SOME KEY UK RESULTS FROM THE OR PRACTICE SURVEY

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ABSTRACT

• Over 80 responses to the IFORS survey were received from UK practitioners. Some key results will be presented, covering the location of OR services, techniques, methodologies and software used, barriers to the use of OR and personal education and training received. Changes compared to a similar survey which was carried out 15 years ago will be highlighted. Some comments on current issues facing OR practitioners in the UK will be made.
Questionnaire Content

• Contact information (job title)
• Organisational information
  – Type/size
  – OR group info (…)
  – Barriers to use of OR
• Personal experience of OR
  – Academic qualifications
  – Experience of OR
  – Use of techniques, software
# UK Responses by Organisation

<table>
<thead>
<tr>
<th>Organisation Type</th>
<th>OR Groups</th>
<th>Responses</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Depts</td>
<td>15</td>
<td>48</td>
<td>59</td>
</tr>
<tr>
<td>Other Public Sector</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Private Sector</td>
<td>3</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Large Consultancies</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Small Consultancies</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27</td>
<td>81</td>
<td>100</td>
</tr>
</tbody>
</table>

*Poor private sector response!"
Size of OR Group

Size of the OR Group (26 responses)

Number of Responses

Number of Responses

1-2 3-5 6-10 11-20 21-30 31-50 >50
Number of Analysts across the Organisation

Number of OR analysts across the organization
(22 Responses)
Reporting Level of OR Group Manager

Reporting level of OR group manager - number of levels from Chief Executive (22 Responses)

Number of Level

Number of Responses

0 2 4 6 8 10 12 14
Financial Control

Financial control - Are projects charged directly to Clients?
(23 OR Group Responses)

Number of Responses

- Yes: 8
- No: 15
Usage of External Commercial Consultants

Frequency of Use of External Commercial OR Consultants
(22 Responses)

- General management (international)
- General management (local)
- Specialist consultancy (international)
- Specialist consultancy (local)

- none
- occasional (1 to 3 times per year)
- frequent (>3)
Usage of Academic Consultants

Frequency of Use of Academic consultants
(22 Responses)

- None
- Occasional (1 to 3 times per year)
- Frequent (>3)

Number of responses

<table>
<thead>
<tr>
<th></th>
<th>International</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Occasional</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Frequent (&gt;3)</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>
Perceived Barriers to the Use of OR

![Graph showing perceived barriers to the use of OR with average ratings.]

Barriers to the use of OR (1 = not important...5 = very important)

- a) Staff costs
- b) Training costs
- c) OR software costs
- d) IT hardware costs
- 3a. Staff lack expertise
- 3.4 OR software difficulties
- 3.4A Data limitations
- a) Coy. cannot support OR
- b) Coy. unconvincing of benefits
- c) Poor awareness of OR
- d) Cannot understand OR
- e) Coy. culture not suited
### Academic Qualifications – First Degree Subject (80 Responses)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Number</th>
<th>% (1995*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maths/Statistics</td>
<td>32</td>
<td>40 (60)</td>
</tr>
<tr>
<td>Sciences</td>
<td>23</td>
<td>28 (17)</td>
</tr>
<tr>
<td>OR/Management Science</td>
<td>10</td>
<td>12 (?)</td>
</tr>
<tr>
<td>Engineering</td>
<td>5</td>
<td>6 (7)</td>
</tr>
<tr>
<td>Computing</td>
<td>3</td>
<td>4 (3)</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>3</td>
<td>4 (13)</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>3/1</td>
<td>6 (13)</td>
</tr>
</tbody>
</table>
Academic Qualifications - Postgraduate

- 68 (85%) with Postgraduate qualification
- 50 (63%) Masters
  - OR = 31 (38%) – 1995 – 41% (SSOR)
  - Non-OR = 19 (23%)
- 23 (29%) PhD – 1995 – 11% (SSOR)
  - OR = 3 (4%)
  - Non-OR = 20 (25%)
Years in OR (Average = 12 years)

![Bar chart showing years in OR with the following categories and number of responses:
- 0-2 years: 10 responses
- 3-5 years: 15 responses
- 6-10 years: 20 responses
- 11-20 years: 10 responses
- 20 years more: 25 responses]
Years in Current Organisation (Average 7.7 years)
Membership of OR and Other Professional Societies

• 49 (61%) belong to ORS

• 19 (24%) belong to Other Professional Societies (not all vocational)
  – Low internationally
Personal Experience of OR: Some Key Results

- 99% have a first degree
  - 40% maths/stats, 12% OR
- 85% have a Postgraduate Degree
- 63% have a Master’s degree
  - 38% in OR
- 29% have a PhD – only 4% in OR
- 61% belong to ORS
- 24% belong to Other Professional Societies
  - Low internationally
probably make do with this summary
On-the-Job Training

On-the-job training (Maximum 80 Responses)

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>OR techniques</th>
<th>Statistics</th>
<th>Software packages</th>
<th>Consultancy skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
<td>30</td>
<td>60</td>
<td>50</td>
</tr>
</tbody>
</table>

OR techniques, Statistics, Software packages, Consultancy skills
On the Job Training:
Other Courses

- Management and Leadership (3)
- People Management (2)
- Project Management (2)
- Benefits Realisation Management
- Business Intelligence
- Other Business Areas eg Finance

*Limited managerial & leadership training*
Application Areas

Application areas of your OR work
Average projects per year

- Finance
- Marketing
- Production
- Project Management
- Logistics
- Personnel
- Strategic Planning
- IT
- Service operations

Average projects per year:
- Finance: 1.5
- Marketing: 1.5
- Production: 1.5
- Project Management: 1.5
- Logistics: 1.5
- Personnel: 1.5
- Strategic Planning: 2.5
- IT: 1.5
- Service operations: 2.0
Occasional and Frequent Use of OR Techniques – Most Popular

![Bar Chart]

Your Personal Understanding and Use of OR and related techniques
Top 8 techniques (Maximum 80 Responses)

- Spreadsheets - basic
- Statistics - basic
- Strategic Planning
- Simulation
- Statistics - advanced
- Forecasting
- Risk analysis
Occasional and Frequent Use of OR Techniques – Next Most Popular

Understanding and Use of OR and related techniques - (9 - 20)

- Cog. mapping
- Financial modelling
- Systems Dynamics
- Decision analysis
- Data mining
- Optimisation
- SSM
- Project management
- Queuing models
- DSS
- SCA

Number of respondents
Usage of Problem Structuring Methods (PSMs)

- Cognitive Mapping/SODA - 39
- Soft Systems Methodology - 30
- Strategic Choice - 20
- Mind Maps - 2
- Role Play, Metagaming, Benefits Analysis/Mapping, Horizon Scanning, Scenario Planning, Future Search - 1

Increased use of 3 main PSMs
Usage of OR Related Software

[Bar chart showing usage of various OR related software such as Excel, SAS, Access, SPSS, VBA, @Risk, C-Map Tools, iThink, XPRESS-MP, Business Objects, MapInfo, Mind Manager, Simula, SQL, STATA, Vensim, Visio, Witness.]
Some SSOR Results/Predictions (1995)

• Management preference for dispersed OR

• Success of OR dependent on:
  – High calibre of staff
  – Effective marketing/selling of OR
  – Improved consultancy skills
  – Effective leadership of OR
  – Managing dispersal of OR groups imaginatively
Some Survey Outcomes (Limited information from private sector)

- Increase in consultancy skills training
- Increased use of main 3 PSMs apparent
- Increase in strategic planning applications
- Limited use of OR software (except Excel/stats)
- Little Leadership training evident
- Lack of awareness of benefits of OR still perceived as a barrier
ORS and Practice

• Heads of OR Forum – c40 OR Managers
  – Represents practitioners’ interests
  – Quarterly meetings

• Much OR-type work still outside the OR community

• Analytics initiative by ORS
  – Working Group to advise
  – Capgemini survey: ORS perceived as academic
  – Need to improve benefits to practitioners
  – Potential to recruit from the analytics community
‘Making an Impact’: attracting Practitioners to Conferences

- One-day stream at the ORS conference
- Very successful in 2010, repeated in 2011
- Much facilitated networking
- Workshops to discuss key issues
  - Selling OR, using analysis to drive strategy
- Q/A session involving managers (ex-OR)
- Academic-Practitioner collaboration
Conclusions and Speculation

• UK Practice community fairly healthy
  – Membership of HORF increasing
• Strong in government & consultancy
• Appears less strong in private sector & the rest of the public sector
  – More information needed
• ‘Analytics’ presents a new opportunity for enlarging the OR community
  – More benefits for practitioners required?