BEST PRACTICES IN RESEARCH COLLABORATIONS FOR THE INNOVATION ECONOMY

CANADIAN AND UK PATHWAYS

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State of Collaboration: A Decade of Change ?

General Direction of Travel

- UK - move from TT / patenting and licensing to open innovation; co-production and collaboration with industry.
- UK - increased emphasis on “academic impact” – through funding levers
- Canada – Coming “out of the wilderness” on the change in federal governments; old government policy favoured very applied sectors – however, did not result in more industrially-sourced funding
- Canada – Still focused on spin-off companies BUT KT important for areas where standards of practice are useful

Sasakawa Report (2009): Seminal Study

High Level Findings:

- Importance of networks and the development of relationships
- Dominance of collaborations and joint working
- Importance of knowledge synthesis and “learning by doing”
- Academic impacts

Sasakawa project outline

Four Country Study – US, UK, Canada, Japan

- Funding – ESRC (UK) and Sasakawa Peace Foundation
- UK
  - *CIHE and the Centre for Business Research, Judge Business School University of Cambridge*
- Japan
  - *RCAST at the University of Tokyo, PI Professor Robert Kneller*
- Canada
  - *Mongeon Consulting, Principal Marcel Mongeon*
- USA
  - *RTI International, Project Director Jeff Cope*
- Project Management
  - *CIHE, Project Director Dr Cathy Garner*

“Sasakawa” objectives

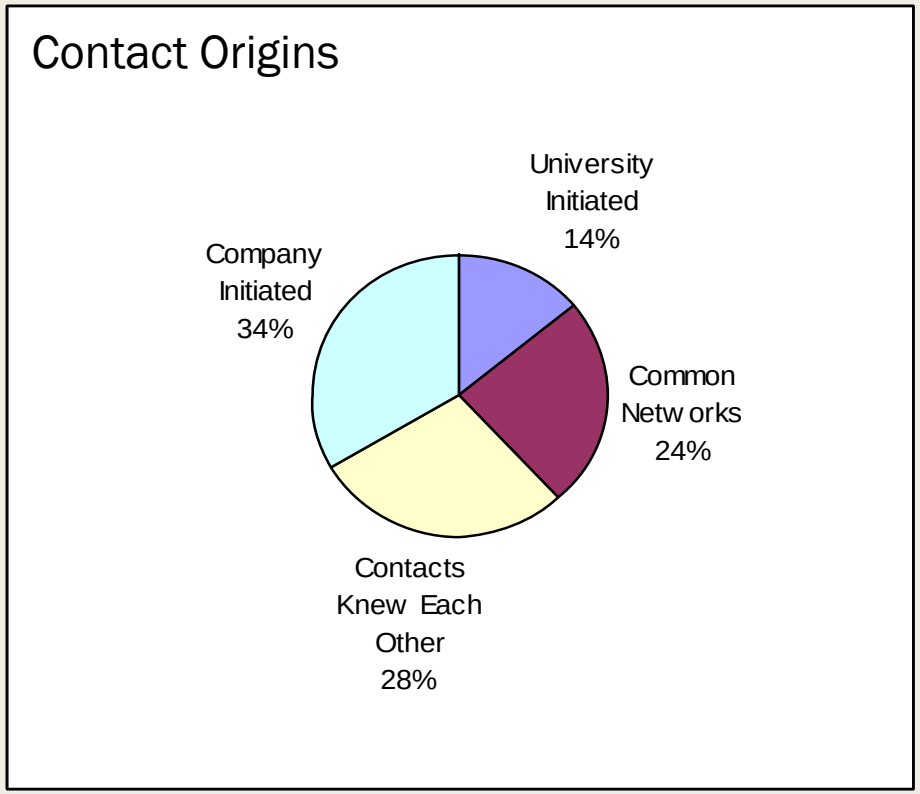
- Understand Processes – not Transactions
- How interactions between business and universities arise
- What form they take
- How they proceed and result in value creation
- How business evaluates and values the results

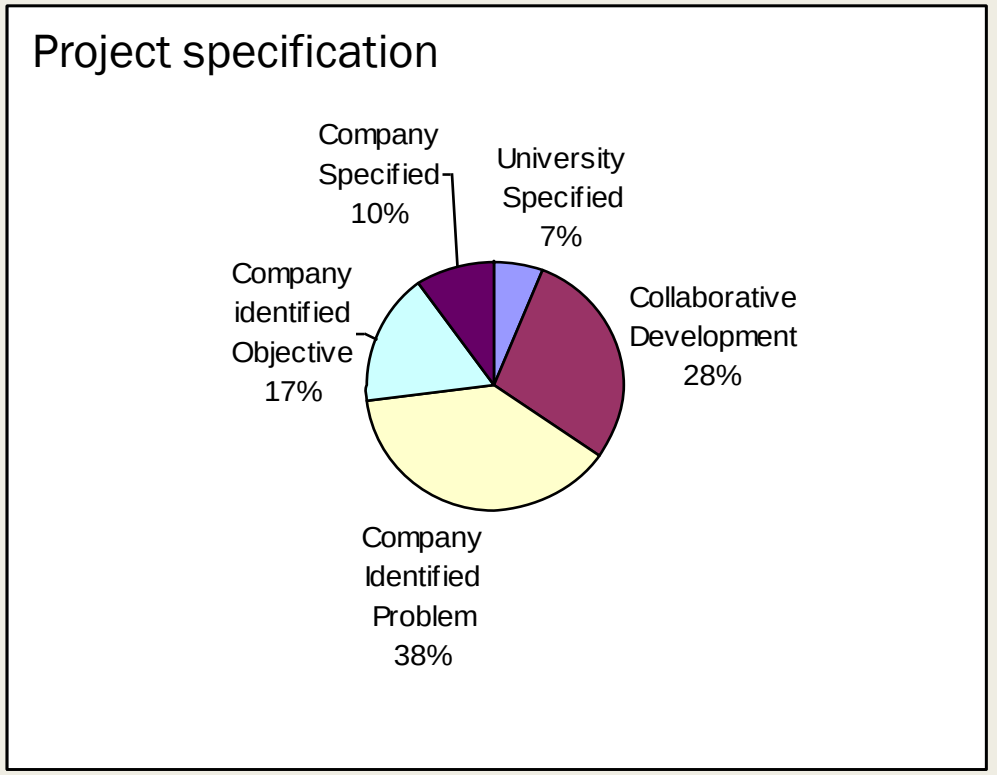
Methodology

- Interviewed Businesses about Successful Projects
- Over 90 cases studied
- Range of Company Types and Sizes
- Semi-Structured Interview to Achieve Rich Understanding
- Post – Interview Classification for Quantitative Analysis

Key Findings (1) Nature of University-Company Projects

- Importance of networks and the development of relationships

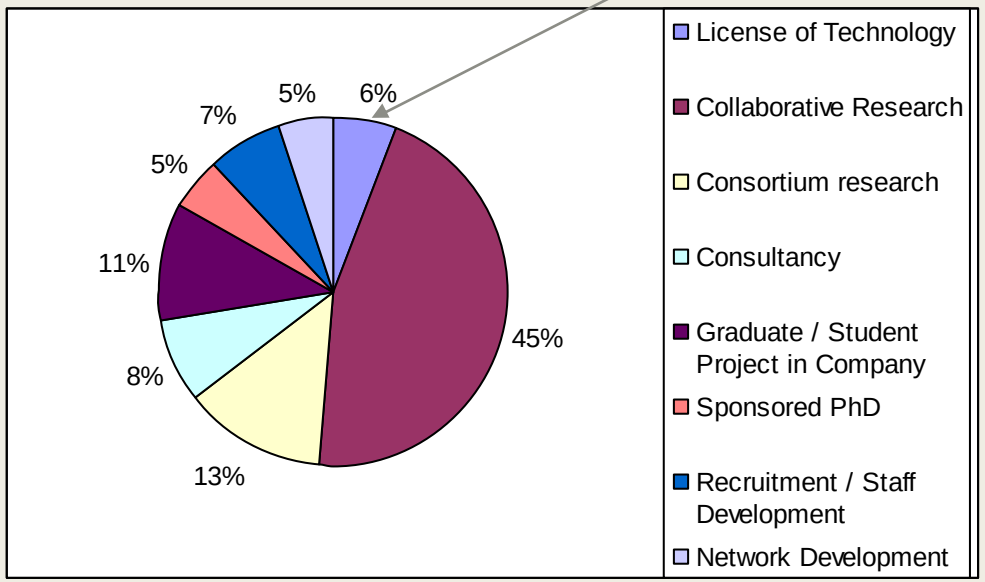




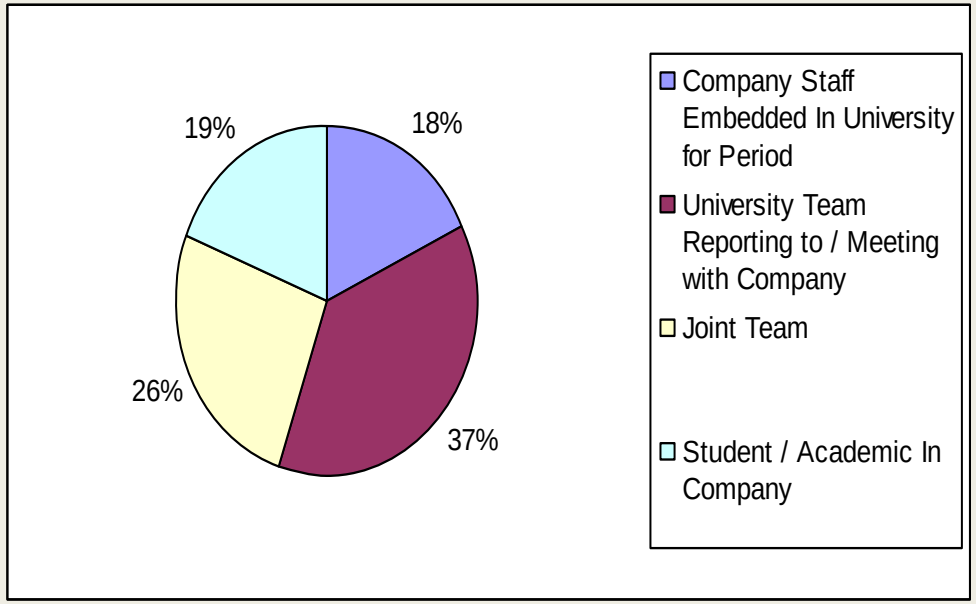
Key Findings (2) – Project & Knowledge Exchange Modes

- Dominance of collaborations and joint working
- Importance of knowledge synthesis and “learning by doing”

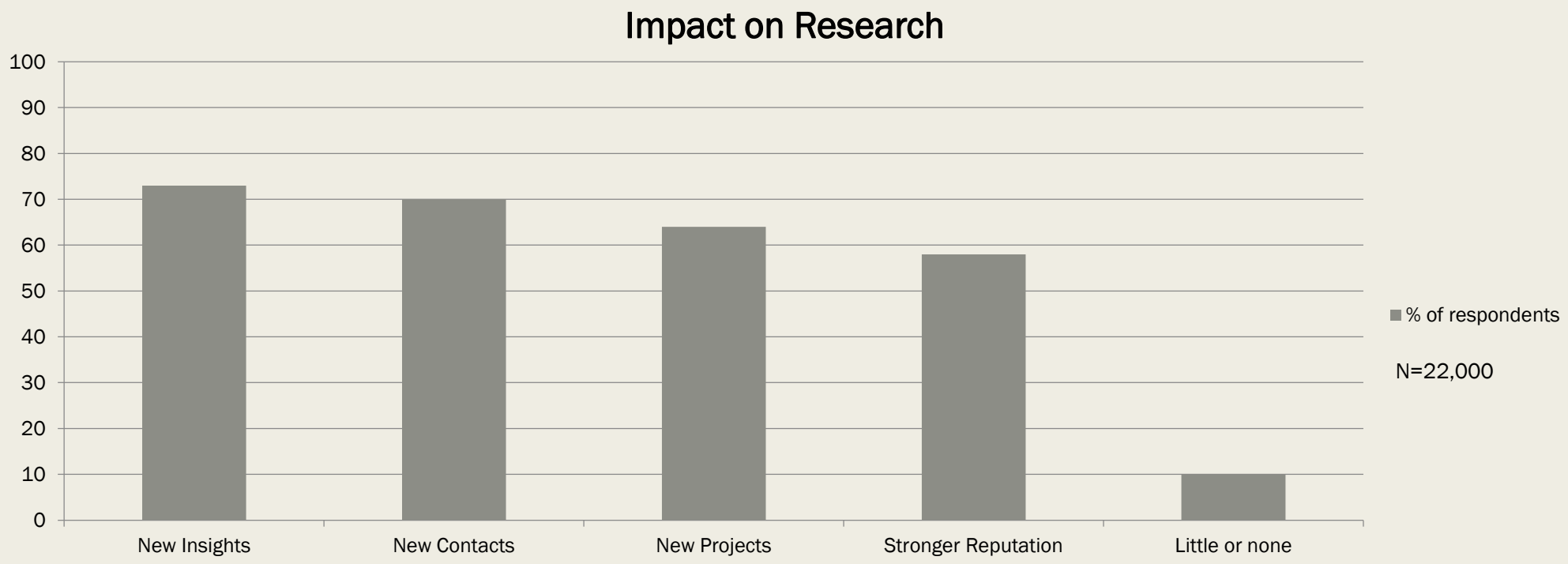
Only 6% by “pure” licence



meetings and reports have a “varying degree of success”



Key findings (4) – Academic impacts



Source: Abreu, Grinevitch, Kitson, Hughes, (2009) *Knowledge exchange between academics, partner the public and third sectors,* uk-irc.

Spin off project from the UK phase of the SPF project

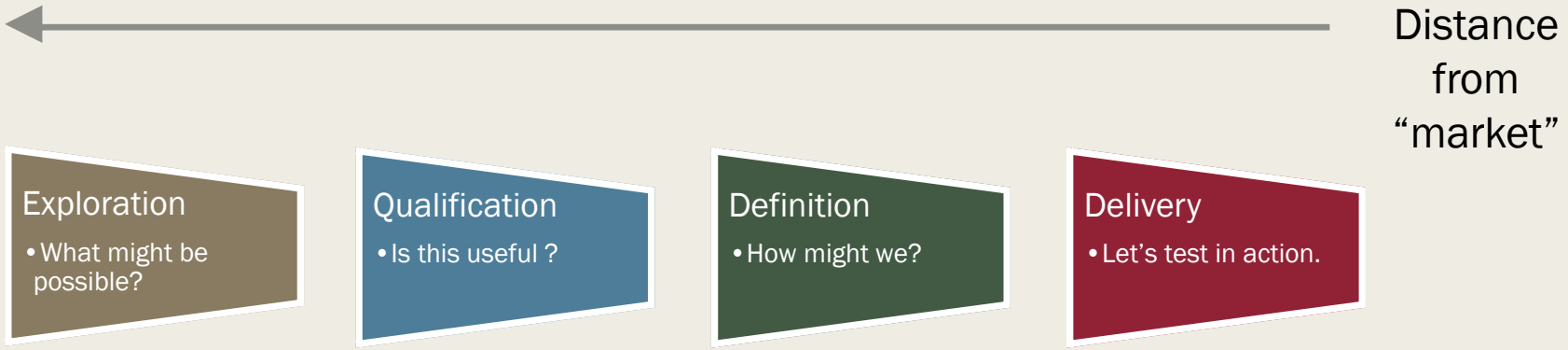
Projects “Post Sasakawa” - UK

- Investigation by and for the Research Councils (RCUK)
  - *What role does university research play in partner innovation processes ?*
  - *Why do Partners collaborate with universities – university competitive advantages ?*
- Investigations for Technology Strategy Board (now Innovate UK)
  - *What are the barriers to Open Innovation by Knowledge Exchange ?*
  - *Are there generic lessons for overcoming them ?*
- Individual university projects
  - *Can the generic lessons be applied in practice ?*
  - *Example Projects for the University of Sheffield and Lancaster University*

“Post Sasakawa” in Canada

- Political change affected research funding
- No additional research funded
- Research funding in Canada more haphazard than UK and attention was politically on ‘applied’ fields

RCUK – Summary of Project Findings



Potential advantages of Universities as open innovation partners related to distance from market

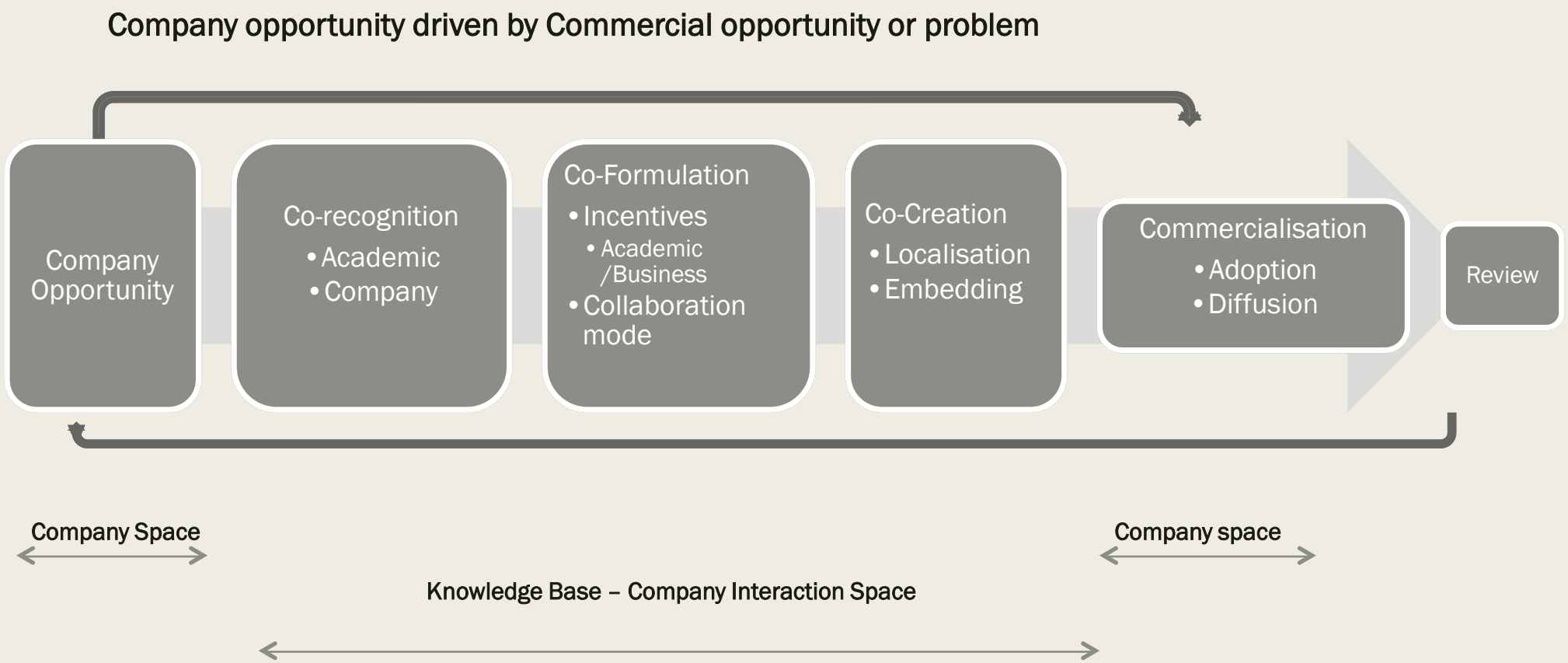
Don't need to justify costs against impact so may be unique in research far from impact

Scarce skills / expertise developed from leading edge research

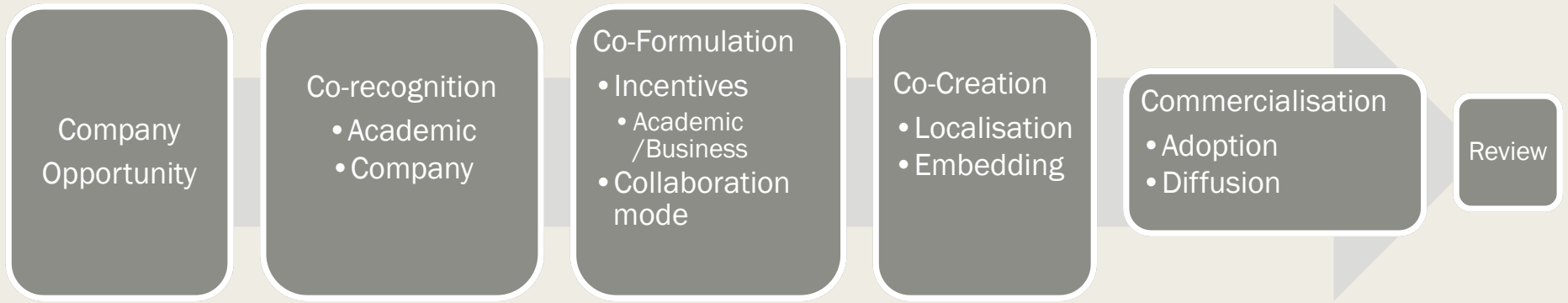
Motivation, plus *possibility* of collaboration, lack of profit motive. Need to take an application focus.

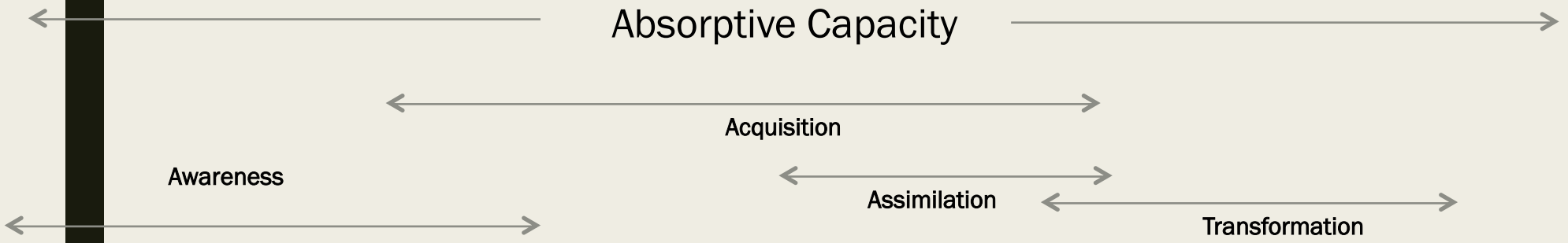
Robust objectivity, finding out what *doesn't* work

TSB project – the generic “5 Cs” model



Key lens for barriers – Absorptive Capacity





Opportunities and the potential role of university research

Expectations re mutual benefits

(Mis) match of expectations on IP, project mode, importance of embedding, active co-creation

Organic capacity to co-create, absorb and apply

Typical barriers to successful collaborations

Challenges to Successful Collaborations (Canada)

- Industry usually breaks into three groups:
  - *Start-up –driven by savvy researchers – well plugged into support programs*
  - *MNC or large enterprise – with large research administration which has many years sophistication in working with academics*
  - *SMEs – relatively naïve, underfunded – sometimes coming in from other countries with more sophistication*
- Canadian funding model generally:
  - *1/3 ; 1/3 ; 1/3 from each of federal ; provincial ; industrial*
- Challenge is that industry sector is significantly under-participating and declining year-over-year

Challenges to Successful Collaboration

- Absorptive Capacity
  - *Awareness of opportunity & how to realise – mismatch of expectations*
  - *Variable across different sectors / companies*
  - *Varied experience / motivations of academic staff*
  - *Organic capacity to support collaborations – varied expertise in institutions and partners – lack of breadth of expertise from C1 to C5*
- Funding – “Crossing the Valley of Death”
  - *Varied availability*
- IP focus

Canadian current opportunity

- Trump
- A lot of non-US citizens research expertise is considering establishment in Canada
- Even conferences and international collaborations affected
- BUT
  - *Be careful what you ask for!*

Techniques to break down barriers

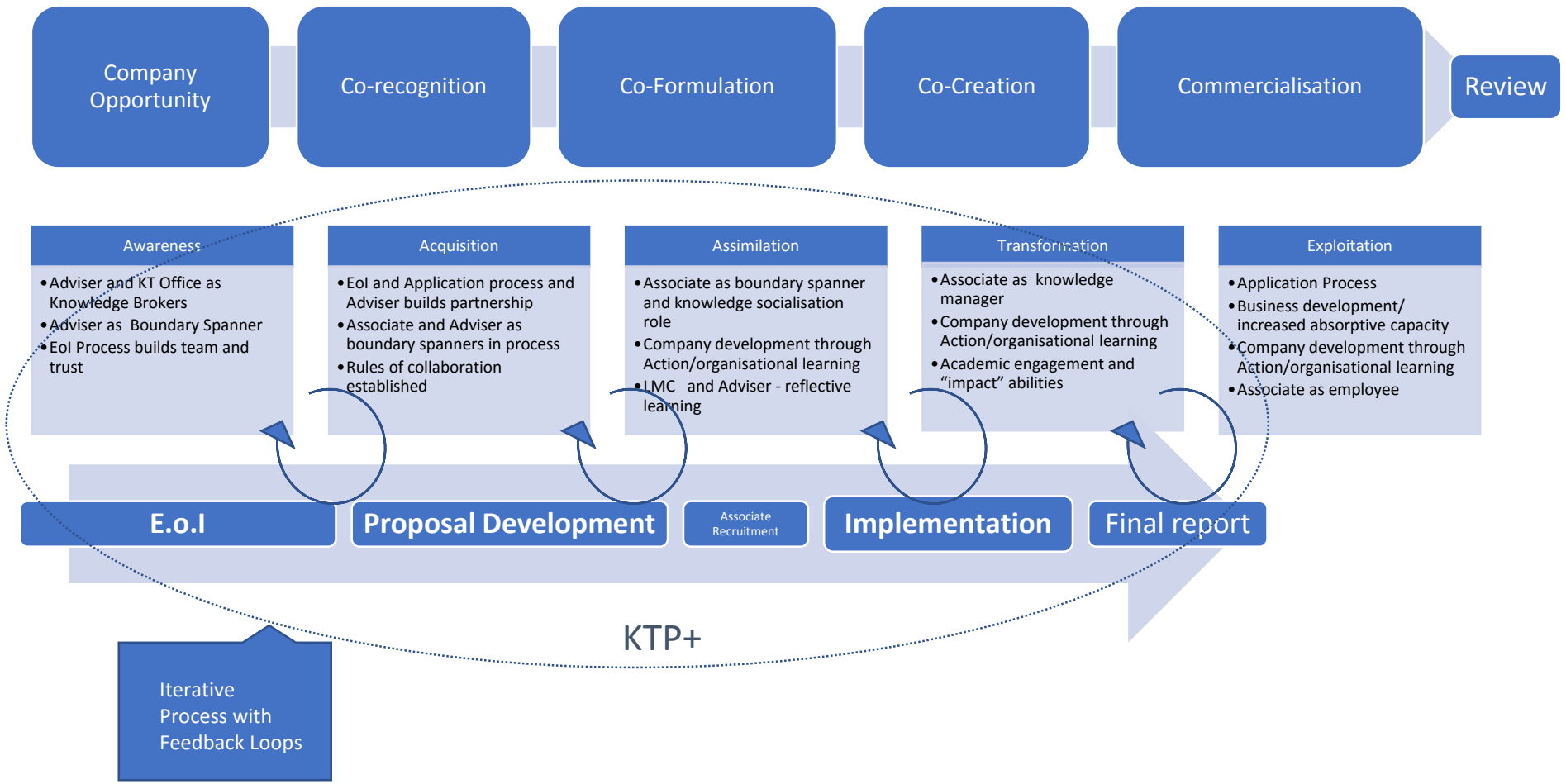
- Setting expectations
  - *Use of the 5Cs model – in promoting understanding*
  - *Outcomes from practice led research – e.g. promoting academic benefits*
  - *Importance of co-creation*
  - *IP model agreements – Lambert Models*
- Formative evaluation of projects
  - *Design in success through facilitation & support C1 – C4*
  - *Project level approach addressing contingent and emergent nature*
- Provision of organic resources as “boundary spanners”
  - *Internships and placements*

Good practice examples

- UK
  - *Knowledge Transfer Partnerships*
  - *Lancaster University – EPSRC Impact Acceleration Account*
  - *University of Sheffield – 5Cs model as the basis of understanding what made collaborations successful "Find out what worked and why – and do more of it"*
- Canada
  - *Knowledge Transfer growing quickly (NCE-KM initiative and others)*
  - *Contracting change – adoption of standardized clinical research agreement*
  - *'Usual' matching funding programs with direction chosen by government*
  - *'Particle collisions' still proves very effective*

KTP +
Added-Value Process Model KT in Open Innovation

Generic KT Process



Lancaster University IAA

- Deliberate adaptation of “5Cs” findings in developing and supporting collaborations in developing and accelerating impact pathways (75% SME) – some outcomes.

Category	Number of Projects
Company New to Any University Collaboration	8
Company New to Lancaster University	19
Company New to Specific Academic at Lancaster	35
Academic New to Collaboration	13
Academic and Company Collaborated Previously at Lancaster	13

Culture Change and New Partnership Development

Investment leveraged by IAA (£600k of £900k)

Contribution in Kind	Paid as contribution to the University	Paid or committed to the university outside the IAA	Investment by Partner In Related R&D	Total
£357,150	£178,415	£864,800	£1,171,250	£2,571,615

NCE Knowledge Mobilization Program (Canada)

- Created in 2010
- Oriented to transferring knowledge
- Now expanding to international networks
- Examples:
  - *SERENE-RISC – Cybersecurity – Canadian oriented network includes police and key private partners*
  - *CYCC – Children and Youth in challenging contexts – network to change practice in handling youth at risk*
- Impact is integrating findings into changes in practice
  - *Very useful in public sector (social work; public health)*

Breaking Down Barriers: Canada

- Canada's last 10 years may be a US precursor (anti-science)
- Most funding directed to 'business' oriented applied research
- Savvy businesses have been able to lever federal and provincial funding for research projects
- Start-up companies have also been able to access
- The new 'gap' are potentially SMEs: too large or old to qualify for start-up money; too naïve or small to understand how to really access the matching programs

Industry or subject specific networks

- Advantage of many Canadian programs is ability to meet people
- ‘Particle collisions’ is an important factor
- Academic programs to create interactions (little funding) can prove fruitful
- Academic institution needs to be able to showcase a lot of researchers with a lot of potential industrial partners

Why programs are successful but a warning …

- NCE program continues to be a world leader (creates interactions in a defined area)
- NCE program has expanded into Knowledge Mobilization Initiative
- BUT …
  - *“Innovation funding without an intellectual property strategy is just philanthropy”*
  - *Concern is that IP is not being ‘captured’ properly within Canada and therefore ‘leaks’ to US and elsewhere*

Future Canadian Challenge

- Intellectual Property may get in the way of allowing industrial use of research findings
- Seeing clauses in government funding “benefit to Canada”
- One solution might be ‘sovereign patent pool’
  - *Throw all patents in a field into a pool*
  - *Allow easy access licensing terms (orig U Glasgow) for targeted use within a country*

Conclusions and Future Developments

- Current Canadian ‘IP Strategy’ focus will be important to track
- System should avoid becoming IP bound
- Expansion of KE policy into “Fusion” domains & avoiding STEM focus
- Increasing importance of “Impact Agenda”
- Reinforce development of “enlightened self interest” & collaboration expertise in Institutions