

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

**Made Smarter Innovation**

[www.iuk.ktn-uk.org](http://www.iuk.ktn-uk.org)



InnovateUK  
KTN



## 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

# Presenting Today



**Karl McCracken**

Knowledge Transfer  
Manager

Innovate UK KTN



**Neil Witten**

Innovation Lead

Innovate UK



**Steph Armitage**

Portfolio Manager

Innovate UK



**Chris Needham**

Innovation Lead

Innovate UK



## 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



InnovateUK  
KTN



## Competition Details

- Neil Witten, Innovate UK

**MADE  
SMARTER**



# **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**

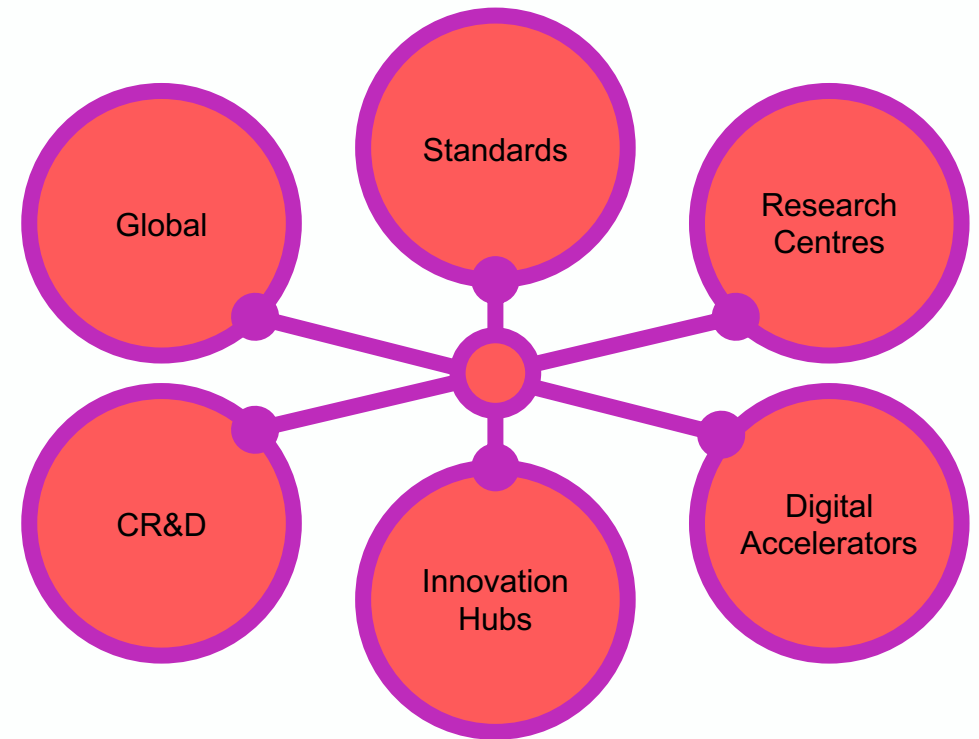
# How It Works

Made Smarter Innovation **connects** leading UK companies, technology developers, start-ups and research institutions so they can **prove and scale** their idea.

New core technology development

Development of Standards

Embedding research into adoption



Exploitation and adoption



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

**With our partners we're investing £300m to develop digital ideas more quickly.**

# MADE SMARTER

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## INNOVATION



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 300 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.



**MADE  
SMARTER**



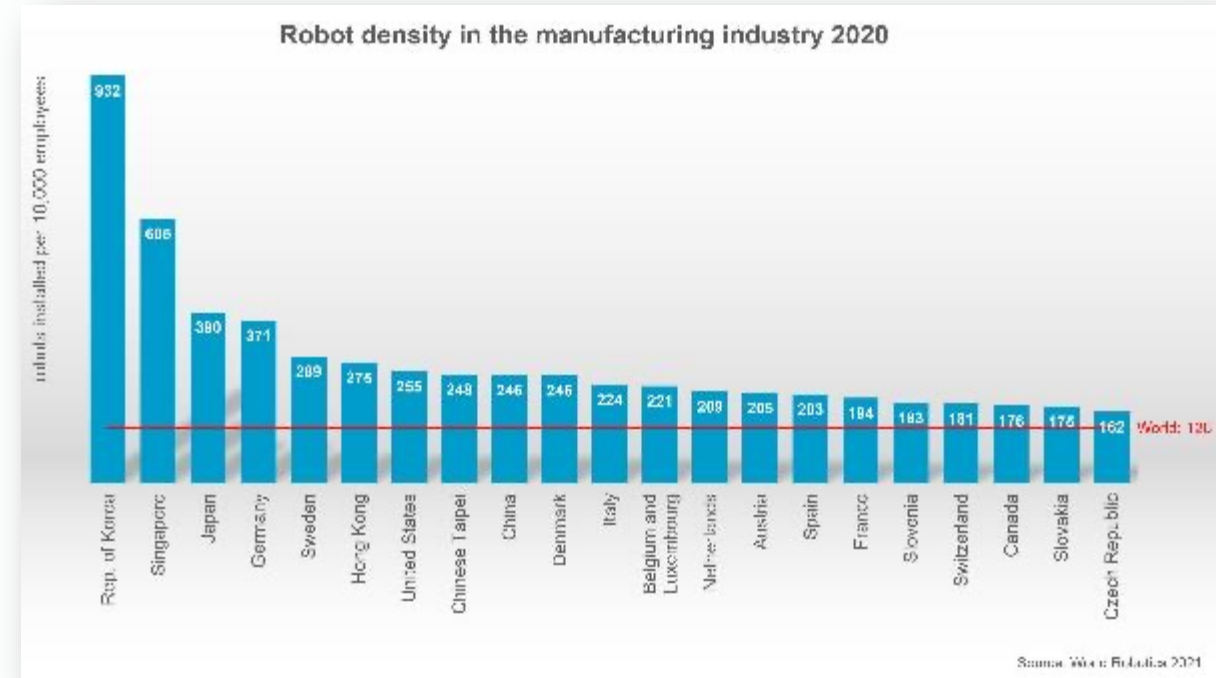
# **Made Smarter Innovation**

**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

# Competition Overview:

## Collaborative R&D – Industry Ready Robotics and Automation

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



### 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: **18<sup>th</sup> January 2023 & Briefing: 18<sup>th</sup> January 2023**
  - Closes: **5<sup>th</sup> 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



Potential Project Area	Note
Flexible and Modular automation	Driving repurposing and flexible redeployment to maximise use-life
Systems Integration	Productising scalable commercial solutions
Mobile Robotics	Including Modular Robots (multi-purpose)
Human Assisted & Cobots	Including ethics and human machine interface (HMI)
No-code and Low-code solutions	To improve SME accessibility and lower access cost
Flexible packaged solutions	Reconfigurable modular solutions (tight access retrofit), hygiene friendly etc
Gripper and End-effector optimisation	Especially for challenging production environments (fragile, shape etc)
Self-powered or cableless	To reduce installation and safety challenges, maximise flexibility
Improving robotic accuracy and dexterity	Developing low cost metrology to self-adjust
AI in robotic control	Developments in machine learning to improve performance

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)



# Scope Questions:

## Collaborative R&D – Industry Ready Robotics and Automation



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 (cont.):

## 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**.

# Research Category: Collaborative R&D – Industry Ready Robotics and Automation



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. **X**
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. **X**
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.

Increasing  
Technology Maturity

# Research Category: Collaborative R&D – Industry Ready Robotics and Automation



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

**Karl McCracken**

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**Made Smarter Innovation**

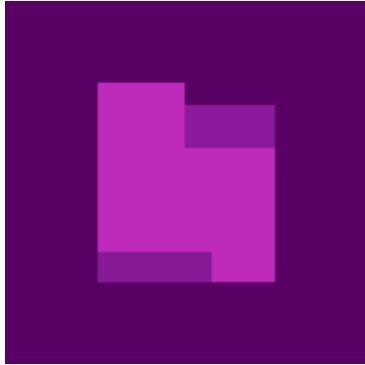
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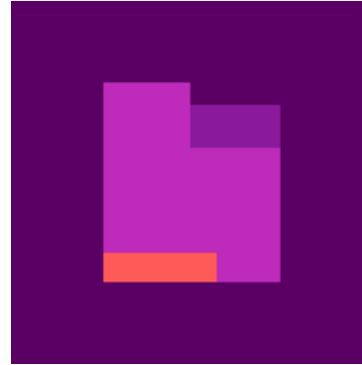
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# Innovate UK Group



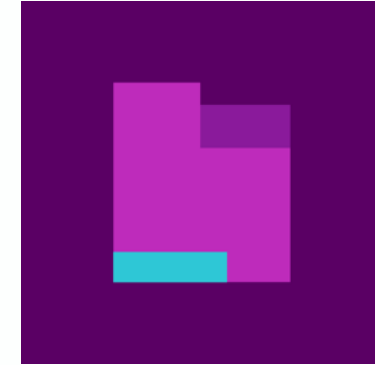
## Innovate UK

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.



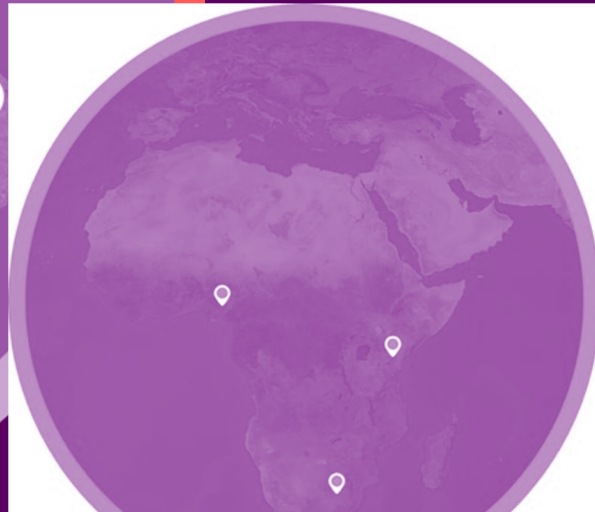
## About Us

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

13%

Large

234,478

innovators

Every

university in the UK





**We connect...**

**Diverse communities | Innovation Networks**

**Regional, national | Global Alliance  
and global**

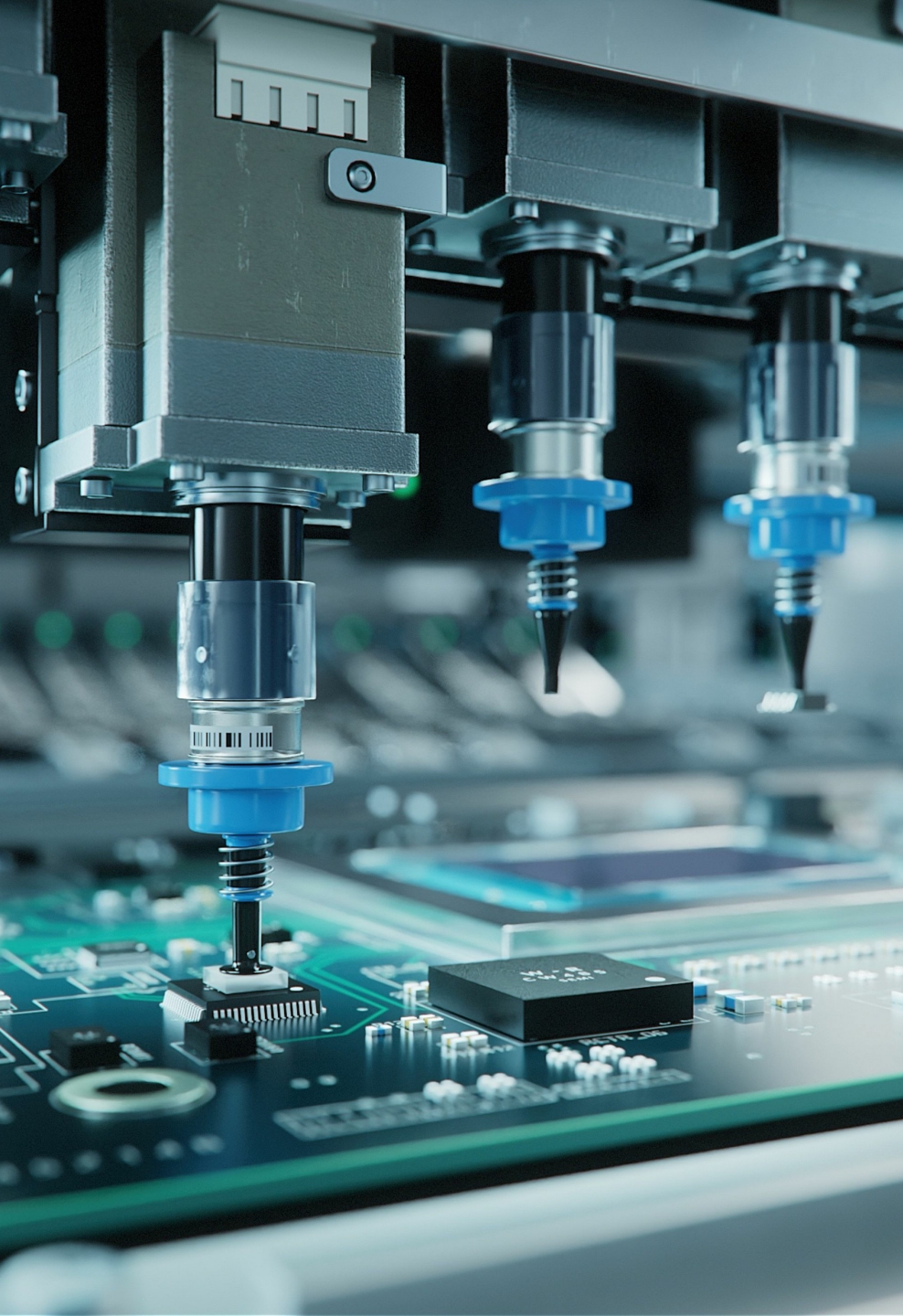
**Research and business | Knowledge Transfer Partnerships**

**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

# Good Application Guide



Innovate UK  
Knowledge Transfer Network



## Innovate UK KTN and you

- Collaboration and Consortia Building events:
  - Edinburgh, National Robotarium, [30<sup>th</sup> January](#)
  - Coventry, Manufacturing Technology Centre, [9<sup>th</sup> February](#)
  - Book via the same link you used to book today
- Guidance documents, eg Good Application Guide
- <https://ktn-uk.org/news/the-good-application-guide-and-more-grant-application-advice-from-ktn/>
- Investor Readiness Programmes





## Close

- Next steps
- Further technical questions on scope, eligibility, etc. can be addressed to Innovate UK [support@iuk.ukri.org](mailto:support@iuk.ukri.org)
- Support with building collaborations and consortia, plus 'soft' reviews of applications via KTN – either [karl.mccracken@iuk.ktn-uk.org](mailto:karl.mccracken@iuk.ktn-uk.org), or via the contact form on our web site [www.ktn-uk.org](http://www.ktn-uk.org)
- A final reminder of the deadline: Applications to be submitted by 5<sup>th</sup> April 2023!



# Find out more

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