- TRANSIT -
Discipline bridging at York

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YCCSA

EPSRC Engineering and Physical Sciences Research Council

THE UNIVERSITY of York

BTG team

- Leo Caves (Biology)
- Gustav Delius (Maths)
- Angelika Sebald (Chemistry)
- Susan Stepney (CS)
- Jon Timmis (CS/Electronics)
- Jamie Wood (Maths/Biology)
- Caryn Swartz (Administrator/Trainer)

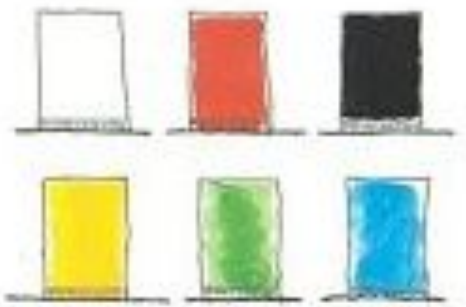
All members of YCCSA

the setting

YCC•SA | ˈiksə |

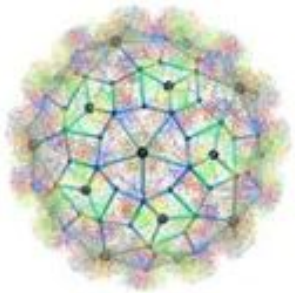
- collaborative enterprise across UoY departments
  - Biology, Computer Science, Electronics, Maths, Chemistry, Management, Sociology, …

- interdisciplinary research environment
- multidisciplinary research training
  - e.g. Masters and PhD training; staff training

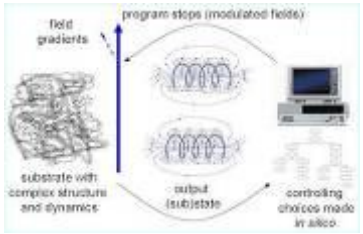


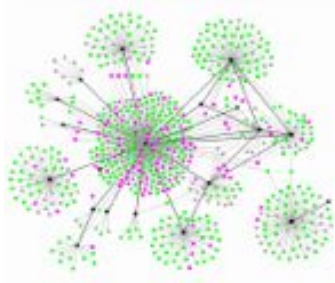
- established 2005

research areas

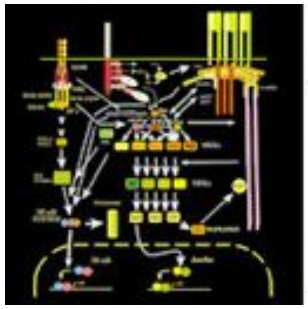


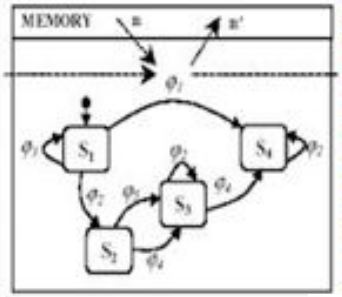
- **biological systems**
  - computational biology:
    complexity, data analysis and self-organisation
  - ecology: networks and regulation
  - evolution: collective motion, wind-farms and fisheries
  - microbiology: regulation and viral assembly
- **natural/novel computational systems**
  - bio-inspired computation
  - complex material computation
- **social, economic and policy systems**
  - social / influence networks
  - governance of complexity

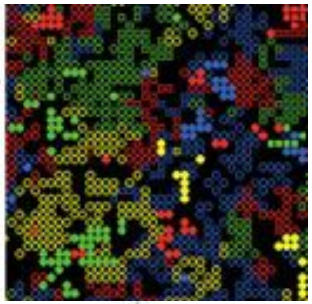


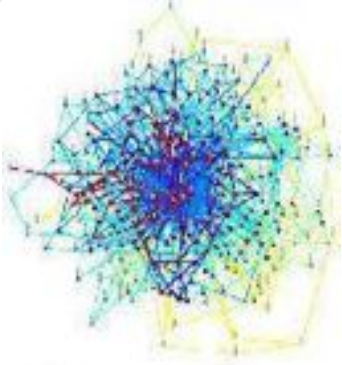


themes



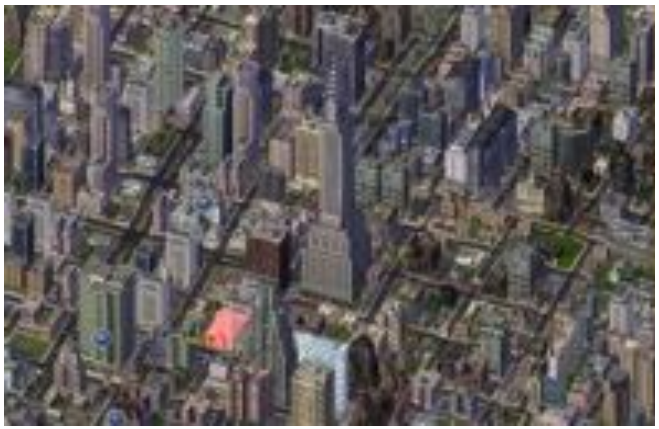






- multivariate / time series data
- network representations
- dynamical systems / stochastic processes
- adaptive and evolutionary systems
- heterogeneous / multilevel systems
- emergence

complex systems



YCCSA vision

- develop an interdisciplinary research community with a collaborative ethos
- foster creativity and risk-taking; promote collegiality
- move towards new transdisciplinary approaches to scientific research and training

our BTG

TRANSIT

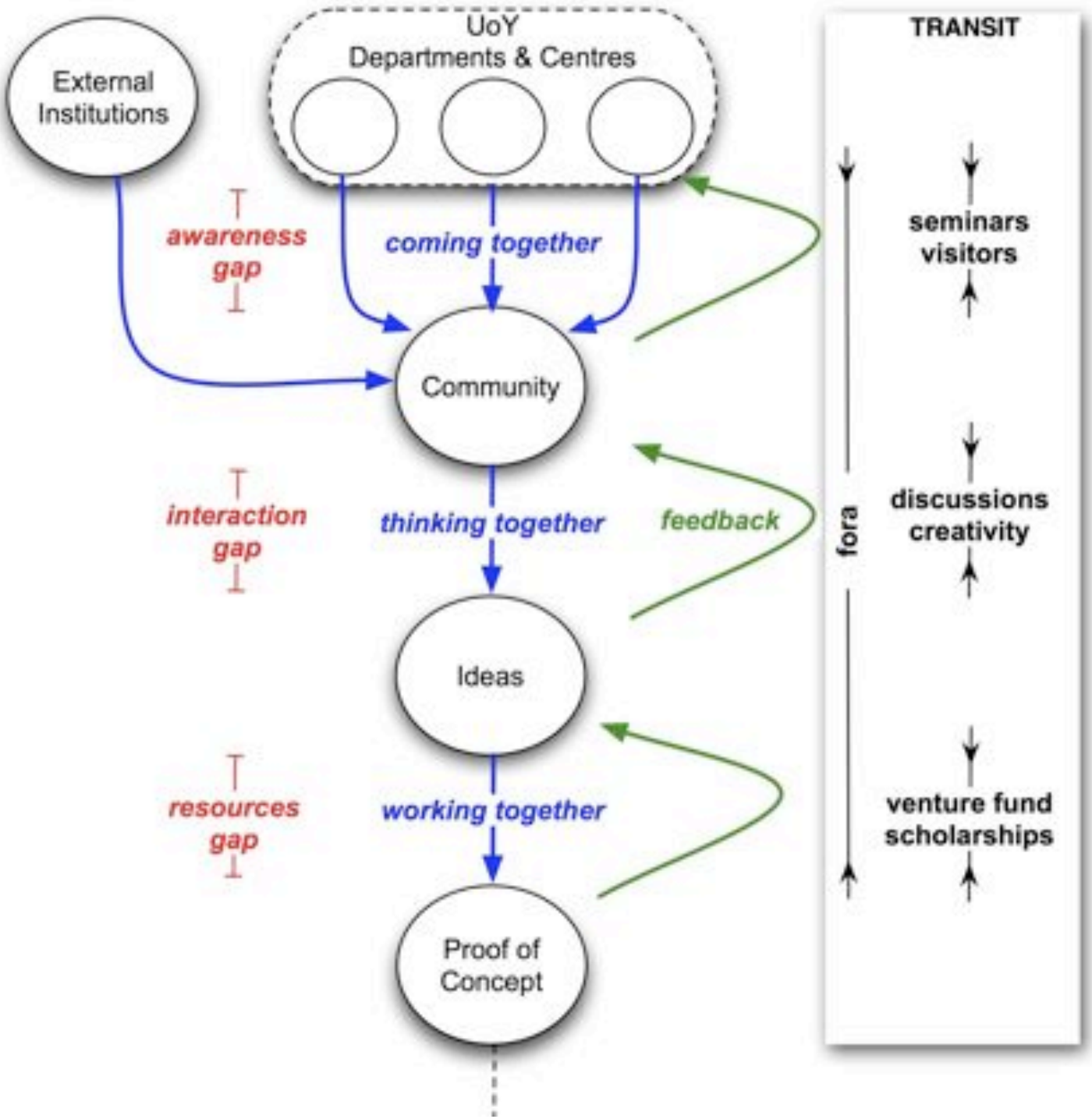
TRANSition from
Interdisciplinarity to **T**ransdisciplinarity

TRANSIT: objectives

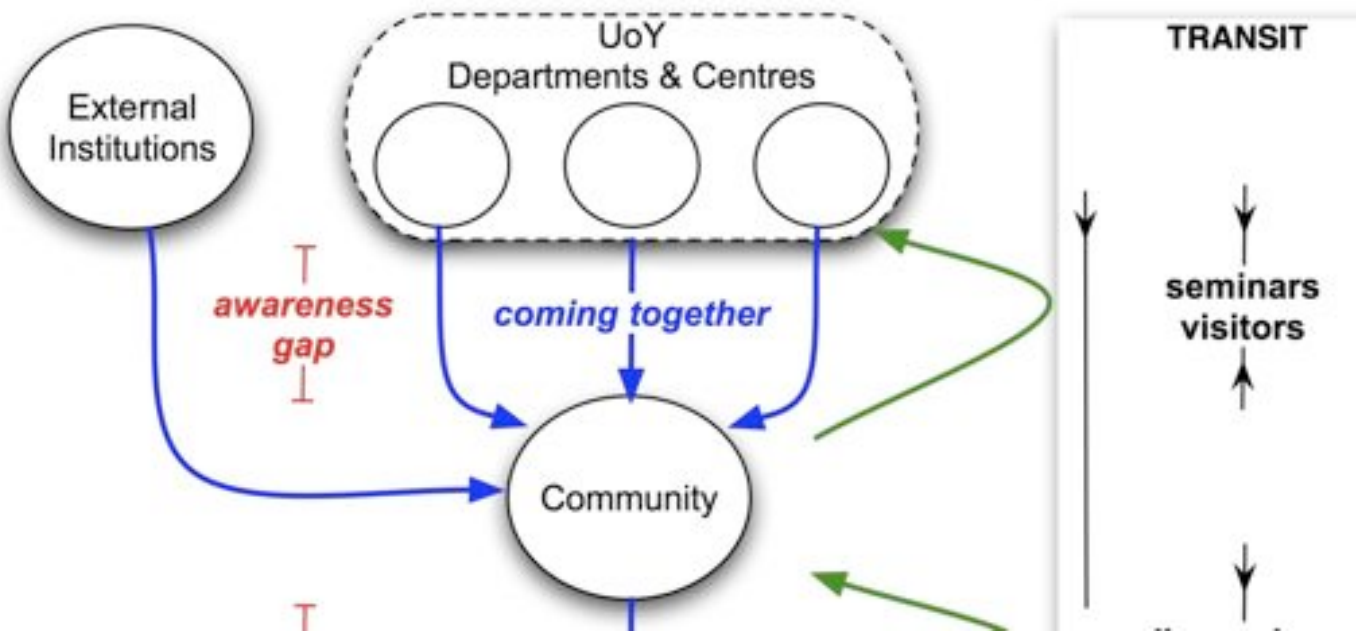
1. To increase **awareness** of expertise and initiatives across disciplinary boundaries ("***coming together***")

2. To enhance **interactions** and the development of novel ideas ("***thinking together***")

3. To provide **resources** to support cross-disciplinary feasibility studies ("***working together***")


External Institutions
UoY Departments & Centres
TRANSIT
awareness gap
coming together
seminars visitors
Community
interaction gap
thinking together
feedback
fora
discussions creativity
Ideas
resources gap
working together
venture fund scholarships
Proof of Concept

spaces and seminars



"common room" space

- Natural mixing environment
- Ownership of workspace
- Celebrate creativity

Promotes interaction

Fosters collegiality

- Feedback
- Support
- Inclusiveness
- Meritocracy

interdisciplinary seminars

- TRANSITday (Friday)
- *neutral* venue
- format: 2 h *informal* sessions
  - 1st hour: seminar & questions
  - Break for Tea & **Scones**
  - 2nd hour: continued discussion/breakout

"scone seminars"

seminar archive

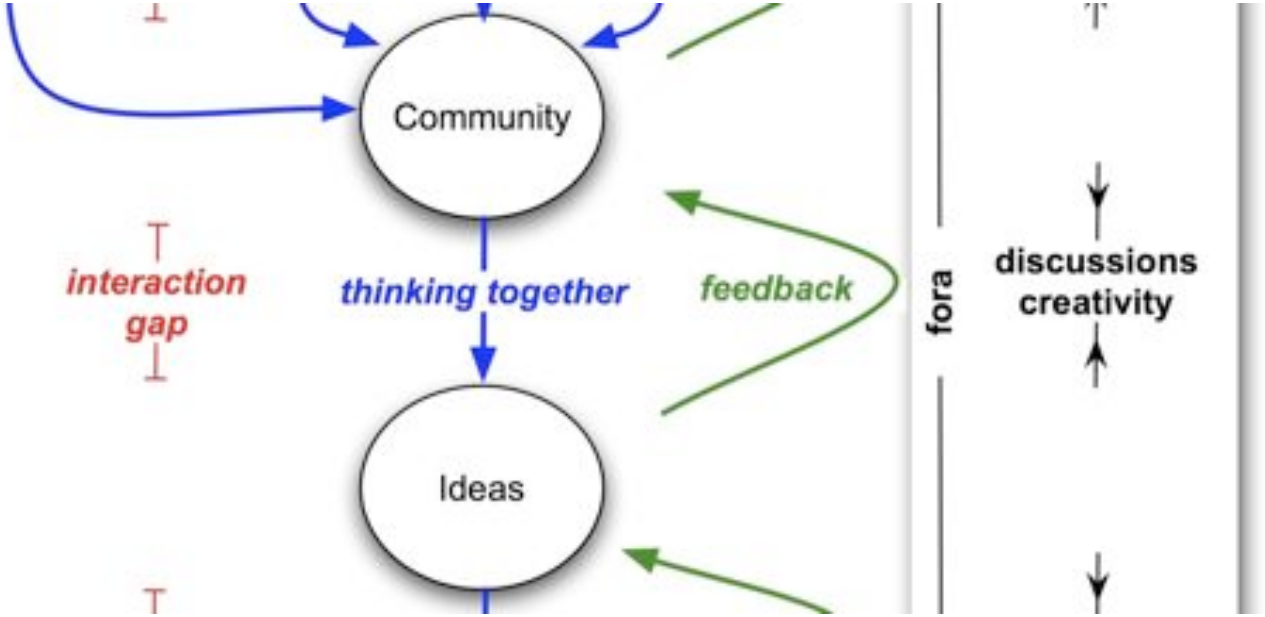
- Over 40 events captured to date
  - 19 with presentation slides
  - 34 with video capture (18 processed to date)
- Available on-line via streaming video

www.york.ac.uk/res/yccsa/events/seminararchive.html

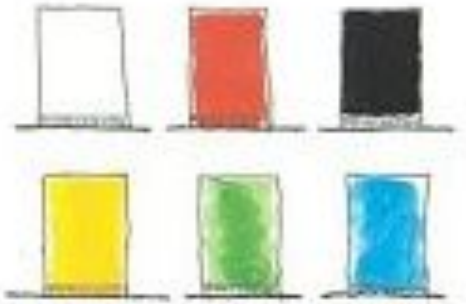
bridges (space and) time

(follow on funding obtained)

thinking and creativity



structured thinking systems



- Six Thinking Hats & Lateral Thinking
  - Edward de Bono
  - Training Package with Indigo Consulting
- Evaluate and embed within (interdisciplinary) academic research context

STH usage

- individual use
- small teams
- large groups
- research, admin, coordination

maximise interaction

enhance creativity

STH experience

- quickly explained, simple to use, well accepted

Pros

- harnessing - light-touch structuring (cf. brainstorm)
- promotes interaction - flattens hierarchies
- productive - avoids (unproductive) ping-pongs
- focussing - great when specific aim identified

Cons(?)

- needs prep for effectiveness
- easily over-worked
- not for everything

summary

- wide roll-out
  - 183 people across campus
  - Biology, Chemistry, Computer Science, Electronics, Environment, Mathematics
  - Sociology, Management, Economics, Health Sciences, HYMS (Medical School)
  - Educational Studies
  - IT Services, Research Support Offices, Administration
- adopted by institution
  - Offered as a training module on POD website
  - Incorporated into Leadership Programme
- future?
  - Refocus on research context
  - Incorporate Lateral thinking training

also

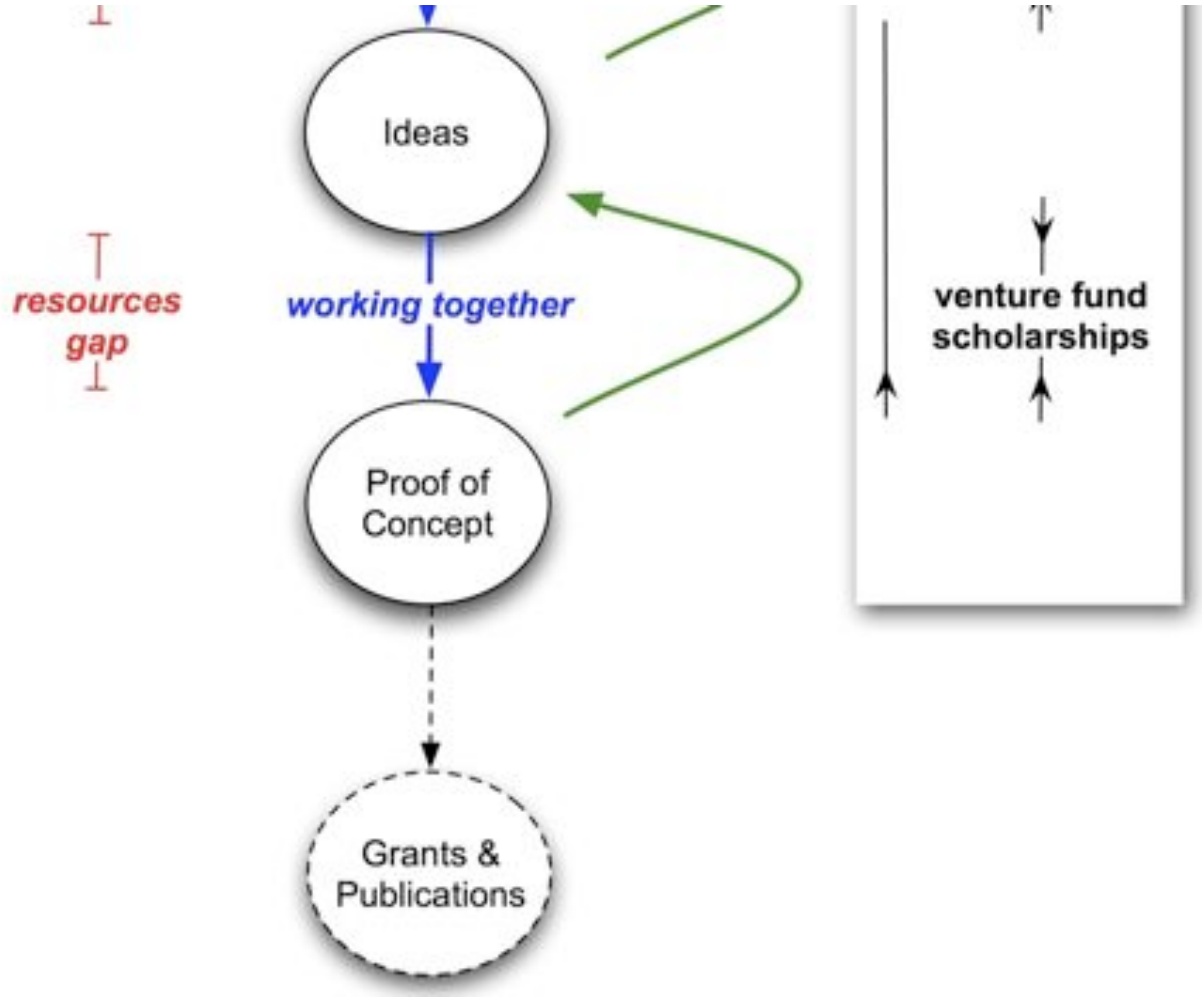
- Facilitation
  - Orchestration of groups
  - Allows full user participation

- Dialogue

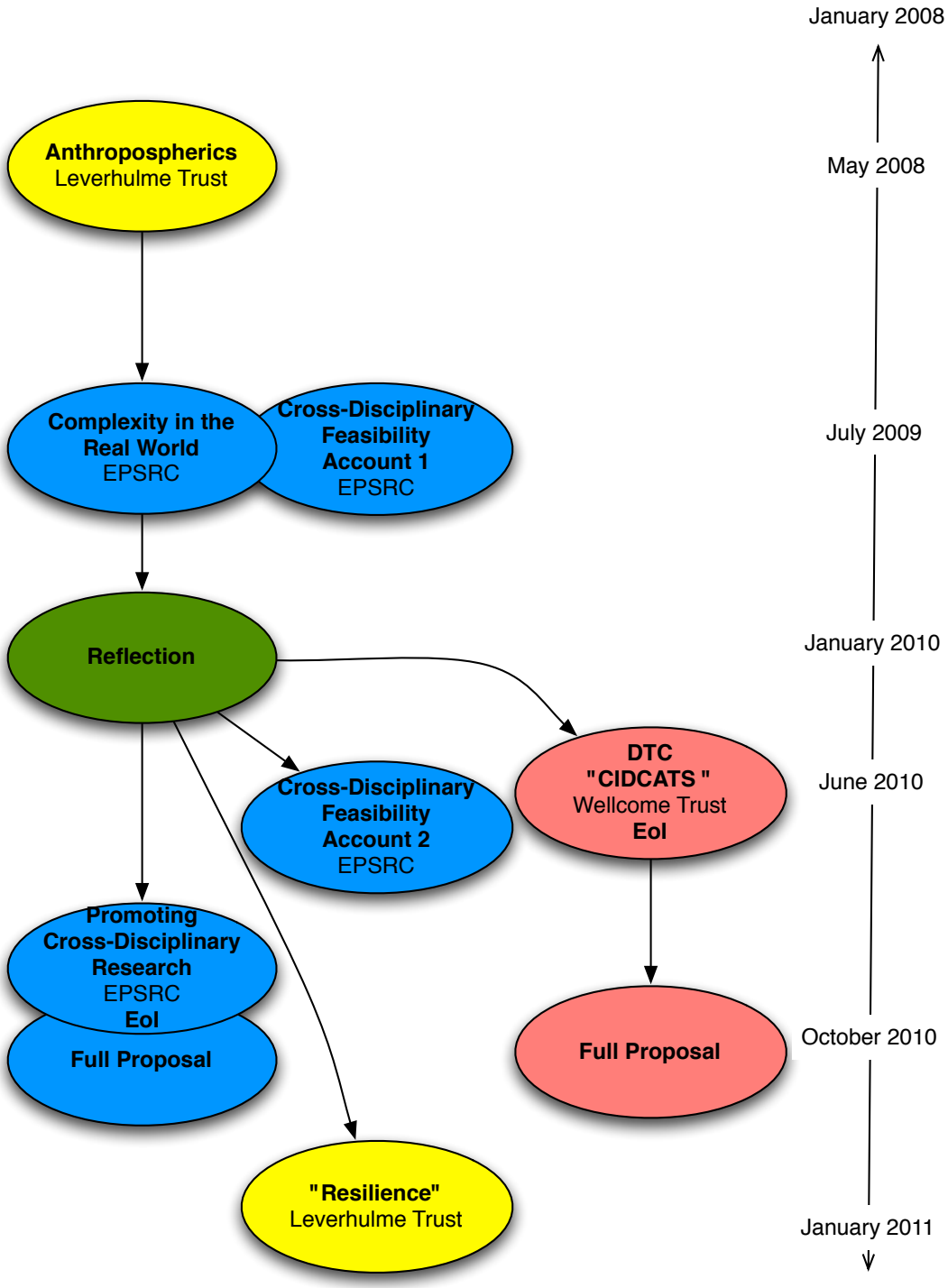
  Useful to gain mutual understanding

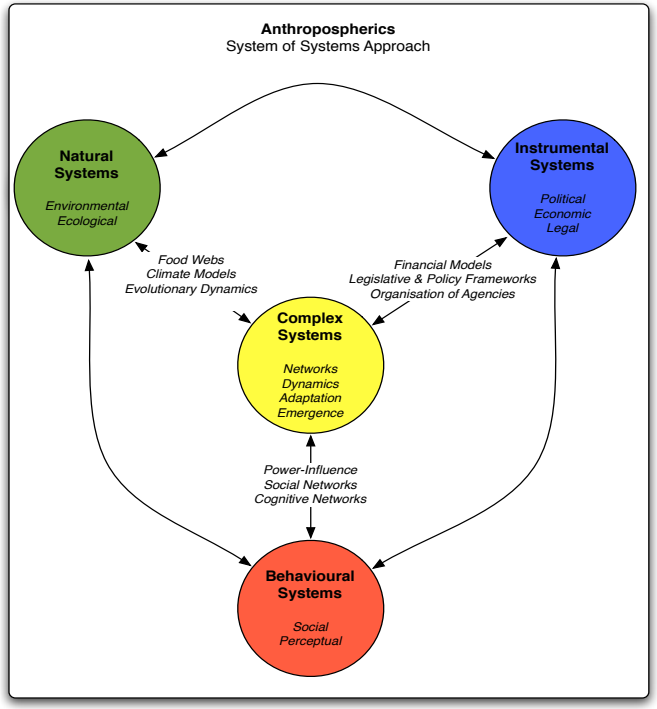
  Not for focused outcome

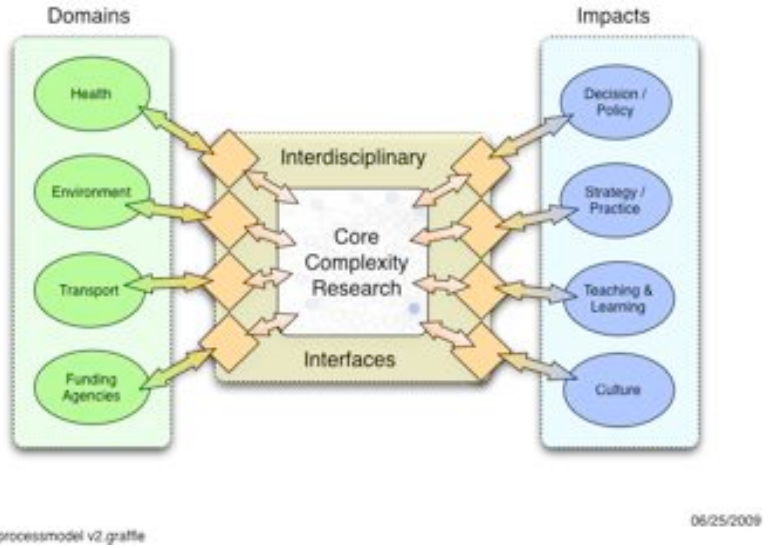
working together



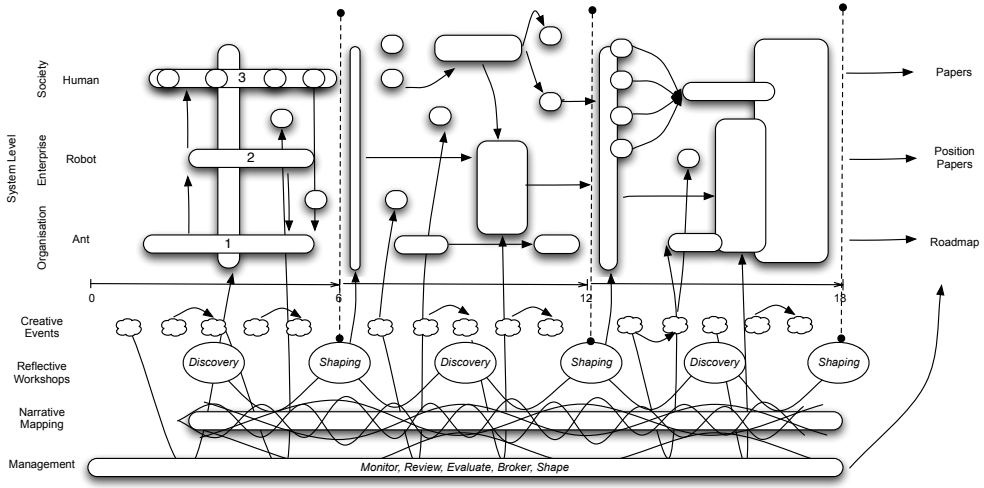
proposal generation

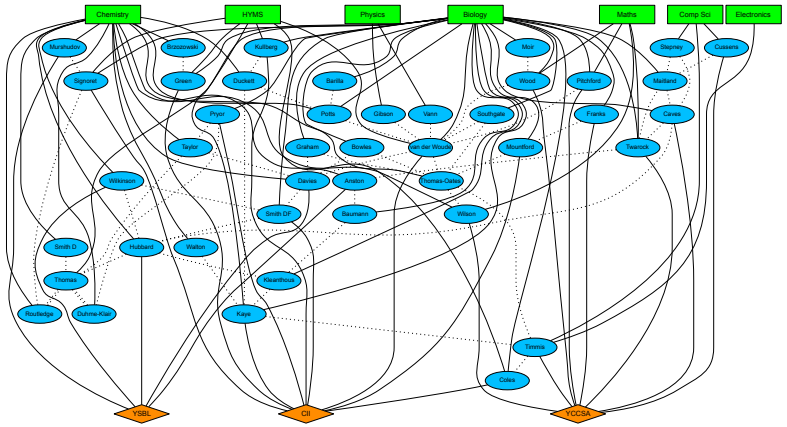






DIAGRAMMATIC WORKPLAN





indicative lifecycle of a bid

- opportunity identified (and circulated)
  - Broadcast + targeted invitations
- Meetings (with homework!)
  - Initial info/scoping
    - Gauge interest; align/distinguish initiatives
  - Definition
    - concept exploration; structuring
  - Development (iterated)
- Comment and Review
- Hosted on Wiki

importance of proposals

- proper “carrot” for time/energy
- opportunity for serious engagement
  - interactions - gain links - widen network
  - build trust, identify expertise
  - rallying (and halo) effect
- great training
  - early stage researchers
  - neo-interdisciplinarians
- (may also bring in money for research!)

lessons

- acknowledge role and necessity of failure
- (recover,) reflect, regroup, recycle

its where the thinking gets done
(when else?)

(summer) studentships

features

- 10 week internships
- 2nd year UG students (+ 6th former!)
- interdisciplinary project / supervision
- cohort approach - colocated
- training programme
  - STH
  - Seminars / Workshops
- mentor
- final report and presentation

lessons

- pair of hands for feasibility studies
- glue to bind new collaborative links
- high quality research from UG students
- bolsters research community
- ambassadors for programme

training the next generation of interdisciplinary researchers….

venture fund

- flexible resources
- light-touch application
- peer review with feedback
- focus on interdisciplinarity / new collaborations
- flexible remit

lessons

- need to encourage applications
- transition from small bids to larger feasibility studies
- need buy-in from colleagues for secondment of RAs, RS etc.
- important mechanism to support future proposals

money is not the whole story

BTG has helped us:

- Strengthen, extend interdisciplinary community
  - New disciplines
  - New staff
- Develop interdisciplinary culture
  - New ways of interacting
  - New patterns of working
- Progress our research
  - New avenues, projects
  - New grants, opportunities

Develop a new model of interdisciplinary research – towards transdisciplinarity

advice to the new BTG’ers

Be bold

Be creative

Be prepared to fail

Take time to reflect

Adapt

Evolve

Nurture

Enjoy

Q?