BREXIT – a personal and “official” view on the impact on SPACE SCIENCE

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B-day 29th March 2019 23:59
“The majority of the British people want BREXIT” !!??
“The majority of the British academics want BREXIT”
“The majority of the British scientists want BREXIT” $\times$
“No big change in BREXIT opinion cf. “noise””
Immediate BREXIT effects.

Less money
Less growth
Less tax return
Less investment
Immediate BREXIT effects.

Less buying power
Instruments cost more
Less attractive place to live
Cost of living up

Source: Reuters 24/11/17
BREXIT Reality

- Less available
- “Flat Cash” or -5% settlements
- UK Space Agency & STFC & innovate funds down
- Salaries less attractive
- Cost of living higher
- Costs more to buy abroad
EU students (applications / numbers already 7% ↓) £££

(if students do come what is their fee? can they have a loan?)

**EU applicants to UK universities 2006-2017** (excluding UK nationals)

Source: The Guardian, UCAS
BREXIT RISKS

Non-UK EU staff make up around 16% of academics at UK universities — but the proportion is higher in the sciences.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>EU nationals</th>
<th>UK and other nationalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological, mathematical and physical sciences</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Humanities and languages and archaeology</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Engineering and technology</td>
<td>18%</td>
<td></td>
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<tr>
<td>Social studies</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>Medicine, dentistry and health</td>
<td>14%</td>
<td></td>
</tr>
</tbody>
</table>

Selected disciplines shown.

Number of academic staff (thousand)
Right to Remain?

**VISA BARRIERS**
Around 26% of the EU staff at leading research universities earn less than £30,000, which from April 2017 will be the salary cut-off for applying for a ‘skilled worker’ visa in Britain.

Total: 22,600 non-UK EU staff at ‘Russell Group’ universities.

**RIGHT TO REMAIN**
At Imperial College London, only 30% of non-UK EU staff have lived in Britain long enough to be classified as permanent residents under current rules.

Total: 2,063 non-UK EU staff.

What about dependents?
Threat: Freedom of Movement

NOW:-

EU citizens (non UK) not applying for academic positions / jobs at all levels

Brain drain of EU (non UK) citizens from UK

Movement of UK nationals to “mainland”

Applications for “non-UK” citizenship where possible to relocate

FUTURE:-

Immigration control / visa requirements – limit employment esp. skilled workers

UK citizens travelling to EU regularly e.g. ESA, science meetings, facilities use
Threat: Border Controls

FUTURE:-

Customs tariffs – moving goods to facilities / integration [in & out EU + UK]

Cost of parts to / from UK & EU

“ITAR” type controls and standards; impact on projects / builds & primes / SMEs

Where is the border? “HARD vs. SOFT BREXIT”
What does BREXIT NOT mean...
15% of UK University research is funded by EU programmes

However issue in astronomy & space science way worse

NOT JUST ACADEMIC BUT INDUSTRIAL (esp. SME)

IN:-
~11 % on average of funds

OUT:-
~16 % on average, but can be up to 45 % in some areas

UK holds more ERC starter
ERC consolidator
ERC Advanced
ERC grants than any other European Country.
Astronomy & Space-Science
H2020

Most large consortia funded projects within the H2020 LEIT Space have UK participation.

All of the H2020 Space focussed Research Infrastructures (Asterics, Europlanet, Jive, Opticon and Radionet) have major UK partners with Europlanet and Opticon being coordinated from UK partner institutions.

The collaborative research covering Future and Emerging technology (FET), Space, Nanotechnologies, Societal Challenges pillars such as health, transport and energy, strongly support UK SME's and 13 UK Astronomy / Space Science Departments (not in € above), bringing the total to €103 M.

52 UK-based astronomers / space-scientists currently hold ERC grants (~10 % of the community)
"For British applicants: Please note that until the UK leaves the EU, EU law continues to apply to and within the UK, when it comes to rights and obligations; this includes the eligibility of UK legal entities to fully participate receive funding in Horizon 2020 actions.”

“Please be aware however that the eligibility criteria must be complied with for the entire duration of the grant. If the United Kingdom withdraws from the EU during the grant period without concluding an agreement with the EU ensuring in particular that British applicants continue to be eligible, you will cease to be eligible to receive EU funding (while continuing, where possible, to participate) or be required to leave the project on the basis of Article 50 of the grant agreement.”
‘UK businesses and universities should continue to bid for competitive EU funds while we remain a member of the EU and we will work with the Commission to ensure payment when funds are awarded. The Government will underwrite the payment of such awards, even when specific projects continue beyond the UK’s departure from the EU.’
BREXIT changes, impacts “beyond” Space Science