

KTN the Knowledge Transfer Network







Knowledge Transfer Manager - Smart Materials and Emerging Technologies



ktn-uk.org @KTNUK

Introducing the Knowledge Transfer Network The UK's Innovation Network



What we do

• The KTN is the UK's innovation network. It brings together businesses, entrepreneurs, academics and funders to develop new products, processes and services

• We help business to grow the economy and improve people's lives by capturing maximum value from innovative ideas, scientific research and creativity



The KTN and how it fits in the bigger picture



The Knowledge Transfer Network

Connecting people to accelerate innovation





Strategic

Connecting people who wouldn't usually meet to solve innovation challenges.

Interdisciplinary

Bringing together businesses and researchers from different sectors.



Entrepreneurial

Linking people with new ideas and technologies to partners and customers.



Introducing innovators to public and private funders and investors.





Addressing societal challenges and growing new technologies

Chris Warkup CEO



David Lockwood Chair



We are eliminating silos to make it easier to assemble multidisciplinary teams so that we can do more, and do it well.

The "half-life of knowledge" is shortening, so we must connect business with research faster than ever before.

16 Industry communities

Core thematic networks covering key application areas and underpinning technologies



20 Cross-sector groups

Interdisciplinary programmes building communities around priority challenges

60,000+ Members

An engaged online community of innovators served by a single platform

15,000+ Delegates per year

Hundreds of events bringing people together 'to make magic happen'



ktn-uk.org (*a*)KTNUK

Clustered communities, groups and business programmes

Focus is on bringing together groups that would not normally meet











Materials Chemistry Environmental Services Agri-Food Biosciences Health ICT Electronics, Sensors & Phototonics Defence & Security Space Built Environment Transport Energy Creative Industries Digital Economy Design

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Sustainability, H2020, International, Access to Finance, Design





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Clustered communities, groups and business programmes





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Technology Readiness Level

Innovate UK Technology Stategy Board

Technology Readiness Level



Source: The NASA-developed Technology Readiness Level model17



Catapults Technology Readiness Levels





Anticipated in-year expenditure in 2014-15





Access to Investment The KTN has a team to support you in each area





Funding Sources





Funding Landscape in Detail Grant programmes are available mainly during feasibility, verification and demonstration

Grant programmes are available mainly during feasibility, verification and demonstration phases of product development





Innovate UK Grants Supporting SMEs

INNOVATION VOUCHERS	A grant of up to £5,000 to fund SMEs first engagement with external knowledge providers such as universities and colleges, research and technology organisations, design advisers and intellectual property advisers. National scheme designed to stimulate UK start-ups and small and medium-sized businesses to bring in new knowledge, enhancing their ability to develop innovative products and services TSB has also listed ALL active innovation vouchers operating across UK in one place: <u>https://</u> vouchers.innovateuk.org/innovation-vouchers.innovateuk.org
	The IC tomorrow programme aims to stimulate innovation and economic growth in the digital sector.
IC TOMORROW	Mostly micro businesses, small scale funding programs around £25,000 grants for prototypes. Network of over 3000 digital innovators, content providers and investors. Funded contests, events, and strategic matchmaking opportunities
	https://ictomorrow.innovateuk.org/
	Small grants aimed at filling the gap in seed funding felt by small and early-stage companies. It provides pre-start-ups, start-ups, micro businesses and SMEs with funds to enable them to assess potential markets and invest in R&D and innovation. Three types of support are available:
smart SMART	 Proof of market – up to £25,000 to assess the commercial viability of the project (up to 9 months and 60% of project costs); Proof of concept – up to £100,000 to explore the feasibility and the commercial potential of a new technology, product or process (up to 18 months and 60% of total project costs); Prototype development - up to £250,000 to develop a technologically innovative product, service or process (up to 2 years and 35-45% of project costs).
	Smart programme is very competitive and heavily oversubscribed. Around 70% of recipients are micro- companies with fewer than 10 employees and over half are younger than five years old. Smart is always open, however to manage the processing of these applications, there are six rounds per year with the
	https://www.gov.uk/innovation-get-details-about-innovate-uk-funding-competitions#smart

Innovate UK Grants Supporting SMEs cont'd



commercialisation up to £1m and two years

Innovate UK Grants Supporting SMEs cont'd

CATALYSTS CATALYSTS	 Aims to accelerate early-stage ideas more rapidly towards commercialisation through different phases of funding provided within the same programme. Support projects from early stage through to near commercialisation; run jointly by the TSB and Research Councils, help for academics and businesses of all sizes. The Biomedical Catalyst, Agri-Tech Catalyst and Industrial Biotechnology Catalyst support SMEs and academia to explore early-stage commercial and technical potential through to development prior to commercialisation. Following categories of grant are available: Feasibility/Confidence in Concept Award (up to £150,000 and up to 75% of total project costs Early Stage Award / Late Stage Award (up to £2.4m, per business per project and up to 50% of total project costs)
COLLABORATIVE COLLABORATI VE R&D	Co-funding mechanism for innovative projects which involve partnerships between businesses, and between businesses and academia. Helps companies tackle specific technical or societal challenges by collaborating on new product, process and service creation. It encourages knowledge exchange, supply chain development and parallel working on complex system challenges. Project funding up to total cost of £1.5m and up to 50% - 60% funding contribution
	https://www.innovateuk.org/-/collaborative-r-d
DEMONSTRATORS DEMONSTRATORS ORS	Accelerate the introduction of new products, systems and services by enabling demonstration, testing and validation in the real world and on a large scale. TSB invest in business-led demonstrator projects through competitions in defined priority areas. Enables large-scale testing of new products and services in the real world, brings partners together to validate ideas, and helps move new products closer to wider application. Eligibility depends on programme

Grant Funding Journey Innovate UK follows a consistent process from initiation to monitoring of competitions



the Knowledge Transfer Network

Grant Competition Process

Concept (up to 12 months)	Technologist initiates potential new competition: scope, proposed timescales, type etc.			
Plan - 12 weeks	TypeEligibilityTimeline			
Prepare - 8 weeks	 Application forms, guidance notes prepared Publish Competition Brief Briefing event preparation 			
Competition Open (6 weeks)	Registration and application openBriefing event			
Assess + 3 weeks	Competition has closedAssessors review applications			
Approve + 6 weeks	Funders panelNotify applicants of results			
Post + 10 weeks	 Feedback to applicants Offer letters issued Monitoring Officers appointed Project go-live work commences 			

SME Grant Funding Options for Growth

- Responsive to industry need - Semi responsive to industry need

R

SR

	Tool	Business Stage	Value	Funding contribution	Frequency	Sector	Comment
Vocables	B	Seed, start-up	Up to £5,000	100%	Every 3 months	Priority sectors around specific theme only	To fund first engagement with knowledge or technology supplier
IC tomorrow reserves to		Seed, start-up	Prototype - up to £25,000	100%	Always open	Digital micro businesses	Funded contests, showcase events, strategic matchmaking opportunities
Smart	P	Seed, start-up, early growth	Proof of market - £25,000 Proof of concept - £100,000 Prototype - up to £250,000	Up to 60% Up to 60% Up to 35 or 45%	Six funding rounds per year	Any	For high growth potential SMEs to assess commercial viability of a projects (9 months to 2 years)
Knowledge Transfer Partnerships	ß	Start-up, early growth	Average annual project cost of £60,000	Up to 67%	Always open, 6 weekly approval	Any	Access to academic or researcher with the right expertise (6 - 36 months)
LAUNCHPADS		Start-up, early growth	Project specific funding varies within clusters	Up to 50%	Ad hoc	Specific thematic areas and geographic locations only	To support and strengthen high tech business clusters, Launchpad showcase
FEASIBILITY STUDIES		Start-up, early growth	Feasibility - up to total project cost of £33,000	Up to 75%	Ad hoc	Specific thematic areas only	Prep for collaborative R&D projects (up to 4 months), Collaboration Nation showcase
SBRI Geement chillense SBRI Geement chillense Statistic solutions		Start-up, early growth, expansion	Feasibility – up to £100,000 Commercialisation – up to £1m	100%	Ad hoc	Public sector	Solutions to public sector challenges with government as a lead customer (6 months to 2 years)
CATALYSTS	SF .	Start-up, early growth, expansion	Feasibility – up to £150,000 Early stage / late stage awards – up to £2.4m	Up to 75% Up to 50%	Ad hoc	Biomedical Agri-tech Industrial biotechnology	Run jointly by the TSB and Research Councils (12 months to 3 years)
COLLABORATIVE		Early growth, expansion	Project specific funding - up to total project cost of £1.5m	Up to 50 or 60%	Ad hoc	Targeted to specific technical or societal challenge	To encourage collaboration and partnerships between businesses and with academia (12 months to 2 years)
DEMONSTRATORS		Early growth, expansion	Demonstration, testing, validation, scaling up – varies	Varies	Ad hoc	Priority sectors only	To enables large-scale testing in the real world
***		Start-up, early-growth, expansion	Up to €360,000 (total project cost of €600,000)	Up to 60%	Ad hoc	Research performing	Eureka's Eurostars, funded through TSB in the UK; see also Horizon 2020



Smart Award in detail





3 Levels of support

Proof of Market

Up to £25k Max. 9 months up to 60%

Assess commercial Viability

Proof of Concept

Up to £100k Max. 18 months up to 60%

Explore technical feasibility & commercial potential Prototype Development Up to £250k Max. 24 months up to 45% (small), up to 35% (medium)

Develop a technologically innovative product/ service/ Process



Smart Summary The assessor's viewpoint

Smart is a well executed scheme, with a light application process and a fast turnaround

Smart is therefore a very popular scheme and is often much oversubscribed

A wide variety of types of proposal are successful

Flexible about finance at point of award

The keys to success are

Pay attention to details

Make it easy for the assessors



Application Form Similar structure across Innovate UK programmes

10 questions (equal weighting)

Detailed information on what to include in the Guidance for Applicants – read this carefully before starting

The following slides summarise and highlight the key points to be included for each question



Just 10 Questions Some easy, some less so

What is the business opportunity that this project addresses?

What is the size and nature of the market opportunity that this project might open up?

How will the results of the project be exploited?

What economic opportunities will this project help bring about to those outside of the business and over what timescale? What about social and environmental benefits?

How will the project be managed and what technical approach will be adopted

What is innovative about this project?

What are the risks (technical, commercial and environmental) to project success? What is the project's risk management strategy?

Does the applicant have the right skills and experience and access to facilities to deliver the identified benefits?

Please explain the financial commitment required for the project.

How does financial support from Innovate UK add value?



1. What is the business opportunity that this project addresses?

Grab attention early — describe the problem first

Above all, the assessor is looking to understand the need and customer demand. What is the problem you are addressing? Is it a credible business opportunity?

With the problem described, *then* go on and talk about your solution



What is the size and nature of the market opportunity that this project might open up?

The assessor is looking to see whether you understand the potential market for your project.

Give some market projections, no need to be wildly optimistic. Show that you have some understanding dynamics of the market not just its size: is it growing? How difficult is it to get into? How will you get into the market?



3. How will the results of the project be exploited?

This question is really at the heart of your business plan.

What will the outputs of your projects be, or lead to?

How will they be turned into revenue?

How will you get to the market? A step by step account, even very simple, can be very effective.



4. What economic opportunities will this project help bring about to those outside of the business and over what timescale? What about social and environmental benefits?

Don't just re-state the same selling benefits of your idea: try to think about whether there's potential for benefits to other companies.

Economic benefits: To your customers, your supply chains and the broader sector – perhaps through exports, raised visibility of the sector or competitiveness of the UK.

Social benefits: These can include local employment and cluster growth; customer benefits in terms of quality of life; employee benefits such as safer working environment.

Environmental: This can cover emissions (to air, water and ground), raw material consumption (including water), energy efficiency, biodiversity, waste avoidance, recycling, or more sustainable business models or consumer behaviour. Don't ignore the bad things: acknowledging them shows that you understand



5. How will the project be managed and what technical approach will be adopted?

The assessor wants to understand the technical approach and although they tend to be knowledgeable in your sector, you should not assume familiarity with all the technical aspects. Avoid jargon and acronyms and break down the project into key work packages and milestones.

You must put in some technical detail and a Gantt chart. Without this detail it becomes hard to assess later questions such as budget.

A clear description of reporting lines and who is responsible for what is worth more than statements of what methodology you prefer.



6. What is innovative about this project?

Why is this project not simply incremental?

To score highly, the project needs to display technical (pushing the boundaries of a technology or applying it to a new problem) **AND** commercial (addressing a need in a novel way) innovation. Make it explicit to the assessor how your project does both of these and use language to make the innovation easy to identify.



7. What are the risks (technical, commercial and environmental) to project success? What is the project's risk management strategy?

Risk is not necessarily a bad thing ... you might even need it for a later question.

Think about every type, don't forget commercial and environmental risk: and ensure that there are some mitigation ideas presented.



8. Does the applicant have the right skills and experience and access to facilities to deliver the identified benefits?

The assessor wants to understand if the project partners have the skills, experience, resource and facilities to carry out the project **AND** exploit the results themselves. Thus, there needs to have been some technical detail shown so that this can be assessed.



9. Please explain the financial commitment required for the project.

The financial commitment is described in two places: the Excel workbook and the narrative space in the application form. They are for different purposes.

The assessor will be looking at credibility—is the amount too high or too low—and value for money.



10. How does financial support from Innovate UK add value?

By now your project seems so good, you might wonder why it needs public support at all.

Affordability-show why you can't afford it

Risk—perhaps the content is too high for commercial sources of finance

Speed—if time to market is critical, then say so

R&D is good—increasing the nett amount of UK R&D is a good thing, as is facilitating new collaborations.



Conclusion and Recap All questions are equally important, but some are more equal than others



What is the business opportunity that this project addresses?

What is the size and nature of the market opportunity that this project might open up?

How will the results of the project be exploited?



How will the project be managed and what technical approach will be adopted



What is innovative about this project?

What are the risks (technical, commercial and environmental) to project success? What is the project's risk management strategy?

Does the applicant have the right skills and experience and access to facilities to deliver the identified benefits?



Please explain the financial commitment required for the project.

How does financial support from Innovate UK add value?



Other Partnerships and Collaborators

Understand what Catapults and other collaborators can offer and how to work with them

CATAPULTS	 A new network of physical centres designed to advance innovation in specific fields. Catapults enable business to access the best research and technical expertise, infrastructure and equipment. Each centre focuses on a field of technology or technology application in which the UK has particular academic and business strength. Seven new Catapult technology and innovation centres have opened: High Value Manufacturing Cell Therapy Offshore Renewable Energy Satellite Applications
	A resultitude of exercise and five directions exercises as the direction OACE and the direction Ealleswelpine
RESEARCH COUNCILS	A multitude of grants and funding programmes such as industrial CASE and industry Fellowships
	TSB has provided a full list of open competitions online
COMPETITION S AND GRANT WINNERS	https://www.innovateuk.org/funding-competitions
FUNDING COMPETITION	TSB has provided a full list of open competitions online <u>https://www.innovateuk.org/funding-comp</u>

UK Trade & Invest

Tradeshow Access Programme (TAP) Business Opportunities High Value Projects (HVPs) Aid-Funded Business Open to Export E-Trading Events and seminars Outward Trade Missions Passport to Export Gateway to Global Growth (for experienced exporters) Overseas Market Introduction Service (OMIS) Export Communications Review (ECR) Export Marketing Research Scheme (EMRS)



UK Export Finance supports exporters and investors by

insuring UK exporters against non-payment; guaranteeing bank loans to finance those purchases; sharing credit risks with banks in order to assist exporters in the raising of tender and contract bonds, in accessing pre- and postshipment working capital finance and in securing confirmations of letters of credit;

insuring UK investors in overseas markets against political risks.



European Enterprise Network Its across Europe

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom



European Enterprise Network And then some

Albania, Armenia, Bosnia and Herzegovina, Brazil, Canada, Chile, China, Egypt, Iceland India, Israel, Japan, Mexico, Moldova, Montenegro, Morocco, Norway, Russia, Serbia, South Korea, Switzerland, Tunisia, Turkey, USA, Ukraine, fYRoM





Growth Accelerator

Private enterprise in partnership with Innovate UK

National pool of associate **growth coaches** (1500+)

National register of **training providers**

Our clients, who co-invest in their projects



Grant Thornton





Venturefest





Innovation Vouchers Overview

You can get an Innovation Voucher worth up to £5,000 to pay for an external expert to help your business grow.

You can use this expert to get advice on a novel idea or to use design within your business. You can ask them to help you make the most of intellectual property (IP). You can also use Innovation Vouchers to buy time and support on specialist equipment or facilities.



Innovation Vouchers

Innovate UK can help you find and choose an expert from one of the following:

- universities and further education colleges
- research and technology institutes
- technical consultancies and Catapult centres
- design advisers
- intellectual property advisers



Innovation Vouchers Eligibility

- be starting up or running a micro, small or mediumsized UK business
- need help with something that's a real challenge for your business, not just a small improvement or change
- have not worked with this expert before
- have not had an Innovation Voucher from Innovate UK or the Technology Strategy Board before



Innovation Vouchers Exclusions

- staff training
- equipment
- off-the-shelf software
- marketing or branding items
- standard business advice

https://vouchers.innovateuk.org/



What are smart materials?

• A definition for all in a world where everything seems to be labelled as "smart"

A smart material is one that reacts, usually reversibly, to a stimulus in its environment, invariably as a part of a system!







Smart Materials Design Guide





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Key KTN contacts Smart Materials Group

Join our smart materials group

https://connect.innovateuk.org/web/smart-materials

Contact <u>Steve.morris@ktn-uk.org</u>



Thank you

