Using “Value Engineering” tools to risk assess ONS survey outputs

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Problem & goal statements

The problem

• No consistent means of assessing the risks of our statistical outputs in a standardised way
• Need a strategic approach to be taken to prioritise improvements

Goal Statement

To develop a risk assessment methodology and deliver a scored risk assessment of ONS statistical outputs by the end of 2012.
Value Engineering

Understanding the sources of value in a product

Value source
Value source
Value source

Quality of survey output
Dimensions of output risks

Census data
Admin data
Survey data

How we acquire and handle data – questionnaires, samples, processing, analysis, sharing

Are there sufficient skilled and trained people working on the output?

Data collection & preparation; Results & analysis

Users & Reputation

European dimensions of quality

Data acquisition, processing, analysis, sharing

People

Quality

User feedback; Future user needs; Reputation

Processes

Are there sufficient skilled and trained people working on the output?

Methods

Are there sufficient skilled and trained people working on the output?

Systems

Are there sufficient skilled and trained people working on the output?
Process for first implementation

1. Template reviewed and piloted
2. Risks self assessed by output managers
3. Scores are assured by Deputy Directors, data collection areas and Methodologists
4. Importance weights reviewed by Directors
5. Challenges responded to by output managers/DDs
## Scoring process

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>No issues or N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Some improvements possible</td>
<td>3</td>
<td>Comments</td>
</tr>
<tr>
<td>In need of attention</td>
<td>9</td>
<td>Comments</td>
</tr>
</tbody>
</table>

### Output Systems Summary Score

<table>
<thead>
<tr>
<th>Output</th>
<th>Systems</th>
<th>Summary score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Sub 1</td>
<td>9</td>
</tr>
</tbody>
</table>

### Weighting and Composite Score

<table>
<thead>
<tr>
<th>Output</th>
<th>Sources</th>
<th>Methods</th>
<th>Systems</th>
<th>Processes</th>
<th>Quality</th>
<th>Users &amp; Reputation</th>
<th>People</th>
<th>Summary score</th>
<th>Weighting</th>
<th>Composite score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0</td>
<td>3</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>3</td>
<td>54</td>
</tr>
</tbody>
</table>

Deputy Directors weight the importance of each output:
- Low = 1
- Med = 2
- High = 3
Overall assessment

We present a range of findings, starting with the top level measure of Red/Amber/Green (RAG) scores:

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Red</td>
<td>17.0</td>
<td>18.7</td>
<td>21.4</td>
</tr>
<tr>
<td>% Amber</td>
<td>51.9</td>
<td>48.1</td>
<td>32.0</td>
</tr>
<tr>
<td>% Green</td>
<td>31.0</td>
<td>33.2</td>
<td>46.6</td>
</tr>
</tbody>
</table>

Baseline measure of ‘% red overall’ used as a Key Performance Indicator in ONS business planning.
We identify and highlight the highest scoring outputs each year.

Reasons for movements over the year are analysed to identify existing mitigating actions and help identify what still needs to be addressed.

<table>
<thead>
<tr>
<th>Division</th>
<th>Output</th>
<th>2014</th>
<th>2014 Rank</th>
<th>2013 Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMD</td>
<td>Claimant Count</td>
<td>162</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>BIBOP</td>
<td>Business investment-provisional results (first release)</td>
<td>153</td>
<td>2=</td>
<td>3=</td>
</tr>
<tr>
<td>BIBOP</td>
<td>Business investment-revised results (first release)</td>
<td>153</td>
<td>2=</td>
<td>3=</td>
</tr>
<tr>
<td>BIBOP</td>
<td>Capital stocks, capital consumption</td>
<td>153</td>
<td>2=</td>
<td>3=</td>
</tr>
<tr>
<td>BOD</td>
<td>UK trade (first release)</td>
<td>153</td>
<td>2=</td>
<td>10=</td>
</tr>
<tr>
<td>BIBOP</td>
<td>UK Balance sheets</td>
<td>144</td>
<td>6</td>
<td>8=</td>
</tr>
<tr>
<td>SSD</td>
<td>EU-SILC</td>
<td>135</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>BOD</td>
<td>Annual Business Survey</td>
<td>117</td>
<td>8=</td>
<td>10=</td>
</tr>
<tr>
<td>LMD</td>
<td>Labour Force Survey Results</td>
<td>117</td>
<td>8=</td>
<td>12=</td>
</tr>
<tr>
<td>NACD</td>
<td>Input - Output - Supply &amp; use tables for the United Kingdom</td>
<td>117</td>
<td>8=</td>
<td>12=</td>
</tr>
<tr>
<td>PRICES</td>
<td>Index of Private Housing Rental Prices</td>
<td>117</td>
<td>8=</td>
<td>21=</td>
</tr>
<tr>
<td>PS &amp; H</td>
<td>Public Sector Finances (First Release) and related data and tables</td>
<td>117</td>
<td>8=</td>
<td>3=</td>
</tr>
</tbody>
</table>
Analyse - Boxplots

We use box plots to:
- Understand how risks are distributed across divisions
- Identify year-on-year changes
- Spot outliers so they can be reviewed
Findings by Dimensions

We also break our findings down by dimension to present them in more detail:

Percentage of outputs scoring RAG by category

Number of red outputs by Division for this category

Percentage of RAG outputs for each Division for this category
Use of analysis to date

- Feeds into the Regular Quality Reviews led by our Quality Team
- Helps the Quality Team prioritise their work
- Presented to ONS-wide and divisional boards
- Used by divisions for business planning and risk management
Conclusion

• Value Engineering is a useful tool in the risk assessment of ONS outputs

• It plays an important role supporting the Quality Team

• Should be used as part of a wider range of risk & quality assessment tools
Questions