Collaborative Research and Development, Round 4: Industry Ready Robotics and Automation

Made Smarter Innovation

www.iuk.ktn-uk.org
Agenda

10:00  Introduction
10:05  Innovate UK Competition Briefing
10:25  KTN Support
10:30  Scope, eligibility and support Q&A
10:50  Innovate UK Application Process
11:10  Application process Q&A
11:25  Close
House Rules for Today

• Please use the **Q&A box** for questions – we’ll collate, prioritise, and reply to these

• Please use the **chat** for tech support questions, etc.

• Please remember to be respectful of the others on the call

• This briefing is being recorded, and will be available later via the competition page and the KTN web site
Competition Details

• Neil Witten, Innovate UK
Made Smarter Innovation

Overview of challenge programme
Funding innovation

With our partners we’re investing £300 million to develop digital manufacturing ideas more quickly.
Made Smarter Innovation connects leading UK companies, technology developers, start-ups and research institutions so they can prove and scale their idea.
Building a common open standards environment for manufacturing digital technologies through workshops, guides and helpful tools to address interoperability challenges through standardisation.

Made Smarter Innovation has invested in 5 research centres to identify early stage, transformative innovation ideas, covering both technological and societal aspects.

Our InterAct project is a call to arms for academics from the social sciences to support the innovation and diffusion of digital technologies that will result in a stronger, more resilient UK manufacturing industry.

So far over 30 participants and 64 projects have been supported over multiple themes:
- Fast Start
- Digital Supply Chain
- Sustainable Smart Factory
- Industrial Ready Robotics & Automation (open 18/01/2023)

Together, the Smart Manufacturing Data Hub and the Digital Supply Chain Hub are a national network of facilities available to the manufacturing industry collaboratively developing novel digital solutions for key manufacturing challenges through a network of test beds.

Their purpose is to drive innovation by enabling the testing of digital solutions.

Connecting leading UK manufacturers and pioneering technology start-ups to develop innovative technology solutions to many of the UK’s manufacturing challenges.

Supporting UK companies, working with leading industrial nations, to develop global innovation bridges and global collaborative research & development to increase exports and inward investment opportunities.

Working together for the people-led digital manufacturing future we want.

With our partners we’re investing £300m to develop digital ideas more quickly.
Competition Scope

Made Smarter Innovation

Industry Ready Robotics and Automation

Competition Scope
Background:
Drivers for this funding call

- Robotic solution deployments within UK manufacturing lag behind many other industrialised nations
- Challenges include a diverse range of UK manufacturing sectors, labour shortages, resilience
- Potential for UK to become a strong player in areas such as System Integration & Interoperability, both for:
  - domestic production and global technology sales
  - to improve productivity, flexibility & re-shoring potential

‘As the only G7 country – the UK has a robot density below the world average of 126 units (per 10,000 employees) with 101 units, ranking 24th. Five years ago, the UK’s robot density was 71 units.’

Source: 2021 World Robot Report, IFR
In brief:

- be robotics or automation focussed and deployable within a factory production area
- focus on value-adding production tasks or directly associated [load/unload/move tasks]
- be an innovative digital development - or significantly novel application that overcomes a technical barrier
- help production activities or related processes within UK manufacturing to become more productive, sustainable & resilient
- include with the project scope a physical deployment within a manufacturing facility or very near equivalent (e.g. a comparable development facility)
- Where possible, demonstrate clear scalable commercial exploitation route to other manufacturers and/or manufacturing sectors [i.e. beyond just the initial project consortium]
- where possible, include a demonstrator element with access beyond the project timescales (host visits, on-line access, video footage etc)
- Collaborations: Two or more organisations incl. manufacturing capabilities and digital technology capabilities
Competition Overview (cont..):

Collaborative R&D – Industry Ready Robotics and Automation

“Industry ready Robotics and Automation Innovation to develop industrially ready solutions deployable within manufacturing production environments”

Funding & Timing:

• **£6m** “Industry Ready Robotics and Automation” funding call
• Project value: **£200k to £4m** (total eligible costs)
• Project duration: **9 to 15 months**
• **Collaborative** consortia only, must be **business led**
• **50% grant limit:** your application must not exceed **50% of your total project costs** - applies regardless of the individual partners’ grant claims or research category chosen
• Schedule:
  • Opens: 18th January 2023 & Briefing: 18th January 2023
  • Closes: 5th April 2023

• Project start by **1st October 2023** at the latest

Link to competition details:
https://apply-for-innovation-funding.service.gov.uk/competition/1437/overview/26e0e1ee-77e7-483c-bdb7-2e4ad79965a5
## Example Project Areas:
**Collaborative R&D – Industry Ready Robotics and Automation**

<table>
<thead>
<tr>
<th>Potential Project Area</th>
<th>Note</th>
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<tbody>
<tr>
<td>Flexible and Modular automation</td>
<td>Driving repurposing and flexible redeployment to maximise use-life</td>
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<tr>
<td>Systems Integration</td>
<td>Productising scalable commercial solutions</td>
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<tr>
<td>Mobile Robotics</td>
<td>Including Modular Robots (multi-purpose)</td>
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<td>Human Assisted &amp; Cobots</td>
<td>Including ethics and human machine interface (HMI)</td>
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<td>No-code and Low-code solutions</td>
<td>To improve SME accessibility and lower access cost</td>
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<td>Flexible packaged solutions</td>
<td>Reconfigurable modular solutions (tight access retrofit), hygiene friendly etc</td>
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<tr>
<td>Gripper and End-effector optimisation</td>
<td>Especially for challenging production environments (fragile, shape etc)</td>
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<tr>
<td>Self-powered or cableless</td>
<td>To reduce installation and safety challenges, maximise flexibility</td>
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<tr>
<td>Improving robotic accuracy and dexterity</td>
<td>Developing low cost metrology to self-adjust</td>
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<tr>
<td>AI in robotic control</td>
<td>Developments in machine learning to improve performance</td>
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Projects are also encouraged to consider as an element of their project:
- Safety of Human-Machine interface (HMI) - including integration with smart cells
- Robot ethics (‘Roboethics’)
- Equality, Diversity & Inclusion opportunities
- Relevant standards compliance
Scope:
Collaborative R&D – Industry Ready Robotics and Automation

The aim of this competition is to develop and demonstrate industrially ready robotics and automation solutions deployable within a factory production area.

Your project must:

- deliver an innovative digital development or significantly novel application of late stage robotics and automation
- overcome a technical barrier within manufacturing processes in a factory production setting

Your project must focus on demonstrating the robotic and automation innovations to deliver productivity, sustainability and resilience improvements to the manufacturing process.
Scope (cont..):  
Collaborative R&D – Industry Ready Robotics and Automation

Your project must:

- be **robotics or automation** focused within a factory production area
- be **focused on value-adding production tasks** or directly associated load, unload and move tasks
- include a **physical deployment within a manufacturing facility** or very near equivalent, for example, a comparable development facility
- demonstrate a **clear, scalable commercial exploitation route** within the project consortium

We encourage you to:

- demonstrate clear, scalable commercial exploitation route to **other manufacturers and manufacturing sectors beyond the initial project consortium** itself
- include a **demonstrator element** with access beyond the project timescales (host visits, on-line access, video footage)
You must ensure that all of the aspects within the scope section are clearly covered in your answer.

You must state which research category your project best fits within. Where you select ‘Industrial Research’ then you must fully explain your choice.

You must describe how your proposal will contribute to the objectives of the Made Smarter Innovation challenge, including:

- how this project is innovation in robotics and automation within a manufacturing production area
- how within the project timescale, the project will demonstrate clear, scalable commercial exploitation within the project consortium
- how post project outcomes will be exploited by participants to maximise the adoption of robotics and automation
- which manufacturing sectors will be involved during the project
- any applicability to multiple manufacturing sectors post project, the exploitation phase, including which manufacturing sectors are expected to be targeted

Scope Questions:
Collaborative R&D – Industry Ready Robotics and Automation
You must describe how your project will contribute to one or more of the Made Smarter Innovation challenges. The MSI Challenge targets are:

1. Up to 30% increase in productivity
2. Up to 25% decrease in waste (resource efficiency)
3. Up to 30% decrease in carbon emissions (energy efficiency)
4. Increase in the number of jobs requiring digital technology skills
5. Increase in Gross Value Add to the manufacturing sector

Where possible we encourage the provision of demonstrators that last beyond the life of the original project.
State whether your project will deliver a demonstrator and explain what this will comprise.
Innovate UK supports the following R&D categories:

1. **fundamental research** - means experimental or theoretical work primarily to gain new knowledge of underlying phenomena and visible facts, without any direct practical application or usage. This type of research is usually undertaken by a research organisation.

2. **feasibility studies** - means analysis and evaluation of a project's potential, aimed at supporting the process of decision making. This is achieved by uncovering its strengths, weaknesses, opportunities and threats as well as identifying the resources needed and the prospects for success. Feasibility studies will usually help businesses decide to work either individually or collaboratively with other industrial or research organisations, before conducting a subsequent larger project. Individual competition scopes will define their own requirements for feasibility studies in terms of project size and length.

3. **industrial research** - means planned research or critical investigation to gain new knowledge and skills. This should be for the purpose of product development, processes or services that lead to an improvement in existing products, processes or services. It can include the creation of component parts to complex systems and may include prototypes in a laboratory or environment with simulated interfaces to existing systems, particularly for generic technology validation.

4. **experimental development** - means acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills with the aim of developing new or improved products, processes or services. This may also include, for example, activities aimed at the conceptual definition, planning and documentation of new products, processes or services. Experimental development may comprise prototyping, demonstrating, piloting, testing and validation of new or improved products, processes or services in environments representative of real life operating conditions. The primary objective is to make further technical improvements on products, processes or services that are not substantially set. This may include the development of a commercially usable prototype or pilot which is not necessarily the final commercial product and which is too expensive to produce for it to be used only for demonstration and validation purposes. Experimental development does not include routine or periodic changes made to existing products, production lines, manufacturing processes, services and other operations in progress, even if those changes may represent improvements.

In Question 2 you must:

- **STATE**
  your choice of Industrial Research OR Experimental Development

  Projects that span more than one category of research: In your application enter the research category that reflects the majority of your work

- **EXPLAIN**
  your choice of Industrial Research OR Experimental Development

  If you have selected Industrial Research then you must fully explain your reasons for that choice at Q2

  If you have selected Experimental Development then no further explanation is required

  • justification is required due to the higher levels of maximum funding that apply to organisations applying under Industrial Research.
  • The responses to this question will be reviewed to determine fit against the scope of the call.
  • Within the assessment process, applications for Industrial Research that during the assessment process are judged not to have provided sufficient rationale for that higher funded Research Category will be deemed out-of-scope and rejected.
  • It is NOT possible to reassign Research Category post-application.
Outputs:
Collaborative R&D – Industry Ready Robotics and Automation

Outputs
Your planned outputs must be:

• innovative ideas DEVELOPED and TESTED in manufacturing settings with the aim of near-term industrial exploitation
• a deployment within a manufacturing facility or very near equivalent for example a comparable development facility
• where possible, include a demonstrator element with access beyond the project timescales (e.g. host visits, on-line access, video footage, etc.) of the innovative solution

The MSI challenge is focussed on delivering maximum impact for the UK economy – to support this all applications are required to populate an ‘impact table’ to highlight the expected outcomes both during and post project.

Portfolio approach
We will fund a portfolio of projects to achieve a balance for the Made Smarter Innovation funding.

We want to fund a variety of projects across different markets, research categories, strands or theme, technology, technology maturity, location, industrial sectors, project sizes, exploitation potential and business sizes. We call this a portfolio approach.
Projects We Will Not Fund: Collaborative R&D – Industry Ready Robotics and Automation

- outside of the value adding production area
- focused on activities outside of manufacturing production processes
- mainly installing currently available technologies and involve minimal innovation
- where the main exploitation route is not within manufacturing
- early stage feasibility projects
- activities focused on goods-in or warehousing
- activities focussed on distribution centres, supply chain connectivity or flying factories
- construction, other than manufacturing activities carried out off-site within a permanent fixed factory
- offsite repair and overhaul
- focussed on product design for manufacture and assembly (DfMA), unless this is only a very minor element of robotic innovation
- business process automation (BPA) to automate business transactions through robotic process automation (RPA) of data

We cannot fund projects that are:

- dependent on export performance, for example giving a subsidy to a baker on the condition that it exports a certain quantity of bread to another country
- dependent on domestic inputs usage, for example giving a subsidy to a baker on the condition that it uses 50% UK flour in their product
Tips for successful applicants:

- 11 week application window – however **don’t leave it until week 11!**
- Good collaborations take time to build – **start network building early**
- **Coherent applications**, with **clear innovations**, clearly articulated **fit against the scope question**, and **clear outcomes** all aid assessment [see IFS section to follow]
- What does a ‘**stand-out’** application look like?
  - Innovation step, scope fit, and expected outcomes, all clear to see
  - Link from innovative digital development or significantly novel application of late stage robotics and automation to overcoming a technical barrier is clear to see
  - Where possible, developing new collaborations with other manufacturers and technology developers
  - Where possible, application of the solution to multiple manufacturing sectors
  - Coherent plan which balances highly innovative projects with clear project risk management
  - Overall benefit to UK Manufacturing & challenge community clearly articulated
- **KTN can support all applicants** with advice – [see KTN section to follow]
Summary:
Collaborative R&D – Industry Ready Robotics and Automation

- Project must deliver an innovative digital development or significantly novel application of late stage robotics and automation and overcome a technical barrier within manufacturing processes in a factory production setting.
- Projects may apply to either Industrial Research or Experimental Development research categories. Where you have chosen the research category as Industrial Research you must explain your reasons for that selection.
- Projects must be business led and collaborative.
- Consortium must include both manufacturing capabilities and digital technology capabilities.
- We welcome a wide range of applications spanning different business sizes and manufacturing sectors.
- We will use a portfolio approach to achieve a balance of projects.

Process:
- Application ➔ Assessment ➔ Portfolio balancing ➔ Notification ➔ Project set-up ➔ Project start
- Opens: 18 January 2023 / Closes: 05 April 2023 (11am)
- Applicants will be notified of outcome: early June 2023.
- All projects start: October 2023 at the latest.

Link to competition details:
https://apply-for-innovation-funding.service.gov.uk/competition/1437/overview/26e0e1ee-77e7-483c-bdb7-2e4ad79965a5
Introduction to Innovate UK KTN

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Made Smarter Innovation
Collaborative Research and Development, Round 4: Industry Ready Robotics and Automation
www.iuk.ktn-uk.org
Innovate UK

Innovate UK is the UK’s innovation agency: a non-departmental public body operating at arm’s length from the Government as part of UKRI.

KTN

Innovate UK KTN exists to connect innovators with new partners and new opportunities beyond their existing thinking - accelerating ambitious ideas into real-world solutions.

EDGE

Innovate UK EDGE empowers innovation-driven businesses to grow at pace and achieve their industry- and society-transforming ambitions.
About Us
Innovate UK KTN exists to connect innovators with new partners and new opportunities beyond their existing thinking – accelerating ambitious ideas into real-world solutions.

Our Purpose & Vision
We create diverse connections to drive positive change.

To establish a network of innovators so powerful its ideas will change the world.
Our Strategy

Positive Change
We create diverse connections to drive positive change

Deep Expertise
We have wide-ranging expertise and convene the expertise of others

Powerful Connections
We drive powerful connections with business at the heart of what we do

Future Shaping
We shape the innovation communities of the future

Our People
We provide an exceptional place of work for our exceptional people

Our Network

46,229
Unique Organisations

72%
Small

15%
Medium

234,478
innovators

13%
Large

Every university in the UK
We connect…

Diverse communities | Innovation Networks

Regional, national and global

Research and business | Knowledge Transfer Partnerships

Innovators, funders | Innovation Exchange & collaborators

Insight to impact | Insight reports

…for positive change
Innovate UK KTN and you

- Signpost companies to identify and address funding
- Provide deep expertise to make Connections & Networks
- Drive powerful connections with businesses
- Assist companies in forming partnerships/collaborations/projects
- Advise companies in their submission
- Light touch reviews
- Guidance documents, eg Good Application Guide
- Highlight key features of a good proposal
- Provide recommendations, eg proposals that excites and inspires
- Invite you to collaboration mechanisms & events
Innovate UK KTN and you

- Collaboration and Consortia Building events:
  - Edinburgh, National Robotarium, **30th January**
  - Coventry, Manufacturing Technology Centre, **9th February**
  - Book via the same link you used to book today

- Guidance documents, eg Good Application Guide

- Investor Readiness Programmes
Close

• Next steps

• Further technical questions on scope, eligibility, etc. can be addressed to Innovate UK support@iuk.ukri.org

• Support with building collaborations and consortia, plus ‘soft’ reviews of applications via KTN – either karl.mccracken@iuk.ktn-uk.org, or via the contact form on our web site www.ktn-uk.org

• A final reminder of the deadline: Applications to be submitted by 5th April 2023!
Find out more

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