NWTF Overview

**Background:**

£13.3m investment in 2014

**Collective Benefit:**

1. Single point of contact for industry
2. Provides strategic oversight and aligned approach
3. Networking, collaboration and communication channel

**Central Administration:**

Central administration of strategy, marketing, promotion, events, and business development by Project Manager

Salary funded by membership fee

**Successes:**

2019:

- 5 new members

- High speed research is world leading

- Substantial increase in research and expertise as a result of investment

- 17 strategically important university wind tunnels developed and upgraded

Available to all UK based researchers

Fundamental research from NWTF used to keep UK industry at forefront of design and development

Grant ended in Dec ’19
Collective Benefit of the NWTF

Current:
1. Networking and communication channel between strategically important UK facilities, academics and industry.
2. Platform for developing collaborations.
3. Single point of contact for industry.
4. Provision of world class facilities to all UK based researchers.
5. Cross pollination of ideas through forums, collaborations and workshops.
6. Keeping UK at forefront of experimental fluid mechanics by developing strategically important facilities, equipment, techniques and expertise for UK research projects and industry.
7. Strategic oversight of major projects and to provide facilities and equipment as needed.

Future:
1. Open days, masterclasses and training workshops to encourage the utilisation of facilities and knowledge sharing.
2. Development of software repository for sharing novel data harnessing techniques with members.
3. Providing a platform for collaboration with the CFD community to develop research programs focussed on their needs.
4. Development of a National Experimental Database that standardises the collection of test data and makes it available to the research community for free as a national resource.
5. Holding competitions e.g. to develop best practices for turbulence.
6. Group applications for access to the European Transonic Wind Tunnel.
Positive feedback from NWTF members and industry

- Hugely useful to meet with other academics at the Management Board Meeting to learn about their work, challenges and facilities.

- **Extraordinary value for money.** For £13.3m investment in 2014, the UK now has a world class wind tunnel facilities available to UK based researchers. It would have cost ten times more to build an equivalent from scratch not to mention overheads to run it.

- **Blown away by the amount of research and industry projects** that have happened as a result of the NWTF as presented at the industry forum. Need to **get better at promoting** our successes.

- Because of the NWTF investment in strategically important high speed facilities in 2014, the **UK is now ahead** in terms of knowledge, facilities and expertise.

- Having the **tunnel usage data** has been massively helpful when university finance teams have needed business data.

- **Other countries** are looking to the NWTF as a more efficient and flexible way of funding wind tunnel research.

- These top class wind tunnel facilities have achieved an **enormous delta** considering the relative **shoestring** budget.

- There is an **altruistic element** to the NWTF, providing free tunnel use to academics and small UK businesses on an adhoc basis.
Next Phase of NWTF:
- Overcome Challenges
- Build on Success
### Challenges

<table>
<thead>
<tr>
<th>Challenges*</th>
<th>Solution</th>
<th>Output</th>
<th>Progress</th>
<th>Funding</th>
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</thead>
</table>
| Lack of awareness of NWTF availability and successes & closer links with industry are required | **Marketing and promotion activities** | • New website with SEO, CMS and news page  
• NWTF stand at industry conferences **  
• Host business engagement forums**  
• Meet with industry partners to understand needs | • Application to Impact Acceleration Fund at Imperial, Glasgow and Manchester has been successful | £85K grant approved |
| Encourage external researchers to use NWTF & industry find it difficult to hire/find tunnel operators | **Training workshops** | • Researchers trained to operate wind tunnels and collect data to best practices  
• External researchers become familiar with NWTF and are encouraged to use facilities | • Develop market research survey to understand industry and academic needs  
• Developing proposition | Self-funded  
Attendance fee to cover costs |
| Improved data sharing & better connectivity with CFD community | **National Experimental Database** | • Develop catalogue of validated test data on NWTF website for the research community  
• Develop forums for better connectivity with CFD community to understand their test needs and host competitions | • Developing proposition, running costs, funding availability | Possibly: EPSRC ATI or BEIS |

*As outlined in the Industry/Academia meeting in December 2019 and various stakeholder meetings in 2020  
**On hold due to CV-19
**Next Steps:** continue to provide a national resource for wind tunnel community

<table>
<thead>
<tr>
<th>Challenge</th>
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<th>Likely source of funding</th>
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| 4. Keep UK at forefront worldwide | Build new facilities and purchase latest equipment | • New equipment  
• New strategically important unique facilities | • Developing business case | EPSRC/ATI/BEIS |
| 5. Overcome polarity of community & sustainability of the NWTF hub | Develop tiered membership proposal to improve inclusivity & develop revenue streams to fund future NWTF marketing and events | • Develop membership proposition, levels and fees  
• Attendance fee for business engagement forums  
• Industry sponsorship  
• Incorporate PM costs into joint project proposals | • Begin developing proposition | Self-funded |
| 6. Researcher mobility | Make tunnels free at point of use for academic users | • Increase in cross pollination of ideas | • Determine funding stream | ? |
Tiered membership proposal to promote inclusivity and to fund NWTF hub

<table>
<thead>
<tr>
<th>Terms</th>
<th>Core University Tunnel Membership</th>
<th>University Tunnel Membership</th>
<th>Researcher Membership</th>
<th>Industry Membership</th>
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<tbody>
<tr>
<td>Invite only</td>
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<td><strong>Open</strong></td>
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<tr>
<td>• Strategically important</td>
<td>• Actively involved in the wind tunnel or CFD community</td>
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<tr>
<td>• Unique</td>
<td>• Open to using facilities outside of their host university</td>
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<td>• Willing to make available 25% of time to outside users (academic and industry)</td>
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<th>Membership benefits</th>
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<td>• Marketing and promotion of facilities, expertise, research outputs</td>
<td>• Promotion of facilities and expertise on NWTF website</td>
<td>• Industry/Academia forums</td>
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<td>• One management board representative</td>
<td>• Invite to networking and industry/academia forums with guest speakers from Advisory Board?</td>
<td>• Networking</td>
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<td>• Industry/academia forums</td>
<td>• Ability to apply for use of ETW through NWTF group applications</td>
<td>• First dibs on workshops</td>
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<td>• Business development activities</td>
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<td>• Funding applications and administration</td>
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<td>• Group lobbying to ensure non-closure</td>
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