Applicant Guidance Notes: Industry Academia Partnership Programme – 18/19

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Introduction

The Royal Academy of Engineering has been engaged as a Delivery Partner under the Newton Fund – an initiative of the UK Government to enhance science, innovation and research cooperation with 18 countries.

As part of the Newton Fund the Academy is implementing the Industry Academia Partnership Programme which aims to support Partner Country universities in improving their engineering education and research output through strengthening industry linkages and leveraging UK expertise. The Programme is based upon the premise that strategic linkages between industry and academia can improve quality and foster innovation and entrepreneurship within engineering departments, in turn enhancing employability of graduates and boosting economic development through application-inspired research and innovation.

Awards provide funding of up to GBP 50,000 for applying consortia to conduct activities in support of the Programme Objectives. The Award amount requested must be matched by at least 50% from the applying consortia.

All collaborations under this call must begin during **April 2019** and end by **30th April 2021.**

Programme Objectives

Our overall objective for the Programme is to strengthen capacity and develop capabilities within Partner Country engineering higher education and research institutions to carry out excellent teaching, research and innovation-related activities through collaboration with industry and UK counterparts.

Through this Programme the Academy aims to support case studies of excellence in bilateral collaboration which in themselves will generate significant long term benefit, as well as produce models replicable by others and generate lessons which can help inform bilateral and national-level higher education, research and innovation policy.

This call offers financial support for travel, subsistence and salary costs related to visits and exchanges that support collaborative activities amongst industry and academic partners in Partner Countries and the UK. Institutions from the following Newton Fund Partner Countries are eligible to apply under this call:

- **Colombia**
- **India**
- **Jordan**
- **South Africa**
- **Thailand**

Under this call we will support proposals that fit with one or more of the IAPP's identified outcome areas:

A. Enhanced industry input into engineering curricula and teaching in Partner Country universities to improve the quality and uptake of practical engineering skills, and help develop a talent pipeline and encourage entrepreneurship in emerging and/ or currently skill-scarce industries;

B. Develop new partnerships and strengthen bilateral collaboration in engineering research and knowledge-sharing between industry and academia counterparts to develop new capabilities within Partner Country universities;

C. Formation of deep, strategic bilateral partnerships between industry and academia around application-inspired engineering research and innovation to solve economic and social development challenges faced in the Partner Country or in emerging economies globally; and

D. Improved industry-academia interface to help systemically foster deeper engagement amongst actors in the innovation eco-systems of both countries and create different models of industry-academic engagement for wider sharing and adoption.

This call offers grants of up to £50,000 to support travel, subsistence and salary support costs related to conducting collaborative activities amongst industry and academic partners in Partner Countries and the UK. The grant value requested must be at least 50% matched in funding or in-kind resources by the applying consortia.

The lead applicant will be an individual at a Partner Country university which **must** propose a means of collaboration with co-applicants that meet the above-identified Programme outcome areas. Co-applicants **must** include a local industry partner **and** a UK academic institution partner. Additional partners are not obliged but are encouraged, especially the involvement of UK industry partners.

Industry partners are defined broadly and may be institutions of any size within private, public or NGO sectors.

The Industry Academia Partnership Programme (IAPP) under the Newton Fund forms part of the UK government's Official Development Assistance (ODA). As such,

projects supported by this programme must meet ODA requirements by:

- Focusing on an engineering higher education, research or innovation challenge that will enhance social welfare and economic development in the Partner Country.

  AND

- Demonstrate a tangible benefit to the Partner Country by enhancing its capacity to carry out excellent teaching, research and innovation in engineering

Eligibility criteria

Each project should comprise a partnership between a Partner Country University and co-applicants from at least one Industry partner and one UK academic institution partner. Further partners are welcome.

- **Institutions**
  Applications must be made by a lead Partner Country University and must include a letter of support from the relevant head of department / school in the lead university as well as a declaration. Applications must include Letters of Support from each of the proposed Partner organizations from Industry sector and the UK academic institute signed by a suitably senior representative of the institution. For Universities this should be either the Head of Department or Vice Chancellor and for industry this should be a member of the senior management.

- **Match Contribution**
  Applicants must demonstrate matched contribution of at least 50%. The matched contribution can be in-kind or financial (or a mixture of both) and can be from any of the partners being proposed. Your match will be assessed based upon the amount and the quality/ value addition of the contribution.

- **Topic**
  A broad range of disciplines are regarded as 'engineering' for the purposes of this scheme, including (among many others) biotechnology, petrochemicals, offshore engineering, geotechnics, water resources, building services, telecommunications, optics, lasers, information technology, energy conservation, manufacturing, applied mechanics, bioengineering, materials, aeronautical, maritime, naval. If you are unsure whether your subject area fits within our remit please contact the Programme Manager.

- **Nationality**
  There are no nationality restrictions but all applicants must have full resident status in the country of their employer. The Academy will **not** assist in visa related queries.

- **Diversity**
  The Academy is bound by the Equality Act 2010. The Academy is committed to diversity and welcome applications from women and other groups who are currently underrepresented across engineering.

Submission deadline

The submission deadline is **12pm (GMT) on Wednesday 12th December 2018.**

Monitoring

Awardees will be required to report on progress to the Academy on a half yearly basis, to detail completed activities and future plans. Reports should follow the reporting guidelines which will be provided by the Programme Manager post award, and will cover such aspects as the progress made against the work plan. Awardees will also provide a follow-up report 12 months after the completion of the award, to demonstrate the longer term impact of the project.

Notification of outcome

Applicants will be notified of the outcome of their application in February 2019.

How to apply

Applications can only be submitted by a suitably empowered representative from the lead Partner Country University. The lead university will act on behalf of and in consultation with the industry and UK partners. All correspondence from the Academy will be sent to the lead university.

All applications must be submitted via the Academy's online grants management system: https://grants.raeng.org.uk. The author must first register with the system and provide some basic log-in details to create a profile.

The application form has five sections and should take approximately two hours to complete, assuming you have answered the questions offline and merely need to enter the information, rather than compose it. The guidance notes below are more detailed so we recommend you keep this document to hand.

The primary purpose of this application form is to identify whether the applicant is suitable to be supported according to the aims of the scheme.

You will have the option to download a pdf of your application after submission, which may be useful for future reference and for passing on to your colleagues.

Please note that lead applicants will need to obtain a letter of support from their respective Head of Departments or Vice Chancellors/ Rectors or equivalent. UK academic institution partners will also need to provide a letter of support from their respective Head of Department. Letters of support should also be secured from Industry partners confirming the company's commitment to the scheme.

If you have any questions concerning the application or the online system please email Shaarad Sharma (Senior Manager)

Completing the application form

After logging in to the system via the Academy website and selecting the **Industry Academia Partnership Programme 18-19** you should be presented with the "Instructions" screen. Here you will see some general instructions on how to use the system as well as the below list of the five sections of the application form:

1. Applicant and institution details
2. Project details
3. Case for Support
4. Support requested
5. Statement of support and declaration

At any stage in the application process you can save your work and return to it later. You can answer the questions in any order and you may freely skip some sections to return to later if you so wish. It is therefore advised to view the application early on for an indication of what is required, and you should also ensure that you have all the necessary documentation at hand when you start completing the application, such as a copy of all CVs.

1. Project Summary

Q - Project title
Please provide a project title. Should the application be successful, this title will be listed on the Academy's website.

Q – Summary/abstract
The project summary should provide a brief overview of your aims, the programme of activities and the benefits of the activities to be undertaken during the project. The summary should be written in language that can be understood by a non-specialist reader. (maximum 300 words)

Q – Total project cost
Please enter the total project costs, including funding asked from the Academy's grant **+** any costs covered by matched resources from the partnerships and other sources of funding.

Q – Funding sought
This should state the exact amount of funding contribution sought from the Royal Academy of Engineering within the grant.

(**Please note:** Academy funding cannot exceed £50,000)

Q - With which IAPP Partner Country is your project with?
Please choose your country from the dropdown list of those participating in this call (Colombia, India, Jordan, South Africa and Thailand).

Q – Please provide keywords relating to the project
Please give keywords relating to your project which may assist the Academy in identifying suitable reviewers.

Q - Start and end date

Please enter the start and end date of the proposed project and can last for upto two years.

Projects must start during **April 2019** and end by **30th April 2021.**

Q - Is this a new collaboration or a pre-existing collaboration?
Please select which option applies from the drop-down list. The scheme allows both *new* collaborations and excellent proposals where links or collaboration already exists.

Q – If this is a pre-existing collaboration, please detail the extent of the collaboration, whether this is a continuation of an existing project, and the added value the Academy's support for this new exchange would provide

This additional question will only be displayed if 'pre-existing collaboration' was selected as the answer to the previous question. Please clarify the value to be added by the Royal Academy of Engineering funding the programme which will continue the collaboration. Please also include information on the type and timing of any past and present links and collaboration, and state when the applicants have met in person. (max 200 words)

2. Applicant, institution and partnership details

Please provide details of researchers and their respective institutions involved in this project.

Q. Please provide contact details of the Lead Applicants
These are the details we will use to contact the Lead Applicants. The individual from the Lead University in the Partner Country (Colombia, India, Jordan, South Africa and Thailand) submitting the application is the Lead Applicant and the Co-applicants are the main collaborators from the partnering UK and Partner Country academic and industry institutions.

Q. Participating Collaborators
Please provide details of every collaborator participating in the proposed programme of work. If there are a large number of collaborators then please restrict to the core collaborators responsible for overseeing delivery of the project.

Q. CVs of participating Collaborators
Please upload CVs for all collaborators participating in the proposed programme of work.

CVs should be a **maximum of four pages long**. There is no set format for the CV but it should include information on posts held in at least the last five years together with information on education and qualifications obtained (with dates), evidence of eminence and seniority (for example: details of awards and prizes won, invited lectures, national/international committee membership/leadership). CVs longer than **four** pages will not be accepted.

N.B. For collaborations with several different university and industry partners, please only include CVs of the core collaborating team.

Q – Organisation details
Please upload **one** document with narrative summary details of the lead university and all

partnering institutions. Descriptions of each organisation should be no more than 200 words and should include:

For Partner Country Universities and Research Institutes:
- # Years institution has been in existence
- Engineering courses offered
- # students and staff and # in research group
- Indicators of track record (rankings, awards etc)
- Link to website for engineering faculty

For industry partners
- Nature of business and types of products/ services offered
- Indicator of size (e.g. # employees, turnover etc)
- Nature of R&D (if any occurs)

For UK Universities and Research Institutes:
- Name of department, institution
- Indicators of track record (rankings, awards etc)
- Link to website for engineering faculty

Please also mention whether any partner is participating in more than one application.

Q –Role, contribution and benefits to industry partner
Provide justification for the choice of industry partner including the strategic importance of this relationship to you and your institution. Specify the exact role of the industry partner in this programme. Provide details of what has been achieved so far through any existing collaboration and what is the overall perceived long term vision for this relationship.

You have up to 350 words to answer this question.

Q – Role, contribution and benefits to UK partner and the UK more widely
Provide justification for the choice of the UK partner including the strategic importance of this relationship to you and your institution. Specify the exact role of the UK partner in this programme. What is the overall long term vision for this relationship and, importantly, **what are the expected benefits to the UK partner and UK in general which will result from this collaboration**.

You have up to 350 words to answer this question.

Q – Partner Country University and UK Academic Institution Letters of support
Letters of support are required from **each partnering university or research institution in the Partner Country or the UK**. Letters of support should be written by the applicants' respective Heads of Departments (or Heads of Faculty if either of the Applicants is the Head of Department). As a minimum the author should include:
- Confirmation of their support for the application
- Why they support the project
- How it fits in with the department's aims
- What form the matched contribution will take (financial, staff time, guidance, facilities)

The letters should be on headed paper, a maximum of two pages long, signed by the author, and uploaded by the Applicant as pdfs.

Please note: Failure to supply a letter of support from each institution will result in your application being deemed ineligible for consideration. The quality of institutional support is

a key factor in the strength of the application and the description in the letters are important for The Academy to determine the level of commitment from each institution.

Q – Letter of support from the industry partner
Upload a signed letter of support from the industry partner named at the start of the application, confirming their commitment to this applicant and the proposed secondment.

The letter of support should contain the following:

- Confirm the industry's commitment to this programme, and explain why this collaboration is strategically important to them and what the anticipated benefits will be.
- A brief description of the planned work, and how this fits within the company's aims and activities.
- Detail what facilities, training and equipment will be made available to the project, and any other contributions they will make to the award.
- Affirmation of the contribution of the industry to the programme, in terms of cash, facilities, equipment, staff time etc.

The letter should not exceed two pages and should be submitted as a PDF.

Please note: Failure to supply a letter of support from each industry partner will result in your application being deemed ineligible for consideration. The quality of institutional support is a key factor in the strength of the application and the description in the letters important for the Academy to determine the level of commitment from each industry partner.

3. Goals, Objectives, Outcomes and Impact

Q - Goals and objectives
Please state up to three main objectives for the collaboration in bullet point form. (maximum 300 words)

Q – Teaching, research and innovation?
Please indicate in the boxes the estimated % split of the project in terms of the activities as they relate to teaching, research and innovation. The three boxes should add up to 100% in total (e.g. Teaching 60%, Research 30%, Innovation 10%).

Q –What is the technical and national context of your collaboration and what makes it unique?

Through the IAPP, the Academy aims to support collaborations which are either technically novel and impactful and/ or which leverage existing knowledge in a novel manner locally to address well articulated economic and social development needs. Please articulate the context within which your initiative is taking place, the challenges, needs and opportunities being met and its relation to the state of the art technically and/ or locally and nationally. Please also show if/ how the project fits or aligns with government or policy objectives locally.

You have up to 500 words to answer this question.

Q – What are the expected outcomes and impacts of the project for your University and the wider engineering community and general public in your country?

The Academy wishes to support collaborations which use this grant as a catalyst to build lasting capabilities and generate wide impact. As such please outline the expected

outcomes and impacts that will accrue to your own university and plans for activities you will undertake to maximise the benefits of the programme for the the wider engineering community and general public in your country. These may be other/further collaborations, dissemination activities, internships, student projects, training workshops, public engagement, teaching, routes to exploitation/ commercialisation etc.

You have up to 500 words to answer this question.

Q – What metrics for success would you consider suitable for the project?
Please give up to 5 specific indicators and targets you hope to achieve with the project to demonstrate success in bullet point form.

Q – How will the collaboration continue following the Academy's support and how will the outcomes be built upon?
Provide details on how you will sustain the outcomes of the project, for example: how you will maintain collaboration. Please also provide information about how this will be funded.

You have up to 300 words to answer this question.

4. Project planning and resourcing

This section asks for summary details of the application.

Here you will provide the main summary details for the application, covering the dates of the visits, the costs, the general subject area and an abstract of the proposed activities.

Q - Provide a detailed description of the activities to be undertaken
Describe the programme of work to be undertaken during the project including how novel, realistic/ambitious the project is. **Outline the specific deliverables anticipated and appropriate milestones by which to measure progress***.* There is an option to upload any supporting documents, figures and diagrams in the next question. Your description should include:

- Description of the agreed work programme(s) against the objectives, including a breakdown of tasks with which team member will lead and in which country they are to take place
- a detailed technical case for the programme of work
- Outline of the planned stages

Please note: All responsibility for arranging travel and accommodation will lie with researchers and institutions involved

You have up to 1000 words to answer this question.

Q – Images and diagrams
Upload any images and/or diagrams related to your project. Upload a single document with the images and diagrams in the order you would like them viewed. They should be appropriately referenced in your previous answer.

You can upload a maximum of one file, so if you have multiple images to display then please collate them into a single file, and be sure to arrange them in the order you would like them viewed. **Please upload in PDF format**.

Q - Gantt chart

Please upload a detailed Gantt Chart outlining your agreed work programme, including a breakdown of milestones, indicators and target dates for specific elements of the work and the cost breakdown associated with each stage. **Please upload in PDF format**.

Q – Breakdown of funding request

Please upload the project budget in PDF format. A budget template is provided and should be used for this purpose – it can be downloaded from this link. Reference to TRF

Whilst the form is to be filled in in Excel format, PLEASE UPLOAD IN PDF FORMAT (A3 size acceptable).

Please note that the funding shall be awarded to a single partner which can either be the lead partner country university OR the lead UK academic institution. The recipients of grant monies will be expected to provide all parties with the grant resources to enable the programme of activities to take place per the programme budget. Partnering universities should reach agreement regarding who the grant recipient should be and make such financial arrangements before the application is submitted. Evidence of such will be required at the contractual stage.

The total contribution from the Academy must be up to GBP 50,000. This amount must be at least 50% matched by the applying institutions from their own or leveraged resources.

- This programme offers **financial support for (economy class) travel, subsistence and salary support costs** related to your proposed activities amongst industry and academic partners in Partner Countries and the UK.

- There is no set limit on how much you can claim in any one category apart from consumables and other costs, where no more than 10% of the total cost may be requested. 'Consumables' include project specific costs of small equipment, computer software licenses or publication costs. Examples of 'other costs' are conferences and seminar fees.

- Please note that the funding provided by this scheme is ***not*** calculated on the basis of full economic costs.

- Successful applicants will receive 80% of the total award value at the project's start, after contract signature and the remaining 20% at the project's end, upon receipt of a satisfactory final report.

- Additional costs on top of the grant funding must be met by the participating Institutions or leveraged from elsewhere with clear indication with respect to the source of the matched contribution.

- The funding provided within the grant cannot be used to pay for purchases of large equipment and research infrastructure.

Q - Justification of costs for grant value sought

Please provide a brief narrative explanation of **all costs you are requesting that the Academy's grant cover**, including both what the funds will be spent on and why. We require evidence that you have researched the costs for which you are

seeking support; for example you could include the cost per night of accommodation. Travel costs should be based on the most suitable and economical form of travel. Subsistence costs should reflect the normal rates applied at the host institution/s.

Please Note: This programme offers support for travel, subsistence and salary support costs related to conducting collaborative activities amongst industry and academic partners in the Partner Country and the UK.

You have up to 300 words to answer this question.

Q – Matched funding details
Please provide a brief narrative of the matched funding component which will be provided by the partnering organisations or others in support of the project. The Academy requires that at least 50% of the funds being asked for be matched in contribution by applicants. Additional matched funding above 50% will be viewed positively, being further evidence of the value placed on the collaboration and its potential for impact. The level and quality of match will be taken into account during the assessment period.

You have up to 300 words to answer this question.

Q – Please provide details on the ownership of any pre-existing or future Intellectual Property to be used/ generated and any formal agreements to this effect. –

If the project involves the use or potential generation of Intellectual Property, provide the details of any relevant agreements. If no formal agreement exists or is planned, include considerations on any potential risk to IPR and how the risk will be mitigated.

Please note: In projects which aim to generate IP, The Academy expects the researchers and institutions to agree in writing on Intellectual Property Rights (IPR) before the start of the exchange. Any agreement should allow for agreed dissemination activity to be undertaken unhindered. The Academy will not have any claim on research funded by the scheme.

Guidance on reaching Industry Academia IP agreements as well as model arrangements for collaborative research can be found here: https://www.gov.uk/guidance/university-and-business-collaboration-agreements-lambert-toolkit

You have up to 300 words to answer this question.

5. Lead university declaration

Q – Lead university declaration

The purpose of the declaration is to confirm that the application is acceptable in principle to the Partner Country University, and that it has received all necessary internal authorisations.

The declaration terms below must be transferred to headed paper and be agreed to and signed by an appropriate officer from the Lead applicant's institution/university. A scanned copy of the letter should be uploaded by the applicant. We do not need the hard copy version to be sent through.

A summary of the terms that the declaration must contain is shown below. Please copy this table directly into your Institution's declaration.

The applicant will be employed by the institution/university for the duration of the award.	
The applicant and any co-applicant(s) will be given full access to the facilities, equipment, personnel and funding as required by the application.	
The costs submitted in the application are correct and sufficient to complete the award as envisaged. Any shortfall in funding will be met by the institution/university.	
The institution will ensure that the proposed programme of work has been agreed between all institutions involved in the exchange and that all necessary contracts, visas, IPR agreements, financial processes and other necessary arrangements are in place before the start of the exchange.	
The institution is satisfied that language will not be a barrier in regard to a successful collaboration and, if necessary, sufficient language support and training will be obtained in advance of the exchange visits.	

Assessment of applications

Applicants will be evaluated by a specially-convened panel of Academy Fellows with expertise spanning the breadth of engineering. Each application will be assessed by a minimum of two panel members, one of who will have expertise in the broad area of research, and one who is a non-expert. Applications should therefore be understandable to the non-specialist engineer. The panel will rank the applications, and carry out the final selection of successful proposals.

All applications will be assessed against the following criteria:

- **Rating of Applicant implementation capacity and partnership quality**
  Provide a professional assessment as to whether the applicants (including home institutions and partners) have appropriate track record and experience – or potential thereof - to implement the proposed project. Complementarity of the collaborators expertise and level/ quality of matched resources/ contributions should also be considered.

- **Goals, Objectives, Outcomes and Sustained Impact**
  Assessment of the novelty of the project (either technically or contextually within that country); the alignment of the project with the IAPP's aims; and the potential for sustained benefit and impact with respect to: the applicants; the organisations directly involved; the Partner Country and UK engineering community (including universities and industries); and the wider international community. This should also include an assessment of the longer term plans for the partnerships.

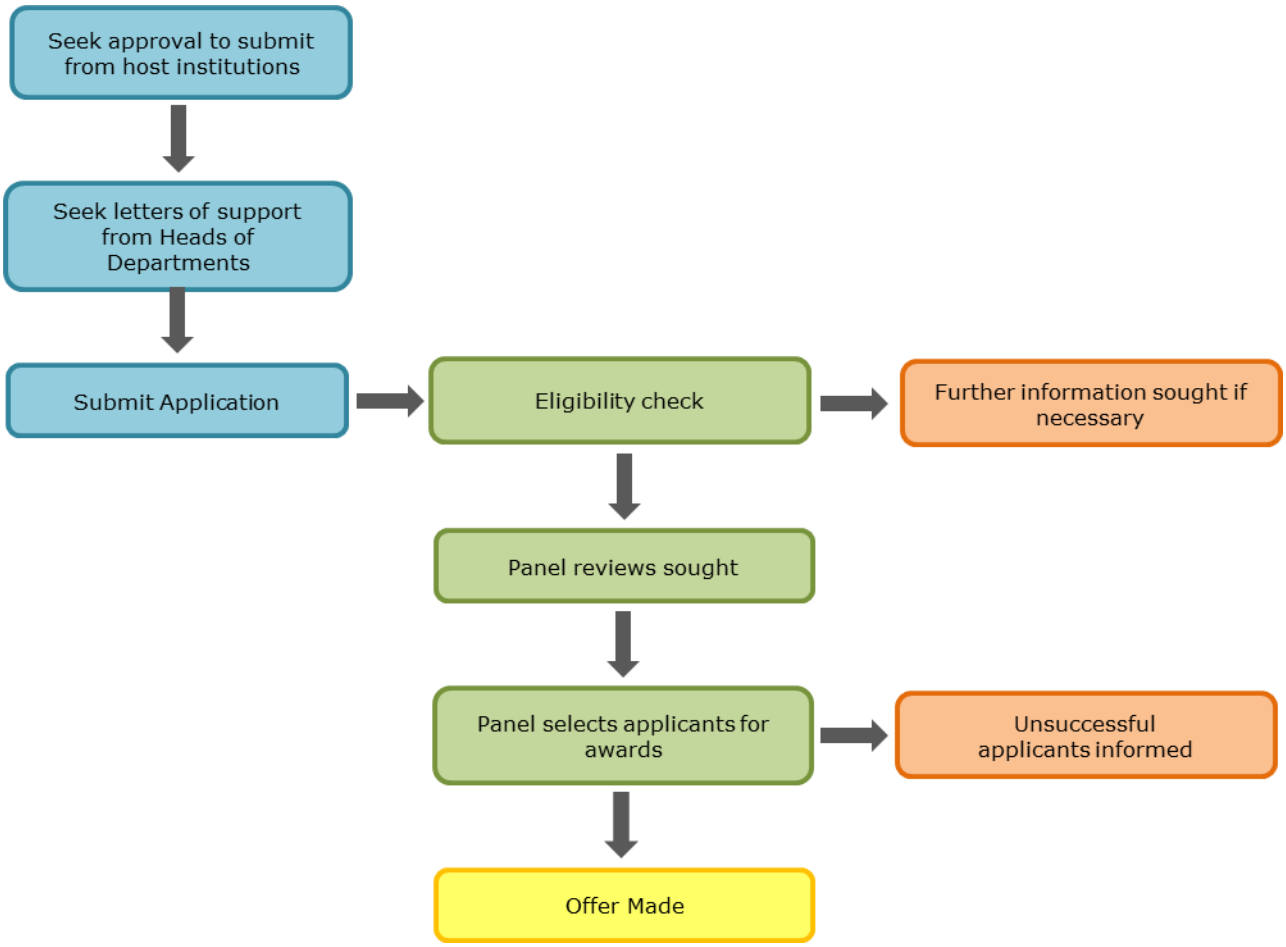
- **Project Details, Feasibility and Resource Allocation**
  Provide an assessment of the robustness and feasibility of the project to achieve its stated objectives per the timeline, staffing and resources outlined in the project workplan and budget. Also comment upon the clarity, detail and appropriateness of the proposed budget and feedback whether further work is required.

- **ODA?**
  Yes or No assessment on the project's ODA eligibility and justifying comment focusing on whether the proposed project either: focuses on an engineering teaching and research challenge that will enhance social welfare or economic development in Partner Countries; and/or demonstrates a tangible benefit to the Partner Country by enhancing its capacity to carry out excellent teaching and research in engineering.

Contact

If you have any queries, please email Shaarad Sharma (Senior Manager) or call on +44 (0) 20 7766 0646

Annexe 1: The application and award process:



Annexe 2: Is it ODA?

The following guidance has been developed to provide general guidance on ODA compliance for the Academy's Newton Fund activities.

How the Newton Fund relates to the UK's Official Development Assistance

The Newton Fund forms part of the UK's Official Development Assistance (ODA) commitment which is monitored by the Organisation for Economic Cooperation and Development (OECD).

ODA funded activities focuses on outcomes that promote the long-term sustainable growth of countries on the OECD Development Assistance Committee (DAC) list and is administered with the promotion of the economic development and welfare of developing countries as its main objective. Newton Fund Partner Countries represent a sub-set of this list.

All applications under Newton Research Collaboration Programme must be compliant with the ODA guidelines.

What activities can be funded under the Newton Fund?
Within the paper 'Is it ODA?', the OECD defines ODA compliant research activities as follows:

"Research includes financing by the official sector, whether in the donor country or elsewhere, of research into the problems of developing countries. This may be either (i) undertaken by an agency or institution whose main purpose is to promote the economic growth or welfare of developing countries, or (ii) commissioned or approved, and financed or part-financed, by an official body from a general purpose institution with the specific aim of promoting the economic growth or welfare of developing countries. Research undertaken as part of the formulation of aid programmes in central or local government departments or aid agencies is considered as an administrative cost."

Some other categories of activity similar to potential Newton Fund activities are also counted as ODA by OECD:

"Development-oriented social and cultural programmes provide basic facilities or training to enhance the social and cultural development of nationals of developing countries… As well as educational services, they will typically…include finance for the provision of books, periodicals, the creation or operation of libraries, provision of prizes, and the running of seminars, philosophy and humanistic studies, the consolidation of a recipient country's cultural heritage (including archaeological projects)…"

Any Newton Fund project therefore must make it clear that its primary purpose is to promote the economic development and welfare of developing countries.

They should also consider how strengths of UK will be used to address the issue identified.

General points to consider when writing applications for funding

(These are provided as additional guidance only, and as a list of potential considerations in assessing ODA compliance are not exhaustive.)

- The fund can support research and innovation capacity building to address the development issues in two ways: at a country level, increasing the skills and knowledge base and supporting the development of the research infrastructure; and at a sector specific level in areas that the partner country has identified as being important for welfare enhancement and economic growth.

- Capacity building should be aimed at improving partner countries' ability to undertake and disseminate research in order to maximise its impact on the issues of poverty and their economic growth.

- The partner country must be able to demonstrate existing or potential ability to grow industry (or other relevant sector) with the capacity to make use of the research, and there should be a clear route into supporting key economic sectors, or addressing development and poverty challenges in the partner country.

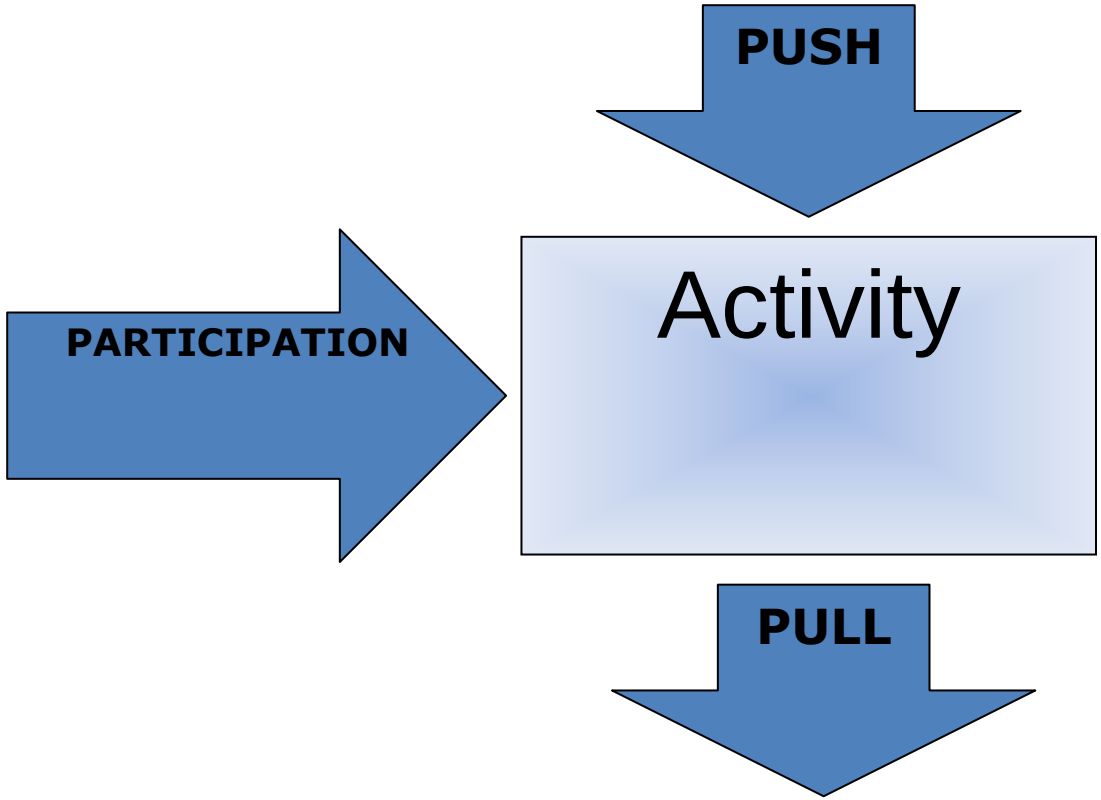
What activities cannot be funded under the Newton Fund?

- Projects would not be acceptable if the focus of the research was on military applications.

- Projects would not be acceptable if the focus was on commercialisation of research outside of the partner country, or where the ownership of the resulting IP is to pass to partners outside of the partner country, unless there was a clear plan to build new businesses/business growth in the partner country as part of a collaboration with international partners and within a wider global market strategy.

Official Development Assistance (ODA)

- Is the research driven by developmental needs (of one or more developing country)?
- Is it driven by economic *and* social welfare development challenges?



- Is there participation from developing country researchers or other stakeholders?
- Will the research help build skills in areas of need identified by the country?

- Is there a clear 'line of sight' (or pathway) to development impacts?
- Is the primary beneficiary developing countries or *all* countries?
- Is the primary benefit of the research to the poorest people in that country?

Annexe 3: Potential Models of Collaboration

Outline models have been developed to assist applicants in developing projects that would match the criteria and aims of the IAPP. **These models have been given only as suggestions of the types of proposals we may consider and are NOT exclusive.** Other ideas are very much welcome under this call.

Model 1: Deliver a training programme for Engineering educators on modern teaching methods incorporating novel techniques and ICTs

Problem Statement	There is a critical need to update the way engineering subjects are taught and change the role of the educator from instructor to facilitator of learning. With the growing availability of digital learning material and content, better use of class time could be made if teachers were able to create an environment of more immersive learning and project-oriented teaching. Leveraging ICT learning platforms and other applications can help make such teaching more effective and more salient amongst students also.
Objective	**Deliver training to Engineering faculty on new teaching methods learning from Best Practice UK examples**
Concept and Activities	• Transfer lessons from novel project-oriented and ICT-enabled teaching methods being implemented in the UK to The Partner Country • Deliver training-of-trainers to engineering faculty in Hub and Spoke Universities and monitor implementation and success • Engage industry partners in provision of projects and facilities necessary to operationalise the approach
Outputs and Outcomes	• Improved capacity of teachers to deliver learner-centric teaching • Enhanced student learning outcomes through more effective engagement • Stronger industrial linkage improving employability of graduates
Matched Funding	• Matched funding in terms of facilities and human resources from The Partner Country's side from universities and industry
UK Added Value/ Links	• UK value added in terms of knowledge transfer

Model 2: Deliver training in research methods for industry-oriented projects

Problem Statement	Current programmes for industry-oriented research are very limited in number. Whilst some existing successful models exist for collaborative research, the need to increase linkages between research and industry communities is pressing in order to engage the energy and resources of industry for university collaboration and help universities focus on finding solutions for practical issues faced in The Partner Country.
Objective	**Deliver structured training in research methods from leading UK academics**
Concept and Activities	• 2 week residential training programmes for leading young researchers in engineering research methods delivered by UK lecturers • Enhance the quality of industrial research within universities • Engage UK and The Partner Country's faculty in advising on industry research projects
Outputs and Outcomes	• Enhance the capacity to undertake collaborative research projects with industry • Discussion of research-led teaching could help inform future career development of staff in research
UK Added Value/ Links	• Potential route to build relationships for future joint research funding bids and Post-graduate study • Allows UK collaborative links with leading talent in The Partner Country • Allows connection to Engineering departments across The Partner Country for research collaboration and improved linkage to The Partner Country's industry • Potential to develop collaborative research projects

Model 3: Collaborative Research Projects undertaken with Industry in partnership with both UK and The Partner Country's universities

Problem Statement	Collaborative research is the best way to engage the energy and resources of industry for university collaboration. A major issue hindering such links in The Partner Country however is the perceived lack of research capability within universities which diminishes trust and forces industry to look elsewhere either to private companies or foreign universities for solutions.
Objective	**To engage The Partner Country's industry in collaborative research projects with universities through harnessing UK expertise and building research capacity in The Partner Country's universities**

Concept and Activities	• Industry determines research needs within their organisation • UK academic institution and The Partner Country's university partner to deliver solution through research • Engage UK expertise and build capacity/ develop talent in The Partner Country's research community for industrial research
Outputs and Outcomes	• Develop capacity of The Partner Country's engineering researchers in the conduct of industry-oriented research • Engage UK research expertise in solving industry problems in The Partner Country and adding value to operations • Improved links between UK universities and The Partner Country's industry and research communities
UK added value/ links	• Allows UK collaborative links with leading talent in the Partner Country • Allows UK connection to Engineering departments across the Partner Country for research collaboration and improved linkage to Partner Country's industry • Engages leading-edge expertise of UK and novel application of technology

Model 4: Student competitions for solving industry-related problems

Problem Statement	A lack of engagement with education and research institutions leads often to recruitment challenges for industry partners, with high turnover rates in engineering staff. Moreover, students are given very little opportunity for internships and to gain practical experience and apply their technical skills.
Objective	**Launch a series of prestigious industry-sponsored student prizes which help focus student talents on solving industry problems, improving industry visibility of talent and increasing buy-in for university engagement.**
Concept and Activities	• Establish Industry-sponsored student projects/ prizes led by one of the industry partners in each of the regional Hubs. Allow students across Hub and Spokes to enter. • Engage students in industrial research and reward the best student group • Allows closer engagement between industry and universities, allows talent-spotting and problem-solving
Outcomes and Goals	• Improved linkages of universities to local industry • Encourage students to undertake industry-oriented research and gain/ apply practical skills • Enhanced employability of students
UK value added/ links	• UK can help supervise research projects • Builds links between The Partner Country's industry and UK academics

Model 5: Enlist UK Experts to conduct Masterclasses for Partner Country Engineering lecturers and industry personnel for complex subject matter

Problem Statement	There is often a need to focus on enhancing expertise of specific priority sectors which are critical to the partner country economy or cross-cutting engineering methods which have large impact across sectors. Training in these specialised areas is crucial to enhancing the quality of engineering output and allows best practices to be identified and upscaled.
Objective	**Deliver Masterclasses in the teaching, adoption and adaptation of specialised, high-priority engineering subjects to enhance the quality of university education, industrial application and improve engineering outcomes**
Concept and Activities	• Deliver Master Classes to Partner Country engineering lecturers and industry personnel in the teaching and application of highly technical subjects and Research-led teaching methods from eminent/ innovative UK Engineers from industry or academia
Outputs and Outcomes	• Enhance the teaching of complex engineering subject matter • Enhance the application of complex engineering subject matter into industry • Discussion of research-led teaching could help inform future career development of staff in research and build linkages
UK Added Value/ Links	• UK to provide speakers for the master classes • Potential use of UK teacher training models. • UK participants could also be included and help connect with their peers in the Partner Country • Potential route to build relationships for future joint research funding bids

Model 6: Send established and future research leaders to UK universities for a six month/ 1 year industry-led research programme

Problem Statement	Current programmes for industry-oriented research are limited in number and uptake within them is poor. Whilst some existing successful models exist for collaborative research, the need to increase linkages between research and industry communities is pressing in order to engage the energy and resources of industry for university collaboration and help universities focus on finding solutions for practical issues faced in Partner Countries.
Objective	**Build capacity in established and future Partner Country research leaders and by providing experience in leading edge industry-oriented research programmes, and creating links with UK academia and industry**

Concept and Activities	• Place leading young Partner Country researcher in UK industry-oriented research groups/ universities to learn modes of linking academia and industry • Place established Partner Country engineering researchers in industry-oriented research groups/ universities within UK over a sabbatical period to learn programming methods and implement similar schemes upon return
Outputs and Outcomes	• Enhanced capacity of young engineering researchers in Partner Country in research methods and in the conduct of industrially-relevant research • Develop capacity of established Partner Country engineering educators in the conduct and programming of industry-oriented research
UK added value/ links	• Allows UK collaborative links with leading talent in the Partner Country • Allows connection to Engineering departments across Partner Country for research collaboration and improved linkage to Partner Country industry • Potential to develop collaborative research projects

Model 7: Industry 'chairs' brought into Partner Country Universities and 'Buddy' with UK Universities in building Industry-Academia linkages

Problem Statement	Universities often have willingness to cooperate with local industry actors however sometimes lack the relevant contact points and networks needed to establish functional mechanisms of collaboration. Often an institutional bridging mechanism thus needs to be created by the universities in order to address the supply side issue and help create working, beneficial linkages to industry actors whom have an interest in engineering education outcomes of the university.
Objective	**Enhance quality and industrial relevance of technical education and research activities at Partner Country Universities through bringing senior industry people into engineering departments.**
Concept and Activities	• Industry 'chairs' given consultant-like remit with focus on education and research to include issues like staff training & research project identification. • Potential buddying arrangement between 'Industry Chair' and the Academy's Visiting professors at UK institutions to share learnings and guidance. • At end of exchange, Partner Country and 'buddy' UK institution could jointly bid into small pool for further funding for bilateral activities that would help meet development objectives set by industry 'chair'.
Outcomes and Goals	• Improved linkages of universities to local industry • Collaborative university-industry programmes developed and implemented • Enhance Throughput of universities through bolstering teaching capacity
UK value added/ links	• Link to Academy's UK Visiting Professor scheme and wider UK University Alliance network to help mentor Chairs and build industry and academia ties across UK and Partner Countries

Model 8: Bilateral Exchanges between Industry and Academic organisations to design/ develop research agenda and curricula in Emerging Technologies

Problem Statement	The global technological landscape is changing constantly however Partner Countries often lack educational content to properly skill students in the development and application of advances. In order to do so new course content needs to be developed in synch with local industry whom can help determine local needs and ensure productive research-led teaching takes place.
Objective	**Design research agenda and applied course content in fields of emerging technologies which leverage UK expertise and meet demands of local industry partners through bilateral knowledge exchanges.**
Concept and Activities	• Knowledge exchange visits which take UK industry and academic personnel into Partner Countries to help develop research agenda and course content in areas of emerging technology. • Partner Country institutions visit UK universities and industry organisations collaborating in research and teaching in fields of emerging technologies to develop linkages and learn from working relationships.
Outcomes and Goals	• Co-developed research agenda in development and application of Emerging Technologies • Teaching courses and modules designed for Partner Country Universities in emerging technology fields • Domestic avenues of industry-academic cooperation built in fields of direct research and innovation relevance to domestic priorities • Ongoing bilateral relationships built in innovation, leading-edge research and teaching content
UK value added/ links	• Linkages built with research and innovation communities in partner countries on development and application of leading-edge technology fields