Carbon sequestration <sup>1</sup>                    | £ 2,459  | £ 2,313 | £ 2,279  | £ 2,346  | £ 2,393 | £ 2,386  | £ 2,353  | £ 2,413  | £ 2,489  | £ 2,426  | £ 2,586  | £ 2,534  | £ 2,471  | £ 2,388  | £ 1,991  | £ 2,081  | £ 2,078  | £ 2,031  | £ 2,150  | £ 2,215  | £ 2,311  |
| 16 Air pollutant removal <sup>2</sup>                   | -        | -       | -        | -        | -       | -        | -        | -        | -        | £ 1,939  | £ 1,870  | £ 1,724  | £ 1,785  | £ 1,652  | £ 1,736  | £ 1,776  | £ 1,684  | £ 1,343  | £ 1,348  | £ 1,332  | £ 1,332  |
| 17 Urban cooling <sup>3</sup>                           | -        | -       | -        | -        | -       | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | £ 306    | £ 254    | £ 711    |
| 18 Noise mitigation <sup>3</sup>                        | -        | -       | -        | -        | -       | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | £ 17     | £ 17     | £ 17     | £ 17     |
| 19  |          |         |          |          |         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| <b>20 Cultural Services</b>                             |          |         |          |          |         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 21 Recreation and tourism <sup>4</sup>                  | -        | -       | -        | -        | -       | -        | -        | -        | -        | -        | -        | -        | -        | £ 14,498 | £ 14,478 | £ 13,349 | £ 13,239 | £ 14,004 | £ 15,133 | £ 11,925 | £ 14,511 |
| 22 Recreation and aesthetic (house prices) <sup>1</sup> | -        | -       | -        | -        | -       | -        | -        | -        | -        | -        | -        | £ 2,234  | £ 2,870  | £ 2,773  | £ 2,905  | £ 2,802  | £ 2,834  | £ 2,742  | £ 2,793  | £ 2,921  | £ 2,921  |
| 23 Notes:   |          |         |          |          |         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |



# Non-market Evaluation Methods

## Box 20. Valuation Methods for Non-Market Prices

### Market prices

Prices from the relevant market (excluding taxes and subsidies). In some cases a closely comparable market can be used where a direct market price is unavailable.

### Generic prices

Use of a Green Book approved transferable price applicable to the proposal.

### Revealed preference

Techniques which involve inferring the implicit price placed on a good by consumers by examining their behaviour in a similar or related market. Hedonic pricing is an example of this where econometric techniques are used to estimate values from existing data.

### Stated preference willingness to pay

Research study by professionally designed questionnaire eliciting willingness to pay to receive or avoid an outcome.

### Stated preference willingness to accept

Research study by professionally designed questionnaire eliciting compensation to accept a loss.

### Wellbeing

Use of direct wellbeing based responses (in existing data or from research by questionnaire) to estimate relative prices of non-market goods.

### Estimation of a central reference value and a range

Based on available data.

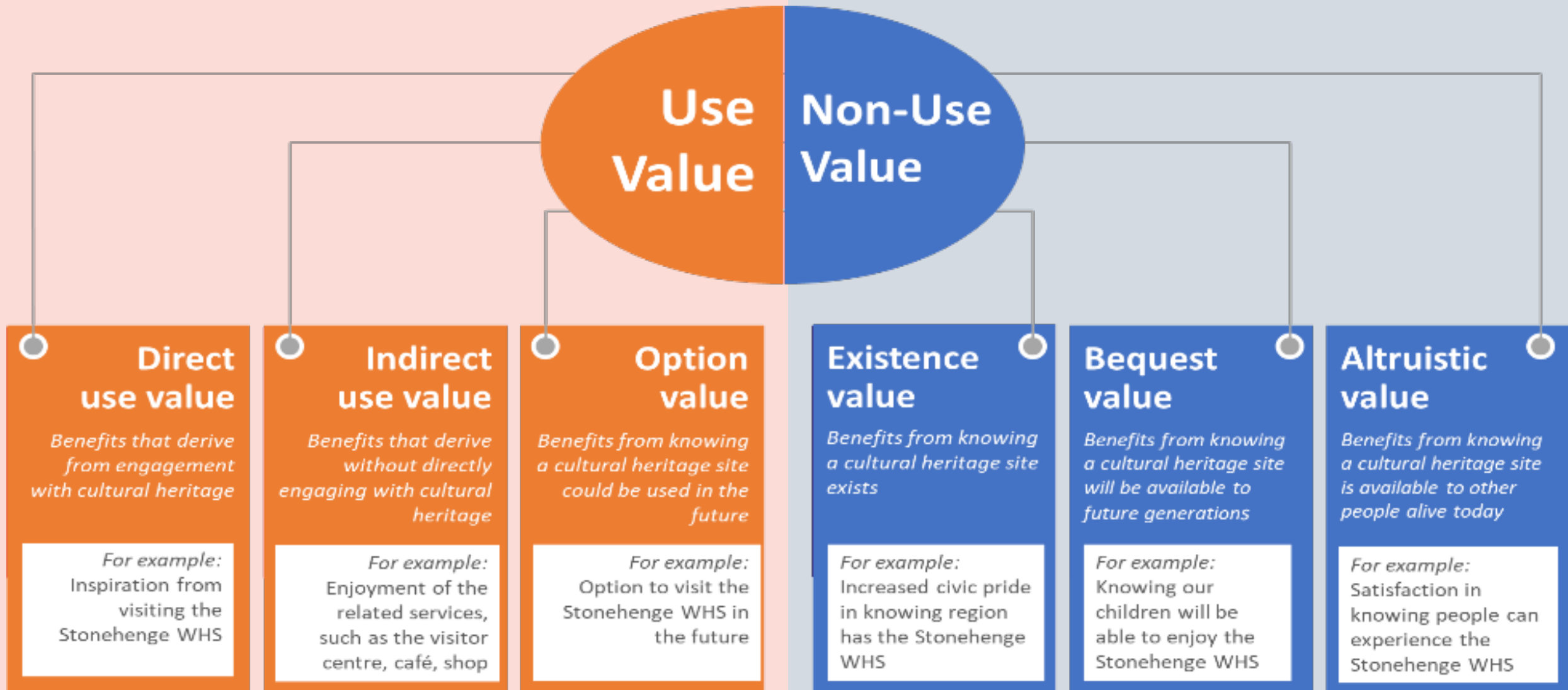


***‘Value of a good/service/outcome = the amount of money that induces the equivalent change in wellbeing for the individual’***

Table 2.1. The relationship between CS, ES, WTP and WTA

|              | Compensating Surplus (CS)          | Equivalent Surplus (ES)                  |
|--------------|------------------------------------|--|
| Welfare gain | <i>WTP for the positive change</i> | <i>WTA to forego the positive change</i> |
| Welfare loss | <i>WTA the negative change</i>     | <i>WTP to avoid the negative change</i>  |

# Total Economic Value of intangibles





**A303 Stonehenge**

@A303Stonehenge



Our vision revealed for the future of #A303Stonehenge. As told through the voices of real people.

Find out more on our website: [ow.ly/F1bc50Dhf81](https://www.gov.uk/roadworks/a303stonehenge)



11:25 AM · Jan 25, 2021



**GOING UNDER AN ANCIENT WONDER**

A303 existing route past Stonehenge

WEST PORTAL

Plans have been approved for a 1.8 mile tunnel around the World Heritage Site. The £1.6 billion project will run as a dual carriageway south of the existing A303 route.





Department for Transport and Highways England

## Improving the A303 between Amesbury and Berwick Down

Report by the Comptroller and Auditor General

Ordered by the House of Commons  
to be printed on 20 May 2019

This report has been prepared under Section 6 of the  
National Audit Act 1983 for presentation to the House of  
Commons in accordance with Section 9 of the Act

Sir Amyas Morse KCB  
Comptroller and Auditor General  
National Audit Office

16 May 2019

HC 2104 | £10.00



**9 The economic case relies on heritage benefits that are uncertain.** The high cost of building a tunnel, compared with widening or moving the road, means that, using the standard method for appraising transport projects, the project would only deliver 31p of benefit for every £1 spent. Highways England therefore expanded its appraisal to include a monetary value for cultural heritage, to reflect the project's wider objectives. At £955 million (2010 prices and discounted) these make up 73% of total monetised benefits. With these included, Highways England expects the project to deliver £1 of benefit for every £1 spent, which the Department considers low value for money. While Highways England used approved methodologies to do this, calculating benefits in this way is inherently uncertain and the Department advises decision-makers to proceed with them cautiously (paragraphs 2.5 to 2.7).

Robert Costanza  
Maureen Hart  
Stephen Posner  
John Talberth



# Balanced approach should acknowledge that some element of uncertainty exists with all economic valuation techniques.

- **Gross Domestic Product (GDP)** “*measuring what can be measured rather than what should be measured*”: Incomplete: it omits the depletion of natural assets, as well as negative externalities such as global warming; paradox that crime and disaster are positive on GDP
- **Gross Value Added (GVA)** multiplier values, which have significant modelling assumptions, such that they are “not well-suited to estimate very large scale changes to the economy
- **Value of time** metrics used by DfT based on hypothetical SP surveys
- **Value of avoided fatalities** also based on hypothetical Stated Preference surveys, which is a major component of how Transport Appraisal assesses the impact of accidents.
- **Quality Adjusted Life Years (QALY)** used by the National Institute of Clinical Excellence rely on Stated Preference surveys to underpin their assessment of which informs whether they approve new medicines for use in the NHS.

# What experience have you had of mixed methods evaluation?

- i. How did you communicate uncertainties?
- ii. What standard assumptions did you incorporate into your analysis
- iii. At what stage did you use researcher judgement/subjective assessments to decide how to proceed with analysis?
- iv. What external challenges/prior assumptions did you face?

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**Podcast:**

[https://open.spotify.com/show/7sRCYB8DeuMa3oYAz  
tKtkr?si=47683f3fe4034974](https://open.spotify.com/show/7sRCYB8DeuMa3oYAz<br/>tKtkr?si=47683f3fe4034974)



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