

# Judge Business School

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**CIKC** CAMBRIDGE INTEGRATED  
KNOWLEDGE CENTRE

Advanced Manufacturing Technologies for Photonics and Electronics –  
Exploiting Molecular and Macromolecular Materials

# Agenda

- Objective of research
- Motivations
- Focus of the project
- Human interaction
- Network
- Emergent concepts, future research
- Q&A

# Objective

**To contribute to the success of commercialisation of science created out of open innovation between universities' R&D and industry**

Resources are essential but ... selling and buying take place through human interaction

Which factors affect it?

How?

When?

Why?

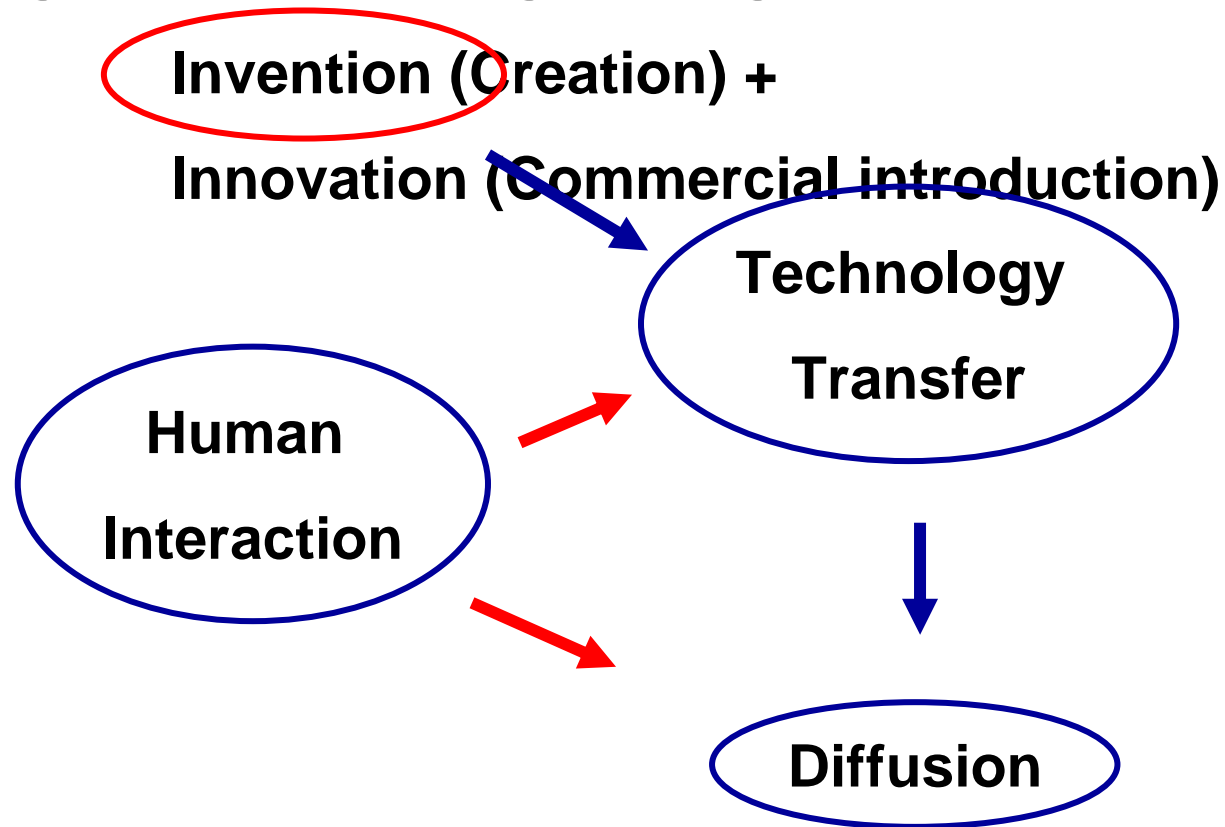
And what can be done about them?

# Motivations

- To fill the gap left by traditional management approaches in complex - uncertain environments (disruptive technologies)
  - Centralized / hierarchical decision making vs. collaboration
  - Analysis and prediction in addition to learning and interpreting
  - Control vs. flexible, enabling environments
  - From organisational structure to interaction and processes
  - From “correcting” to managing dualities and contradictions (complexity)

# Focus

- Commercialisation of science in three projects of Cambridge's Electrical Engineering Department



# Research Design

- Action Research
- Longitudinal study
  - 3 projects, electrical engineering department, Cambridge
  - 3 years
  - September 2008 – September 2011
- Technology Transfer stage
  - Participant observation, 3 days per week @ labs, every week
  - September 2008 – September 2011

# ... Research Design

- Diffusion stage (Social networks)
  - Semi-structured interviews (10 per project)
  - Focus Groups (3 per project)
  - January 2010 – June 2010
- Literature review
  - Complex responsive processes (human interaction, Stacey, 2001)
  - Sociology of technology (social construction of technology + diffusion through social networks; Bijker, 1992; Law and Callon; 1992, etc. )
  - Organisational theory (project management in uncertain conditions; De Meyer, 2006)

# Human Interaction

Complexity and uncertainty: Paradoxes/dualities (stability-instability, continuity- change)

Power relations (enable, constrain, include and exclude)

Interdependence (what each member provides)

Responsiveness

Self Organisation (no design)

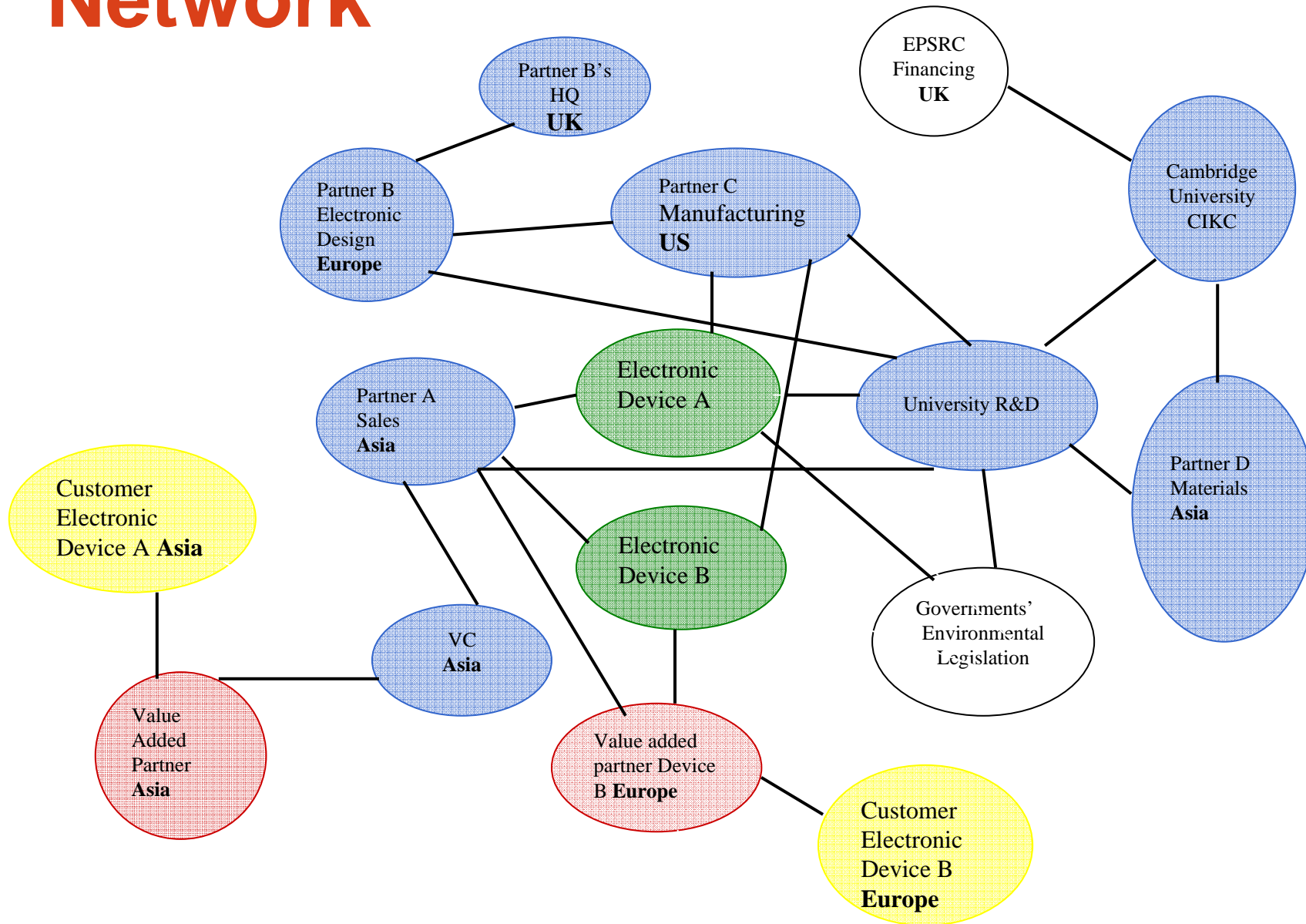
Emergence

Evolution (technology and people affect each other)

Historicity and path dependence

Interpretive flexibility

# Network



# Early findings and Future Research

- Role of knowledge and power in innovations
- Social construction of intellectual property
- Deeper understanding of learning projects
- Role of networks of conversations in innovation processes
- How technologies are interpreted and evolve as they reach different social spheres
- Emergence and evolution of high tech industries

# Q&A