Centre for Capacity Research

Advancing the science of capacity strengthening for sustainable development

How to optimise cross-disciplinary research collaborations (CDRC)

Tuesday 29th June 2021

www.lstmed.ac.uk/ccr

@lstm_ccr

ccr@lstmed.ac.uk

1. Designing research capacity strengthening (RCS) components within proposals, *Dr Justin Pulford*
   09:30-11:00, Tuesday 4th May

2. How to create and use a 'Pathway to Impact', *Prof Imelda Bates*
   09:30-11:00, Tuesday 18th May

3. How to manage research consortia, *Nadia Tagoe (KEMRI-Wellcome Trust)*
   09:30-11:00, Tuesday 1st June

4. Teamwork to prepare and submit grant applications, *Lorelei Silvester, Imelda Bates, Susie Crossman*
   09:30-11:00, Tuesday 15th June

5. **How to optimise cross-disciplinary research collaborations (CDRC)**
   09:30-11:00, Tuesday 29th June
   Dr Yan Ding

6. How to measure research outcomes and impact (O&I)
   09:30-11:00, Tuesday 13th July
   Dr Justin Pulford

7. Community Engagement
   09:30-11:00, Tuesday 27th July
   Dr Tara Tancred

Session outline

Training Objectives

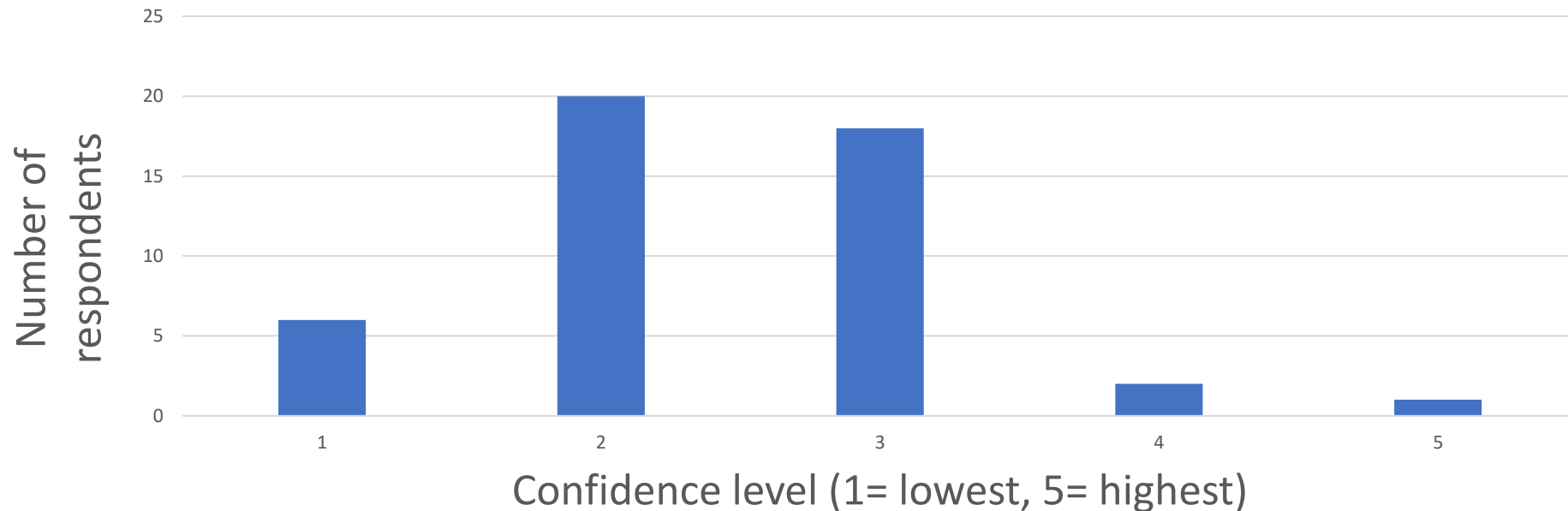Understanding & optimising cross-disciplinary research collaborations (CDRC)

Session Structures

1. Presentation, ~45-minute
2. Q&A, ~30-minute (I look forward to have your Qs in chat box)

Feedback form

Pre-seminar survey results

1. **Confidence level** in 'How to optimise multi-disciplinary research collaborations'

2. No specific questions received

1) "looking forward to learning more and expand knowledge base"
2) "Interested to hear perspectives of others"

Overview

1. Definitions (multi-, inter-, trans-, and cross-disciplinary research)

2. How to describe the richness of CDRC?

3. When are CDRC useful?

4. What does cross-disciplinary research processes look like?

5. How to write a CDR proposal?

6. Activities that can do to promote CDRC
   a) *Research leaders*
   b) *Individuals*
   c) *Institutions*

7. Demonstrating progress in achieving CDRC

Definitions

Definitions

- **Multi**disciplinary research

  juxtaposes disciplinary perspectives to add breadth and available knowledge, information, and methods, goes beyond the expertise of any one discipline, and is simply the sum of its parts.

- **Inter**disciplinary research

  involves a cognitive effort to integrate knowledge and expertise from two or more disciplines, and still from a disciplinary specific base.

Definitions (cont.)

- **Trans**disciplinary research

  emphasises on synergy or integration of epistemology, and holistic or comprehensive framework or scheme that transcend their respective disciplinary perspectives. It tends to have an orientation to address complex social problems, to generate new field of inquiry, and to have contributions from outside academia.

- **Cross**-disciplinary research

  It combines and, in some cases, integrates concepts, methods, and theories drawn from two or more disciplines rather than being exclusively multi-, inter-, or trans-disciplinary.

  It covers multi-, inter-, and trans-disciplinary research.

How to describe the **richness** of CDRC?

How to describe the richness of cross-disciplinary research?

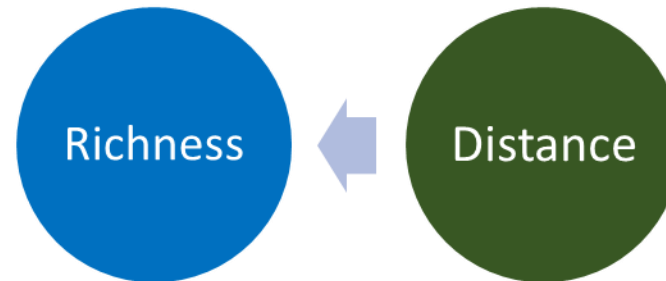Number

Richness

How to describe the richness of cross-disciplinary research?

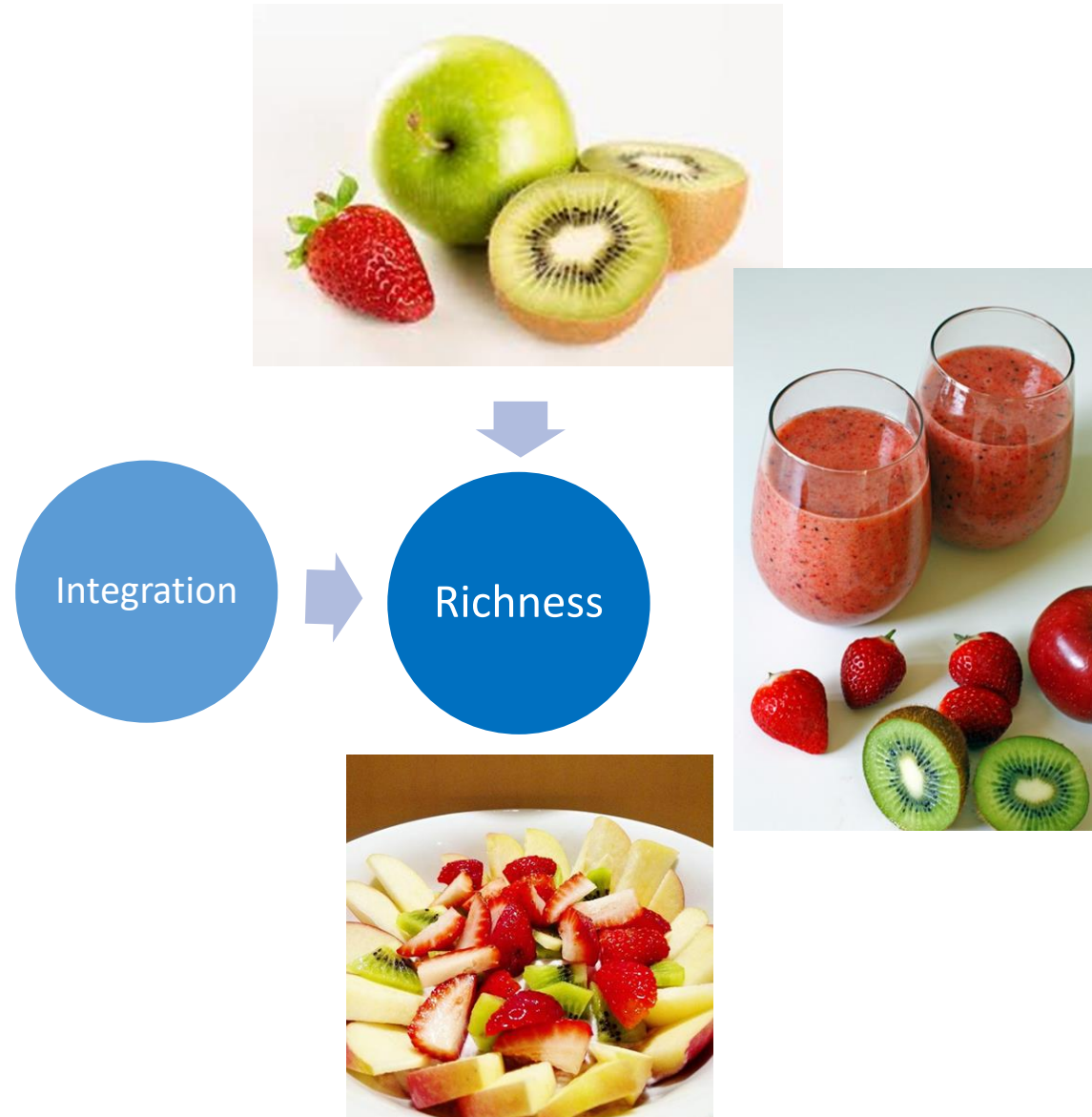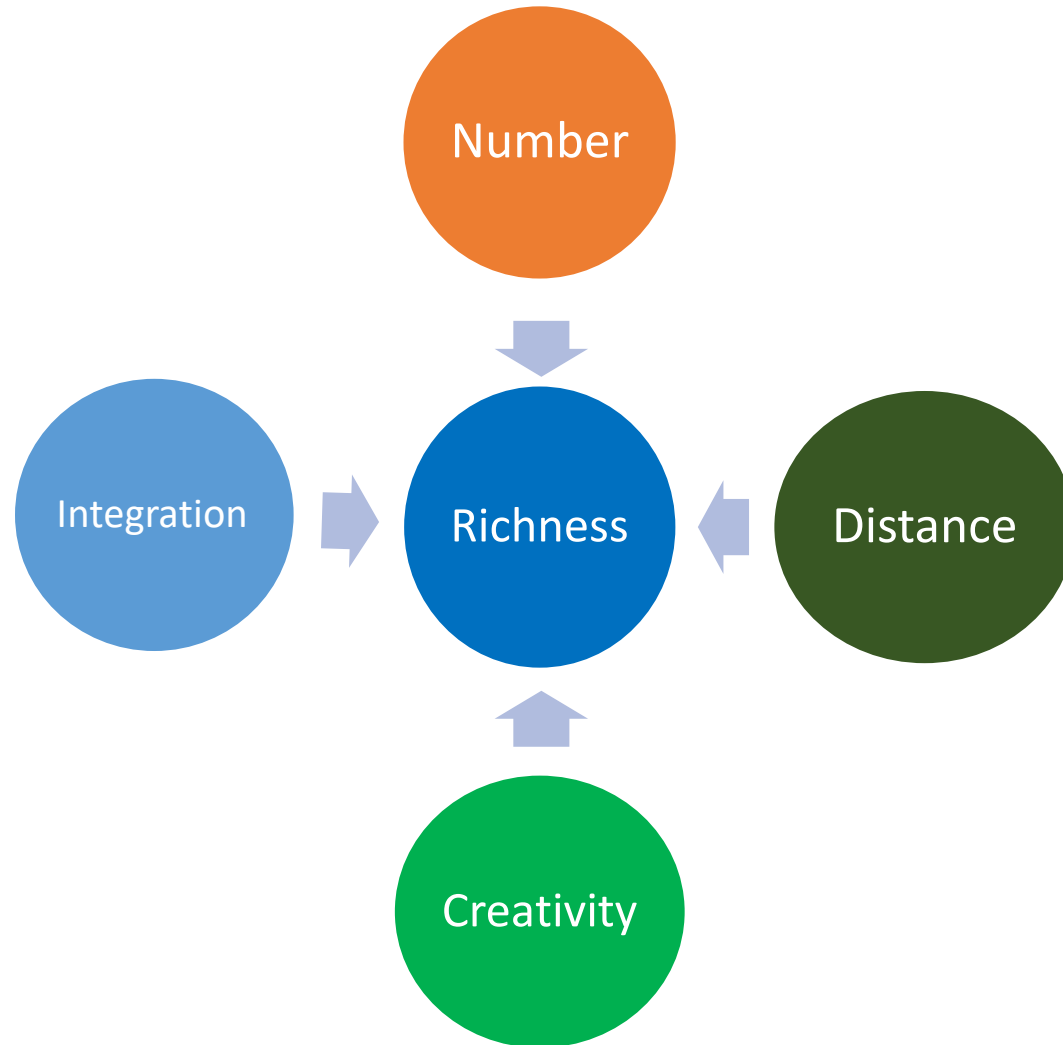# How to describe the richness of cross-disciplinary research?

How to describe the richness of cross-disciplinary research?

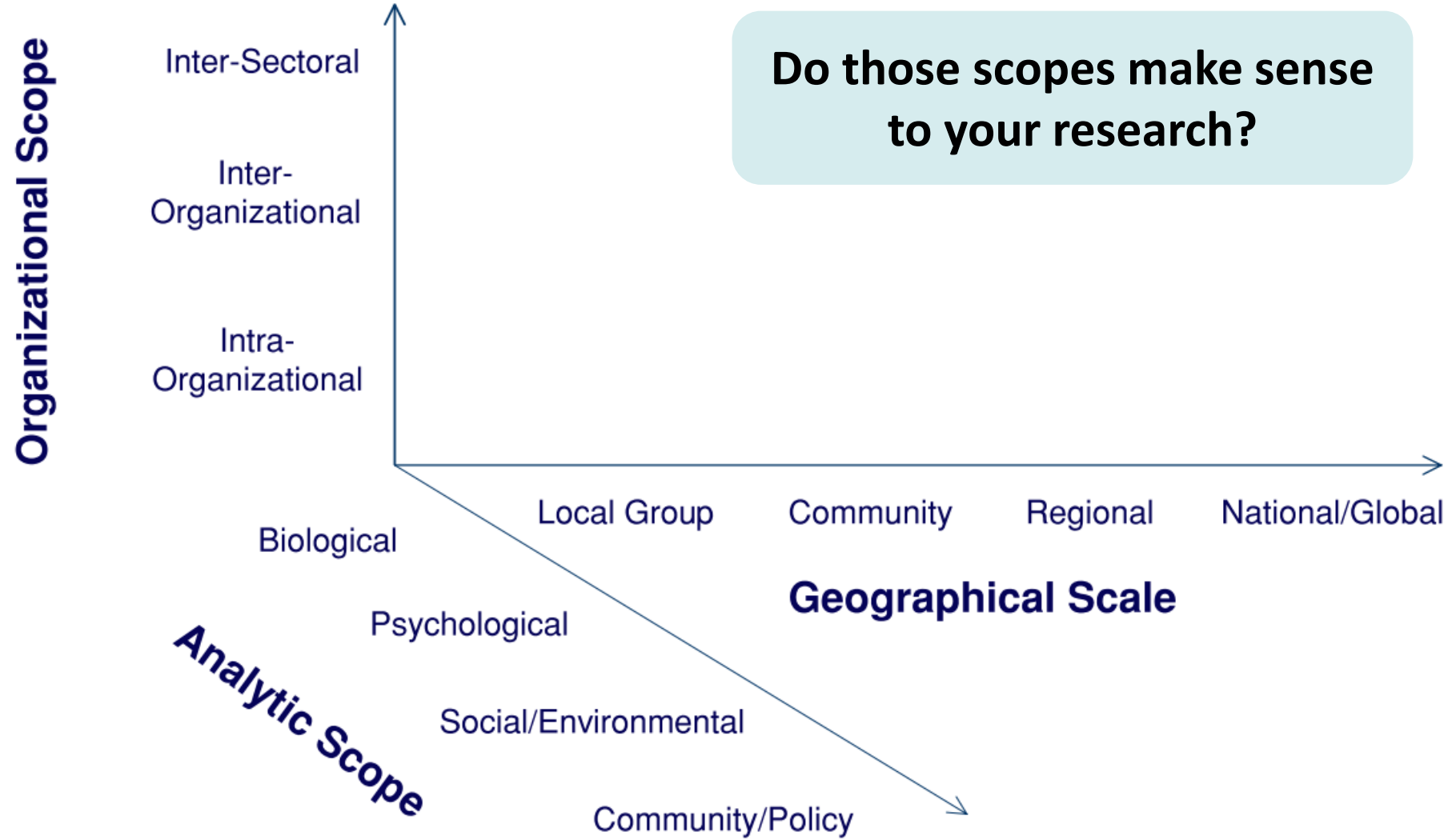# To summarize, richness of multidisciplinary research includes

When are CDRC useful?

When are CDRC useful?

ask novel questions & solve novel problems

address old problems

especially those that have not been answered through conventional approaches.
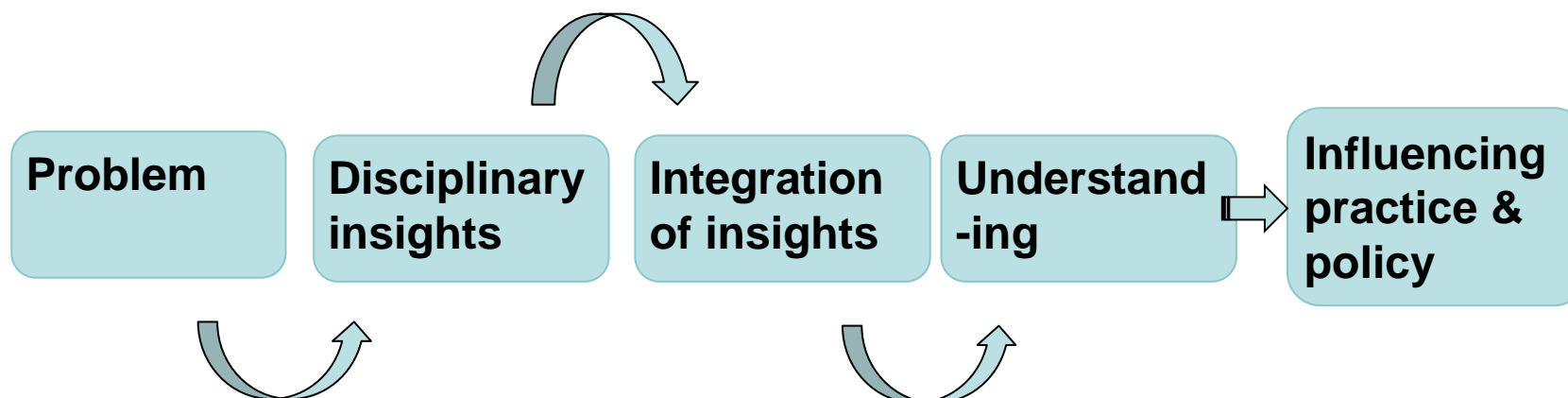
Scopes of cross-disciplinary research (from Stokols, D. 2006)

What does cross-disciplinary research processes look like?

Implementation research:

- Involvement of non-academic stakeholders

- Understanding and systematically addressing implementation barriers

Problem → Disciplinary insights → Integration of insights → Understand-ing → Influencing practice & policy

Influential factors:

- Societal level (e.g.: funders, publishers, assessment system for researchers)

- Institutional-/Project-level (e.g.: leadership, teamwork spirit, nurture constructive dialogue, develop "T-shaped" researchers,)

- Researchers (e.g.: experience and competencies in multidisciplinary research)

How to write a CDR proposal?

How to write a CDR proposal?

General principles

Before writing a CDR proposal

Proposal development process

What to include in a CDR research proposal

How to write a CDR proposal? (cont.)

General principles

- Learn enough about each others' disciplinary methods to have a shared understanding for writing the proposal methods

- Be transparent and open-minded to different approaches/perspectives; provide a psychologically 'safe' space

- When encountering frustration, reassess the reason for, and maybe reconfigure, the cross-disciplinary approach

How to write a CDR proposal? (cont.)

Before writing a CDR proposal

- Identify the broad research question and justify using an cross-disciplinary approach

- Identify relevant disciplines and then potential research collaborators, including non-research ones

- Facilitate a proposal writing meeting to bring collaborators on board and to plan the writing process

How to write a CDR proposal? (cont.)

Proposal development process

- Develop a shared vision, for example by developing a project theory of change

- Define and frame the critical research problems collaboratively considering

  - What could we do, what should we do, what will we do?

  - The 'unknowns' and the 'overlaps' among disciplines

- Develop the first proposal outline; identify a platform for sharing and updating documents

- Assemble a proposal writing group - include a research coordinator and manager to help with

  - Efficient and effective coordination

  - Drafting management and governance arrangements

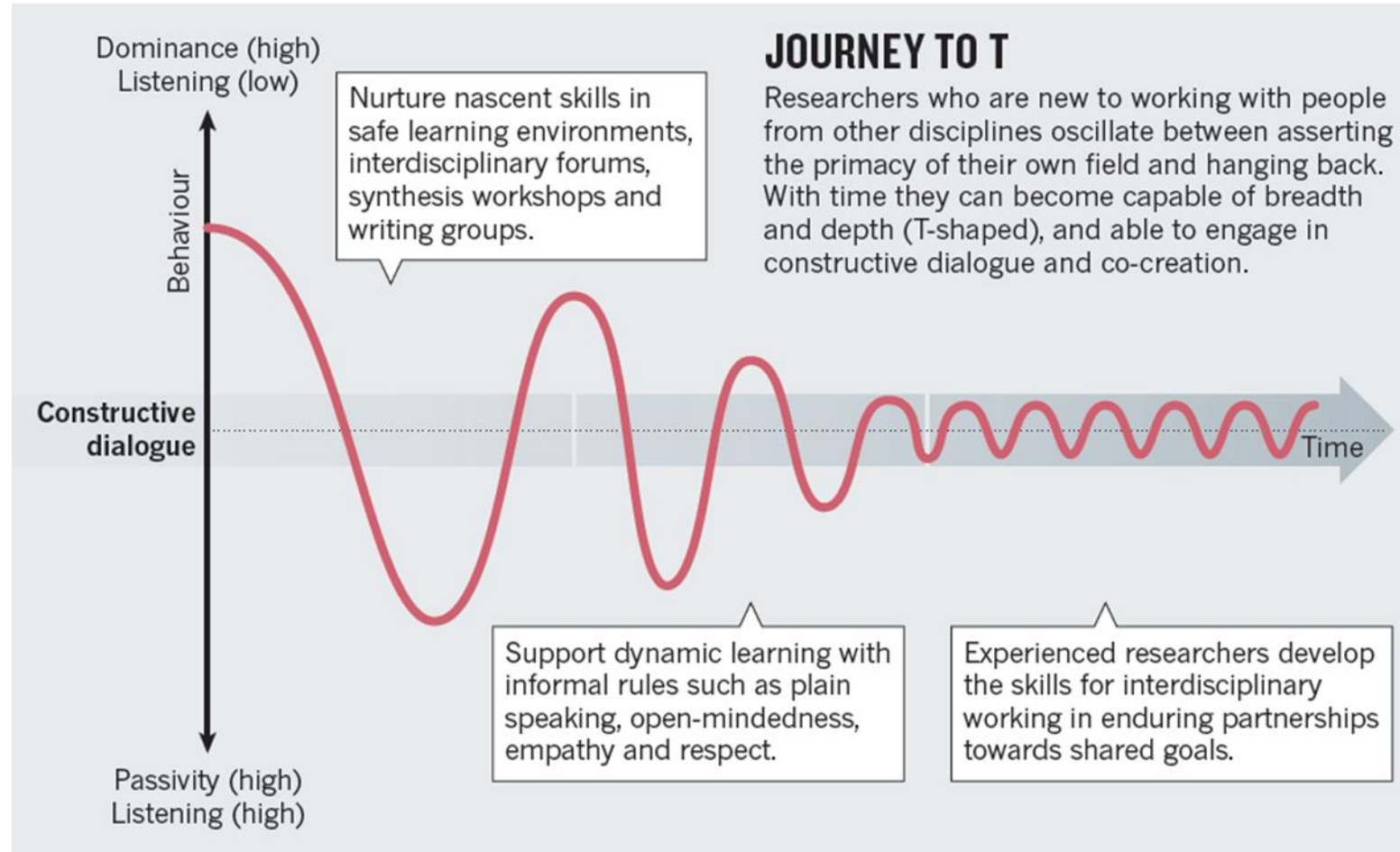- Agree on roles and responsibilities, and a time plan; track progress and hold each other accountable

How to write a CDR proposal? (cont.)

What to include in an CDR proposal

- Specify why a CDR approach is needed, which disciplines, and how they will be integrated

- Summarise the cross-disciplinary skills and experience of the researchers involved, and budget for them

- Describe how cross-disciplinarity will be reflected in the project outputs and outcomes

- Describe the leadership and management strategy to deliver the outcomes, including the tracking indicators
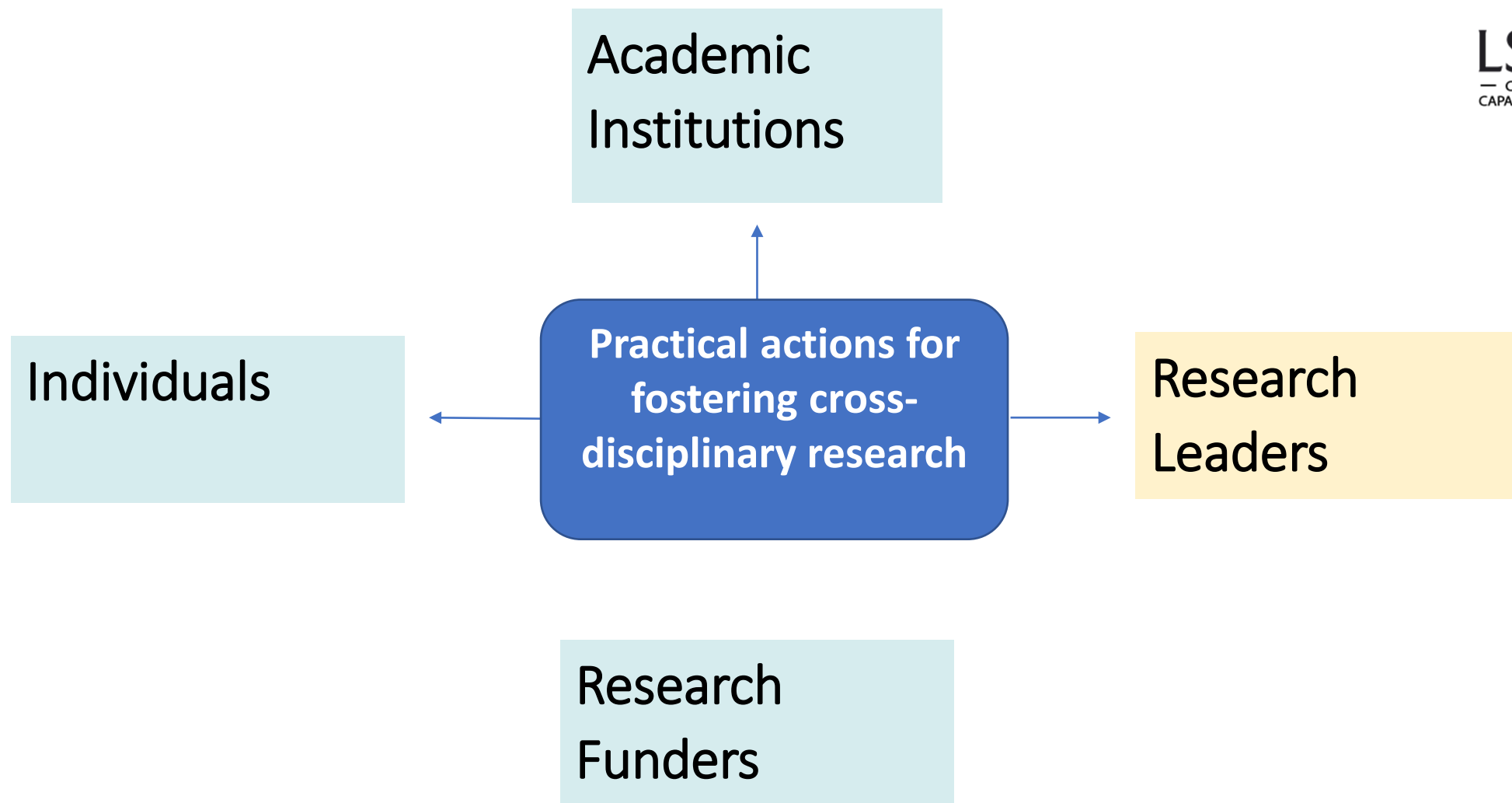
What to do to optimise CDRC?

Become "T-Shaped" researchers

Source: Brown, R.R., Deletic, A. & Wong, T.H.F. (2015) Interdisciplinary: How to catalyse collaboration. Nature

We found that:

- The cross-disciplinary aspects of research programmes need to be actively managed.

- Pre-agreed indicators should be used to plan and track cross-disciplinary research.

- Fostering cross-disciplinary research takes time and explicit ongoing discussions.

Ding et al. Practical actions for fostering cross-disciplinary global health research: lessons from a narrative literature review *BMJ Global Health* 2020;

MUDI Bulletin # 1: Tips for conducting cross-disciplinary researchers

Research leaders
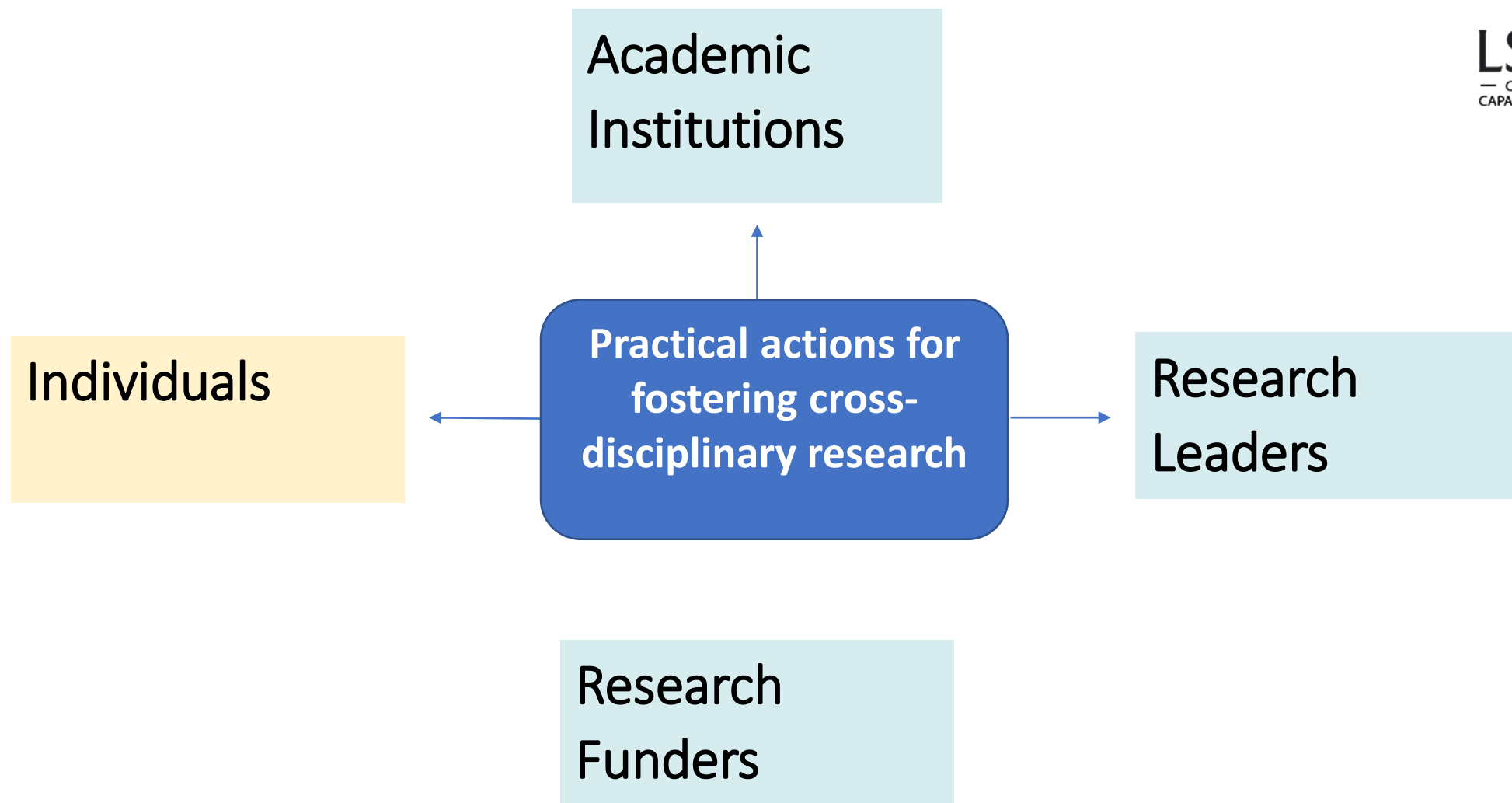
1) Rotating chairs for programme management meetings to ensure prominence of all relevant disciplines and with a process for handover and preparation between meetings.

2) Sharing and discussing recurrent issues and resolution of difference of perspectives

3) Encouraging and facilitating joint learning and knowledge exchange across disciplinary boundaries especially methods and approaches

4) Supporting an open culture of raising concerns and putting mechanisms in place for requesting support and responding to requests

Research leaders (cont.)

5) Recognising that every role is important in the successful planning and implementation of research (i.e. not just researchers).

6) Establish mechanisms for early identification of tensions when conducting multi-disciplinary research, for reflection on these tensions and flexibility in addressing them

Ding et al. Practical actions for fostering cross-disciplinary global health research: lessons from a narrative literature review *BMJ Global Health* 2020;

MUDI Bulletin # 1: Tips for conducting cross-disciplinary researchers

Individuals
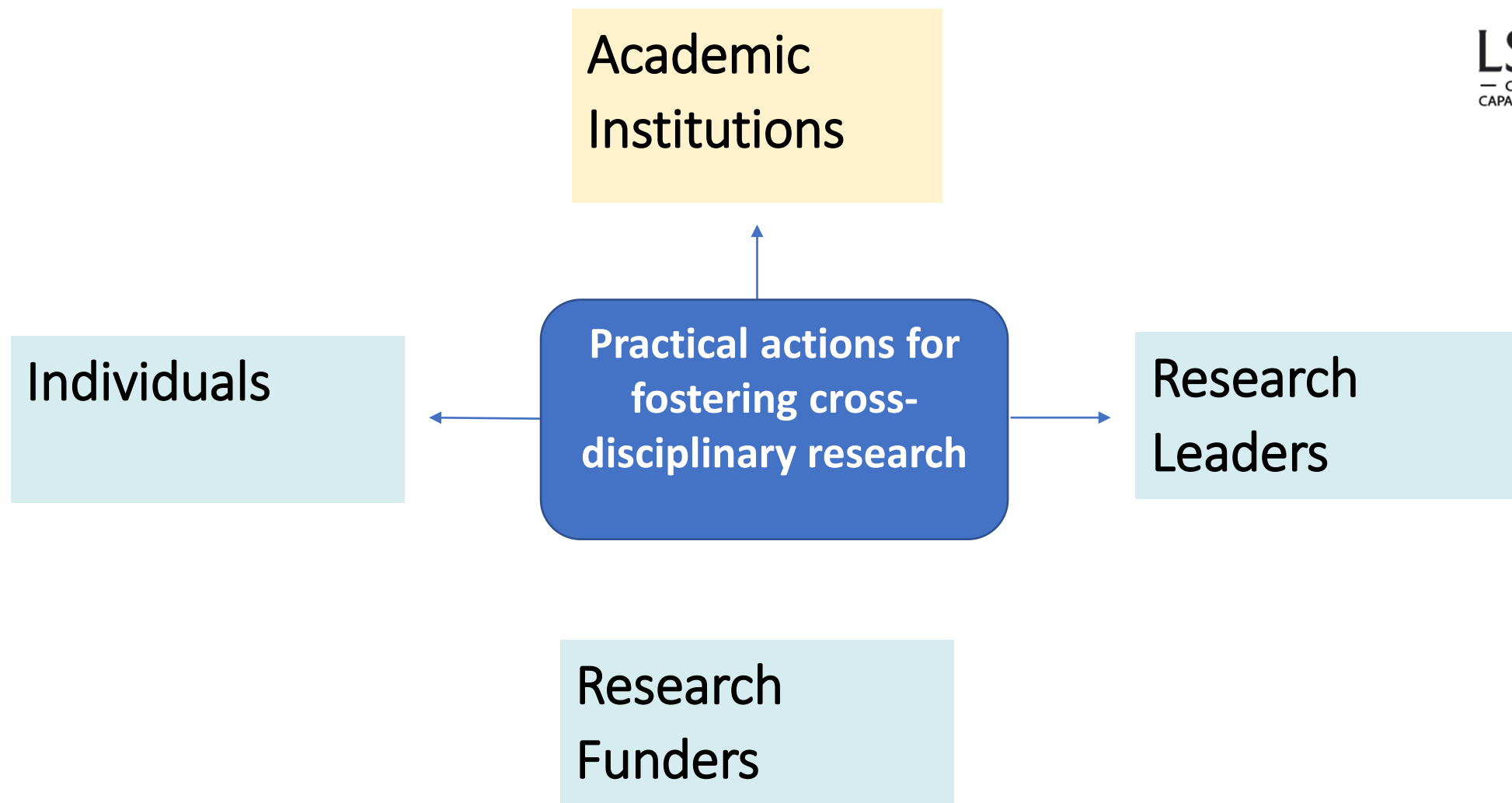
1) Identify your own motives and believe in the value of cross-disciplinary research

2) Be receptive to new ideas, deal with the unknown, tolerate ambiguity

3) Gain cross-disciplinary research experience through networking and mentorship/menteeship

4) Take time to understand other disciplines and team members

5) Foster team-work through good communication, negotiation, interpersonal relationships, time management and leadership skills

Ding et al. Practical actions for fostering cross-disciplinary global health research: lessons from a narrative literature review *BMJ Global Health* 2020;

MUDI Bulletin # 1: Tips for conducting cross-disciplinary researchers

Academic Institutions

1) Implement incentives that value cross-disciplinary research

2) Provide administrative support and tools for good cross-disciplinary research management and coordination

3) Provide seed money, and identify external funds, for cross-disciplinary research and its dissemination

4) Facilitate spaces for researchers from multiple disciplines to work and meet

Demonstrating progress in achieving CDRC

Demonstrating progress in achieving CDRC

Planning phase

1) Develop a project outputs & outcomes plan that reflect cross-disciplinarity

2) Develop and agree upon the leadership & management strategy and measure to deliver the outputs and outcomes, including the tracking indicators

Planning phase

1) Discuss roles & responsibilities for clarity & accountability

2) Implement pre-agreed plans to deliver cross-disciplinary outputs & outcomes

3) Track the implementation with pre-agreed indicators, and review & respond accordingly

Questions