

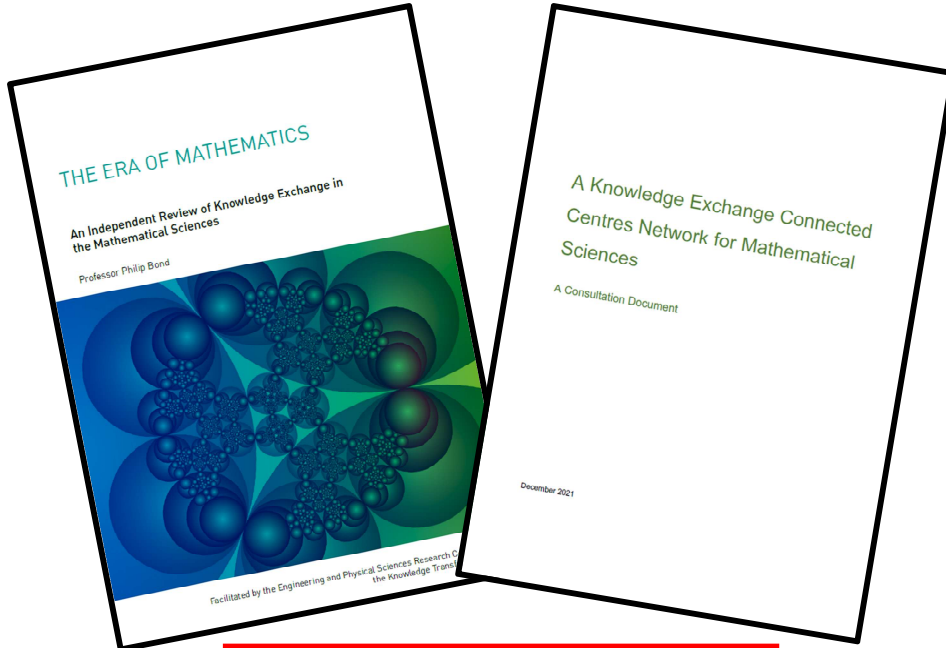


**Knowledge
Exchange Hub**
*for Mathematical
Sciences*

**KE Hub update
HoDoMS Conference
1 May 2026**

Chris Breward
University of Oxford
KE Hub Scientific Director

KE Hub: what are we all about?





UNIVERSITY OF CAMBRIDGE



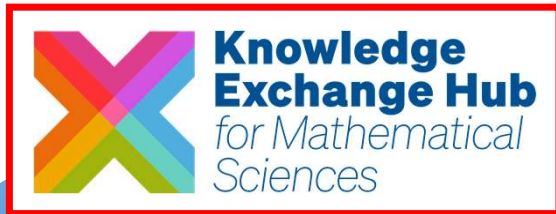
University of BRISTOL

Phase 2

- 1 Apr 25 – 31 Mar 29
- £2.1M
- NG/ICMS/IUKBC



Engineering and Physical Sciences Research Council



67 KE Champions
(56 universities)

57 KE Professionals
(31 HEIs, DSIT, MS Infra)

36 Early Career MS
(20 Universities)

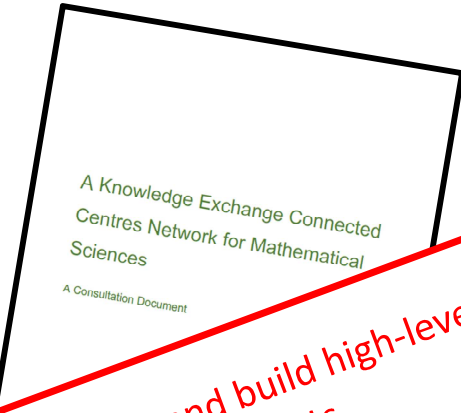
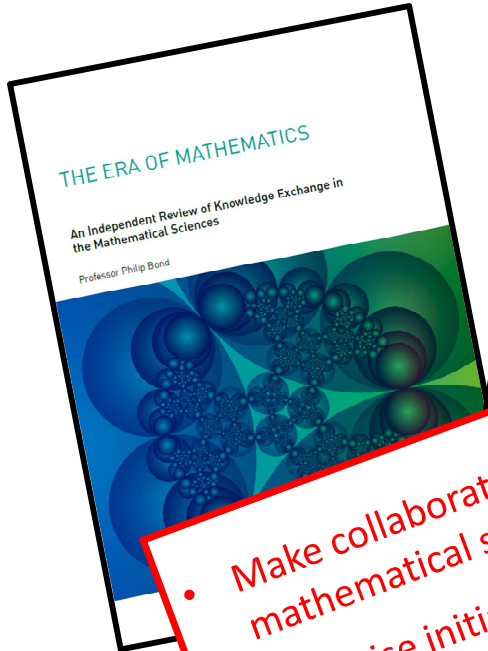
115 BIG Partners
(UK SMEs >50)



We are **maths-area agnostic**, and welcome **engagement with all mathematical scientists** and all sizes of BIG, all sectors, and all levels of mathematical expertise



KE Hub: what are we all about?



Make collaboration easier and build high-level long-term relationships with companies on behalf of mathematical sciences departments

Organise initiatives that draw together BIG and academic mathematical scientists from across UK

Provide front end for BIG to access academic mathematical sciences community

Enable increased innovation for companies and contribute to regional growth



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Communicating with departments

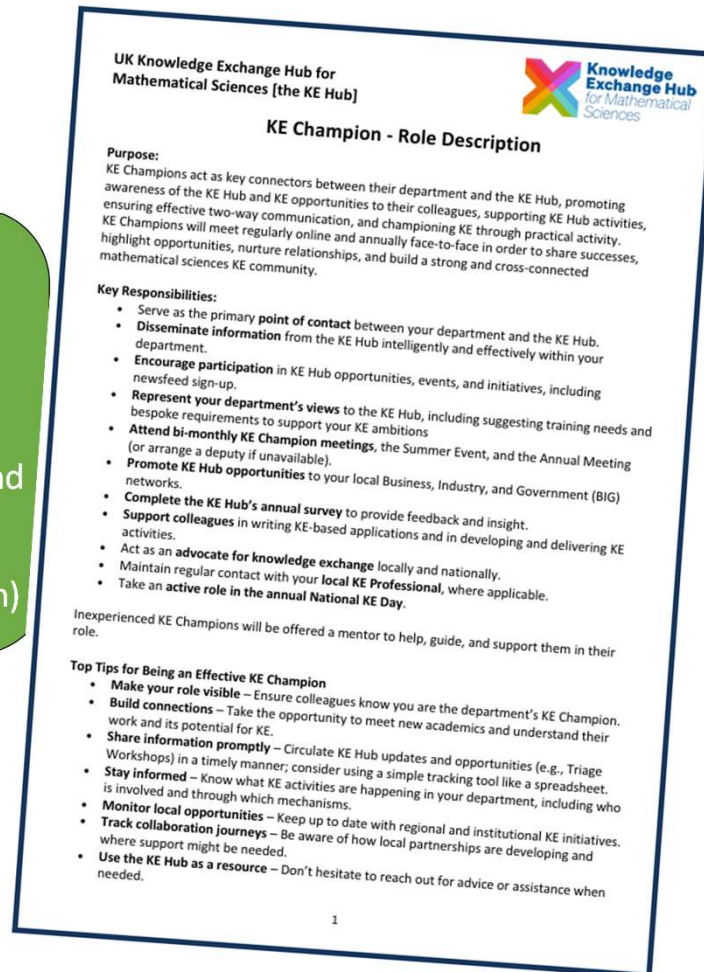


KE Champions

Nominated by Heads of Department

- Primary point of contact
- Conduit (2-way) of info
- Encourage engagement and participation by others

(relies on Champ taking action)



UK Knowledge Exchange Hub for Mathematical Sciences [the KE Hub]

KE Champion - Role Description

Purpose:
KE Champions act as key connectors between their department and the KE Hub, promoting awareness of the KE Hub and KE opportunities to their colleagues, supporting KE Hub activities, ensuring effective two-way communication, and championing KE through practical activity. KE Champions will meet regularly online and annually face-to-face in order to share successes, highlight opportunities, nurture relationships, and build a strong and cross-connected mathematical sciences KE community.

Key Responsibilities:

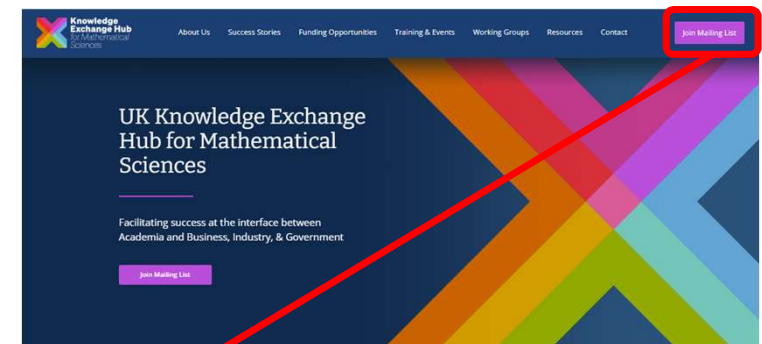
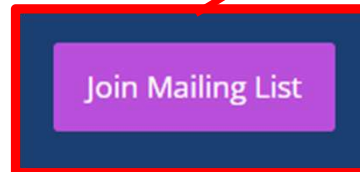
- Serve as the **primary point of contact** between your department and the KE Hub.
- **Disseminate information** from the KE Hub intelligently and effectively within your department.
- **Encourage participation** in KE Hub opportunities, events, and initiatives, including newsfeed sign-up.
- **Represent your department's views** to the KE Hub, including suggesting training needs and bespoke requirements to support your KE ambitions
- **Attend bi-monthly KE Champion meetings**, the Summer Event, and the Annual Meeting (or arrange a deputy if unavailable).
- **Promote KE Hub opportunities** to your local Business, Industry, and Government (BIG) networks.
- **Complete the KE Hub's annual survey** to provide feedback and insight.
- **Support colleagues** in writing KE-based applications and in developing and delivering KE activities.
- Act as an **advocate for knowledge exchange** locally and nationally.
- Maintain regular contact with your **local KE Professional**, where applicable.
- Take an **active role in the annual National KE Day**.

Inexperienced KE Champions will be offered a mentor to help, guide, and support them in their role.

Top Tips for Being an Effective KE Champion

- **Make your role visible** – Ensure colleagues know you are the department's KE Champion.
- **Build connections** – Take the opportunity to meet new academics and understand their work and its potential for KE.
- **Share information promptly** – Circulate KE Hub updates and opportunities (e.g., Triage Workshops) in a timely manner; consider using a simple tracking tool like a spreadsheet.
- **Stay informed** – Know what KE activities are happening in your department, including who is involved and through which mechanisms.
- **Monitor local opportunities** – Keep up to date with regional and institutional KE initiatives.
- **Track collaboration journeys** – Be aware of how local partnerships are developing and where support might be needed.
- **Use the KE Hub as a resource** – Don't hesitate to reach out for advice or assistance when needed.

1

Newsfeed

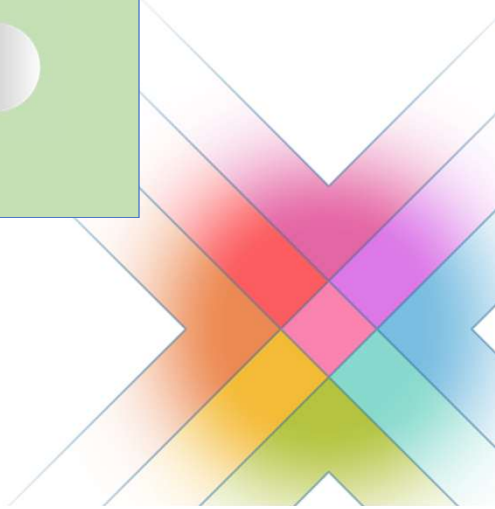
- KE Hub announcements, events, activities + other national initiatives
- Relevant funding call/job opportunities
- Available to all



What do we do?



- Scale up
- Connect
- Support
- Deliver
- Coordinate



What do we do?



- Sharing good practice and information
- Widening KE understanding
- Training to enable effective MS KE**
- Early Career MS engagement event
- 50-day embedding of BIG staff at university
- Upskilling activities

- Triage Workshops**
- Working Groups**
- Grand Challenge Sandpits
- 2-day VSGs for Micro/small enterprises
- Local business engagement events
- KE initiation events

- Post Study Group visits (in person/VSGs)
- Project co-funding (PhD/PDRA)
- Short Projects scheme**
- Micro projects for micro businesses
- KE Project support

- Nurturing communities and networking
- Advocating for, and coordinating, UK MS KE
- Growing relations with BIG
- Modern Industrial Strategy alignment
- Underpin

- Support for KE in grants
- Help departments engage with BIG
- Annual National Maths KE Day 2027
- Direct support



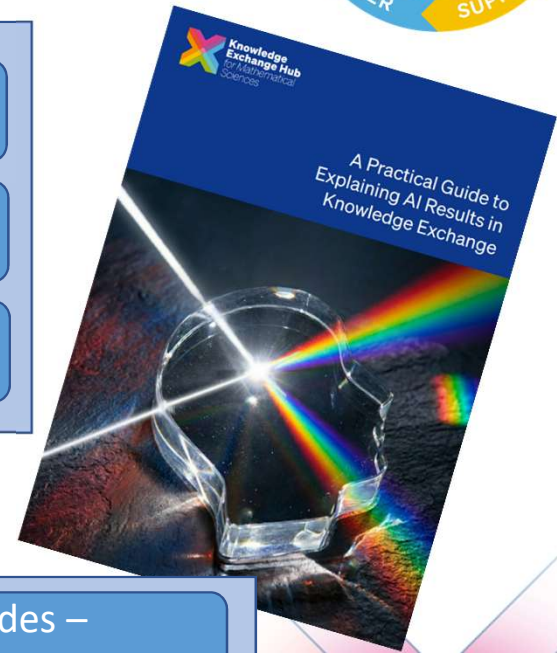
Training Portfolio



- Knowledge Exchange: The basics
- An introduction to KE in the math Sciences
- KE for new lecturers
- Communication and culture
- Effective teamworking for math scientists
- Effective Bystander training

- Math sciences IP for beginners
- Preparing for company visits
- Funding Opportunities for KE Research

- AI in action
- AI for efficient coding
- Scientific machine learning



- Effective working with your support team
- Contracting: what do you need to know?
- RRI for MS KE
- Entrepreneurship

“How to” Guides – to be published imminently

27 courses run:
313 unique university-based attendees from **56** universities



Example mechanisms



Triage workshops

- 1 hour (+30 min), online, **10-1130 Friday mornings** (fortnightly)
- Focused on **individual partner's challenge**
- **Aim:** (a) can maths help, (b) who should help
- **Downstream:** scope out collaborative project/way forward

33 run:
330 unique academic attendees
from **49** universities

Logos included in the grid:

- Photon Engineers
- vanellus
- Office for National Statistics
- Moody's ANALYTICS
- slb
- MCG
- [dstl] The Science Inside
- Mapscope
- Auriplex
- UK Atomic Energy Authority
- W|M WeldMore
- easyJet
- Elkem
- Vironix
- Maypole Education mathematical child's play
- access
- Edinburgh Airport
- Ministry of Justice
- BT
- Barworth
- REAMC Limited
- sopra steria
- syngenta
- TAMISIS DOCK
- Vita
- THESE HANDS ACADEMY LTD
- sopra steria
- Quanta Engineering
- Datasparq
- THE CENTRE FOR SEARCH RESEARCH
- Adia
- JM Johnson Matthey



Working Groups



Working Groups

- Unite academics + multiple BIG partners
- **Aim:** stimulate regular, relevant, networking and discussion around mathematical theme
- Regular **online meetings** through year, **one in-person event**, Annual **State-Of-The-Art online briefing** for all partners
- **Free** in first year, **Fee** thereafter

 <p>Optimal Control and Scientific Computing</p>	 <p>Dynamical systems and topological data analysis</p>
 <p>Causal Inference</p>	 <p>AI in Mathematical Sciences</p>

New Working Group to launch
1 May 2026

Mathematics for Quantum Technologies

(and maybe more....)



Projects + funding



Short Projects

£62.5k

- KE Hub brokers finding appropriate team to tackle challenge, and manages collaboration
- **Aim:** gain familiarity with expertise and solidify relationship
- **12-week well-focused self contained PhD-level project**
- BIG partner funds project; co-funding for SMEs

Heathcote Plastics + Keele: Maths for industrial leaf spring design

These Hands academy + Loughborough: Time-series for health deterioration in care homes

DSTL + Bristol: Inferring ocean environmental properties from acoustic sources

DSTL + Lancaster: Short-term forecast prediction of underwater ambient noise

Fathom + Nottingham: Rapid model updates for floating off-shore wind turbines

System Holdings Ltd + Bristol: Embeddings in SLMs for financial categorisation

£7.5k

£186k direct project investment into MS depts so far (+ other funding downstream of activities)

8 projects funded: Coventry, Glasgow, Greenwich, Manchester, Southampton(x2), Strathclyde, Strathclyde/Sussex

AI Pump priming £44k

£29k Think Wild fund

5 projects funded: Bath + NPL, Loughborough (x2) + MCG and Holocoach, Oxford, Warwick + BoE

3 projects funded: Birmingham + Hy-met, Bristol + Paebbl, Oxford + SS Great Britain

Micro-projects £7.4k

£43k ESGI follow-on

1 pilot project funded: Nottingham + Photon Engineers

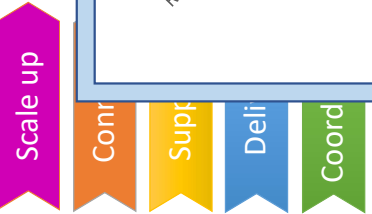
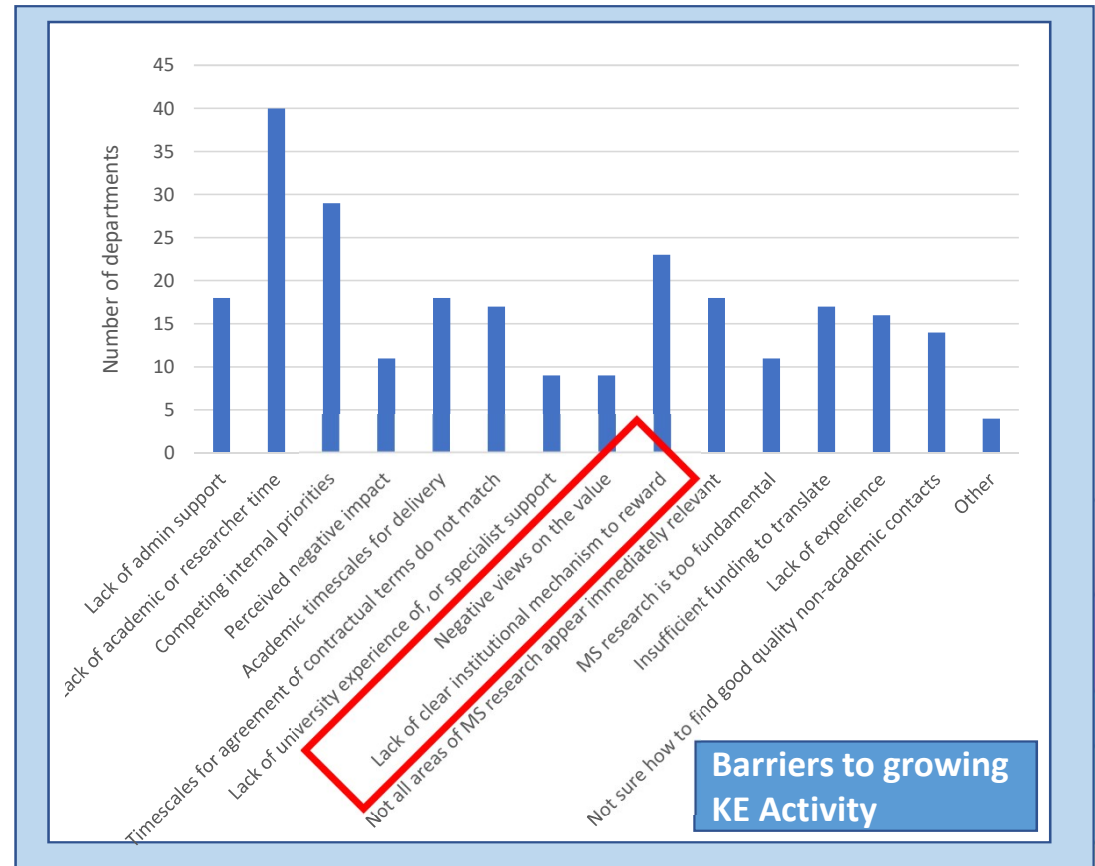
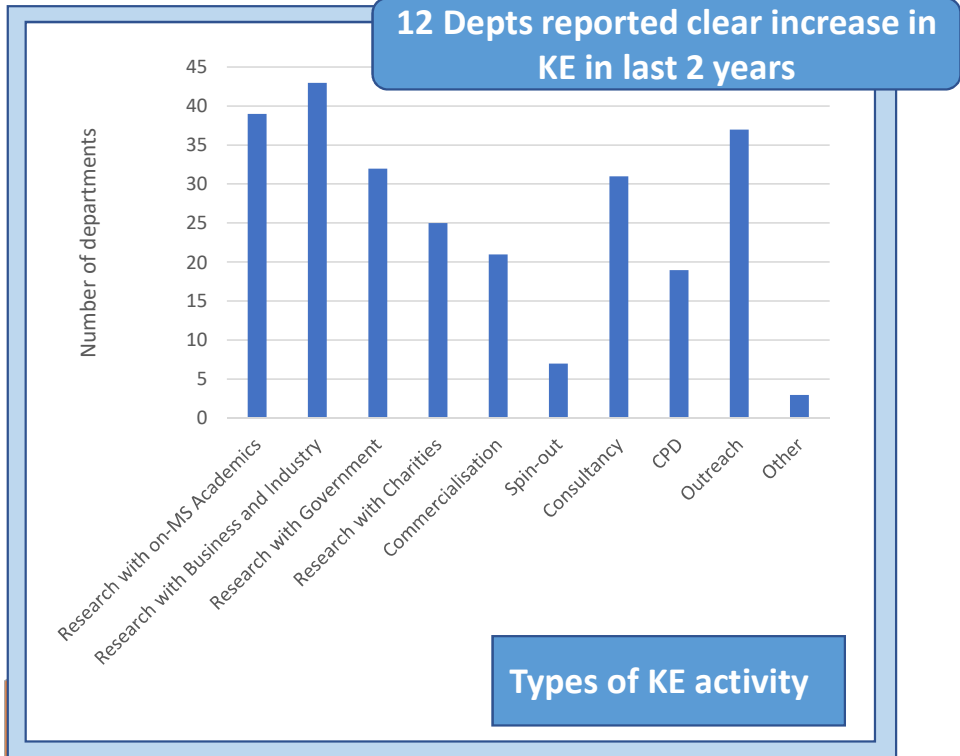


2025 KE Survey results



44 departments responded to the survey (up from 26 in 2023). Survey results cover 2 years.

12 Depts reported clear increase in KE in last 2 years

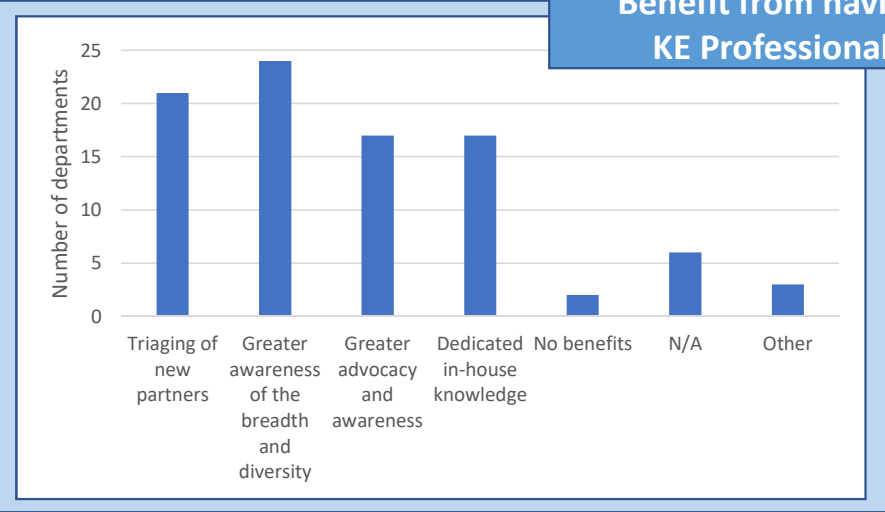


Barriers to growing KE Activity

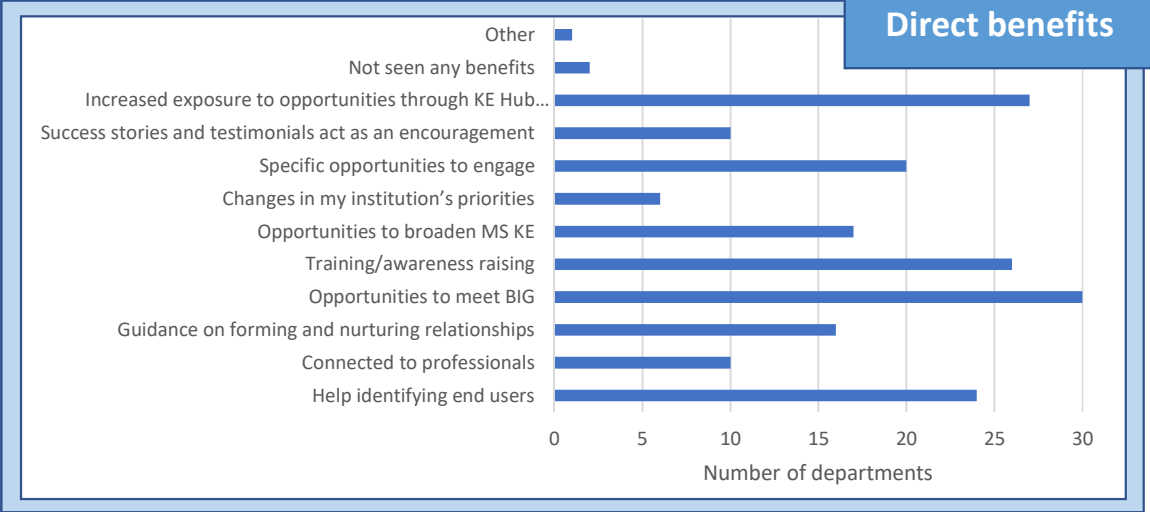
2025 KE Survey results



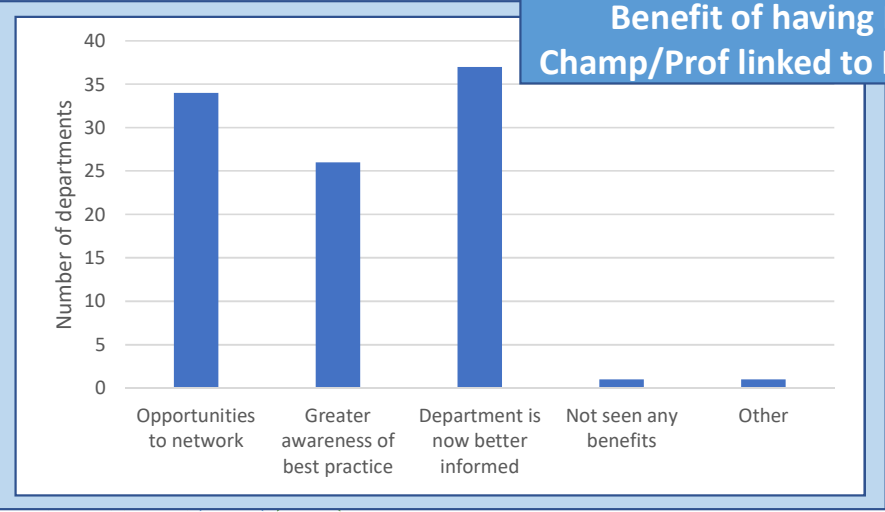
Benefit from having KE Professional



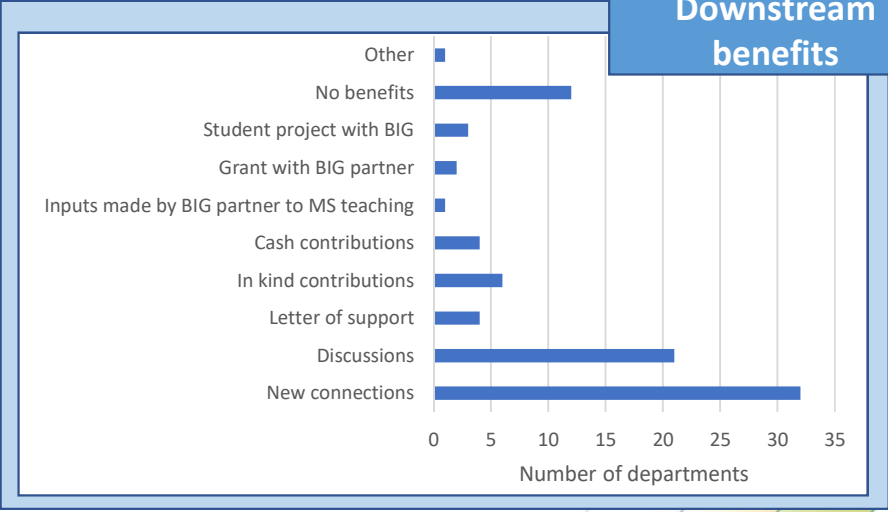
Direct benefits



Benefit of having KE Champ/Prof linked to KE Hub



Downstream benefits



2025 KE Survey results

The Hub has delivered **clear value and created momentum** to **expand KE activity**. It has provided useful opportunities to **connect with the national KE community, raise awareness of KE in MS, and build links with BIG partners**.

The KE Hub has been a **valuable catalyst** for raising awareness of knowledge exchange across our department and providing **practical ways** to connect mathematics with industry, government, and wider society. **Triage workshops** have been particularly effective in introducing colleagues to real industrial challenges. **Training and networking events** have highlighted the breadth of KE opportunities available.

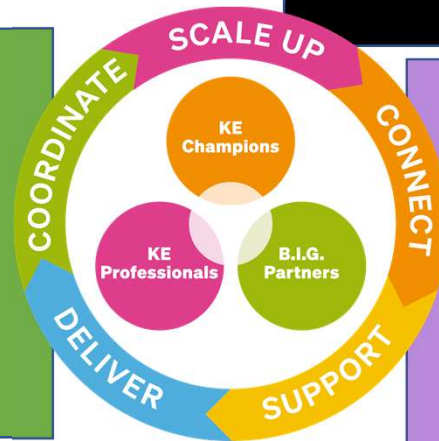
The range of initiatives planned for Phase 2 are **excellent and are very appropriate for widening participation and generating opportunities for mathematical scientists looking to engage in KE with potential BIG**.

KE visibility has improved, due to regularly advertising KE Hub opportunities, leading to people discussing/applying for KE projects. **ECRs are actively developing partnerships**.

The **Champions meetings** have provided excellent details on funding and opportunities that are available.

The KE Hub events have been particularly successful in **raising awareness and building engagement around MS KE**. Support from the KE Hub team has been excellent, and the events have helped create a stronger culture of external engagement within our department. They have also **contributed to building new collaborations and generating ideas for future projects**.

From Dundee to Plymouth, the KE Hub has **united KE efforts at a national scale** by providing a valuable platform for sharing expertise and connecting mathematicians with partners in BIG and charities.



Call to arms



KE Hub Management Team



Chris
(Sci)

Applied



Clare Merritt
(Ops Director)



Chris
(Sci)

Pure



Eleanor

Stats



Chris

OR



Dan

Data

Call to arms

- Have dept join in (if they aren't already)
- Check KE Champion still happy to fulfil role
- Encourage staff and students to sign-up for newsfeed and engage
- Reach out for support if needed
- Use KE Hub in grants/partnerships
- Get dept engaged with National MS KE Day

Knowledge Exchange Hub for Mathematical Sciences

Call for Scientific Director
UK Knowledge Exchange Hub for Mathematical Sciences

Closing Date: 7th September 2026

Scaling up activity across UK

Connecting people

Supporting existing activity and growing networks

Delivering activities, events, and training

Coordinating support for KE



www.kehubmaths.org.uk



KE Hub aims to help by

Scaling up activity across UK

Connecting people

Supporting existing activity and growing network

Delivering activities

Coordinating support for KE

Contact: KEHub@bristol.ac.uk
<https://www.kehubmaths.org.uk>

Scale up

Connect

Support

Deliver

Coordinate