**Assessment Criteria for the SCIENCE PROGRAMME ADVISORY COMMITTEE (Revised April 2018)**

Science quality of the mission

a) The inherent quality of the science, irrespective of the UK involvement.

b) This is the item on which STFC science board advises, and SPAC may also take into account the additional expertise provided by SPAC members, in reaching a final score.

Science value to the UK

1. UK involvement in a mission – the cost versus benefit of having a UK-based PI versus the UK taking a more limited role in a mission. Care should be taken when weighing one PI role against several CoI roles: involvement at CoI level may provide valuable access to an otherwise inaccessible mission.
2. The specific scientific benefit of the UK involvement e.g. is there access to data during a proprietary period, or will involvement in the instrument /data centre allow enhanced understanding of the data, so enabling more, or better quality, publications
3. Missions should allow the UK to build on existing strengths while developing capability in new areas that will enable the UK to position itself for the current and future scientific return
4. Fit to STFC’s science strategy – consider any STFC comments regarding the scientific value of a particular mission in light of their overall scientific strategy.

Economic Impact and Industrial partnerships/roles

1. Is there a clear downstream academic or industrial benefit by eg. bringing a new technology to market or providing a first flight of a new UK technology which might go on to attract significant export income from future missions.
2. Does the project have the capacity to develop spin-off opportunities as evidenced from past projects or the presence of a specific business unit to manage this
3. Qualify whether there are strategic partnerships involved within the mission which could aid the UK in this and future missions
4. Will the project lead to future programmes which develop strategic capability for the UK, including developing novel designs or developing new expertise? Does it provide upskilling to develop a group or science area?
5. Knowledge Exchange potential for spinning out new knowledge in all its variants into other areas of UK space development such as earth observation, space weather or communications ie cross-disciplinary

Societal impact

1. Skills and education development – will this mission help attract talent into the space sector?
2. Societal engagement, outreach and involvement – inspiration, publicity
3. Utility – relevance to everyday life
4. Other benefits to the UK public good

Timeliness

1. Mission status – viability of future commitment to funding, from the start of the project through to operations
2. Mission likelihood – position in selection procedures e.g. place in Cosmic Vision down-selection process; there may be a lot of scientific interest in a project but the project is not technically ready to proceed e.g. There is no evidence that the project can be turned into a practical and achievable mission
3. Project development is tied to a particular event/scientific timing such as the solar cycle, comet appearance etc.; the project timing is driven by cosmic events
4. Competition with other international agencies - if the UK is not included in ground-breaking and innovative missions the science and economic benefits of a launching similar, subsequent missions could be of lesser value to the UK

Value for Money

1. Assessment of whether the anticipated total cost of the project represents value for money
2. Focuses UK effort and investment in ways that best play to our strengths when it comes to science payload (detectors etc.)
3. Projects which either allow the UK to build on existing strengths or develop capability in new areas in order to enable the UK to position itself for current and future economic return

Risk

1. Risk can be programmatic, reputational, scientific or technical
2. Different types of risk must be weighed against each other i.e. scientific risk may be more or less significant than financial risk; the risk of not doing something versus the risk of undertaking something brand new
3. Financial risk is implicitly included in consideration of the programmatic and technical risks. Scientific risk assessment should include consideration of whether the scientific return is of an ‘all or nothing’ type or infinitely malleable and whether it could be severely damaged by descoping.
4. Reputational risks can include assessment of whether the project loading on the PI and their team is manageable. The proposing team should be assessed in view of their track record and capability.

