Bringing different disciplines together

Sinotropia

Beijing

September 5th 2011

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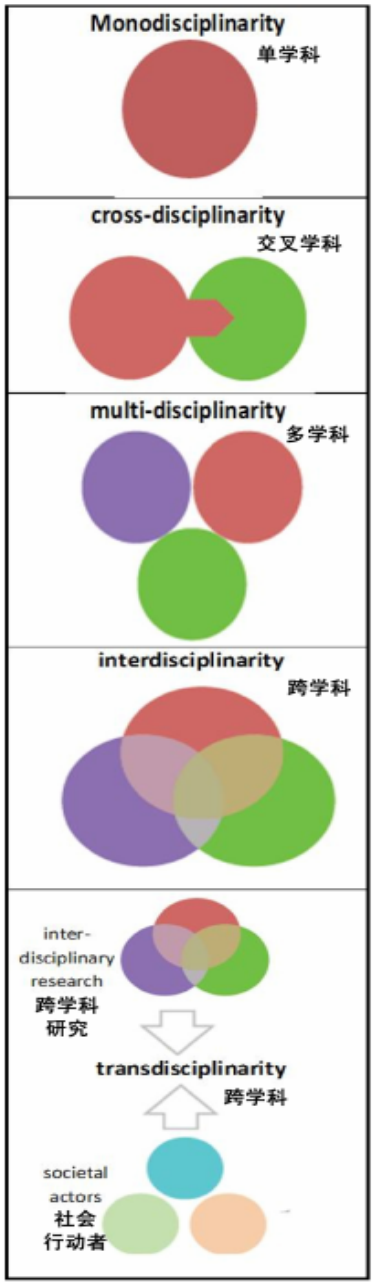
Norwegian Institute for Urban and Regional Research



Some basic concepts

Our focus on linking natural science and social science

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Why 'crossing'? – the drivers

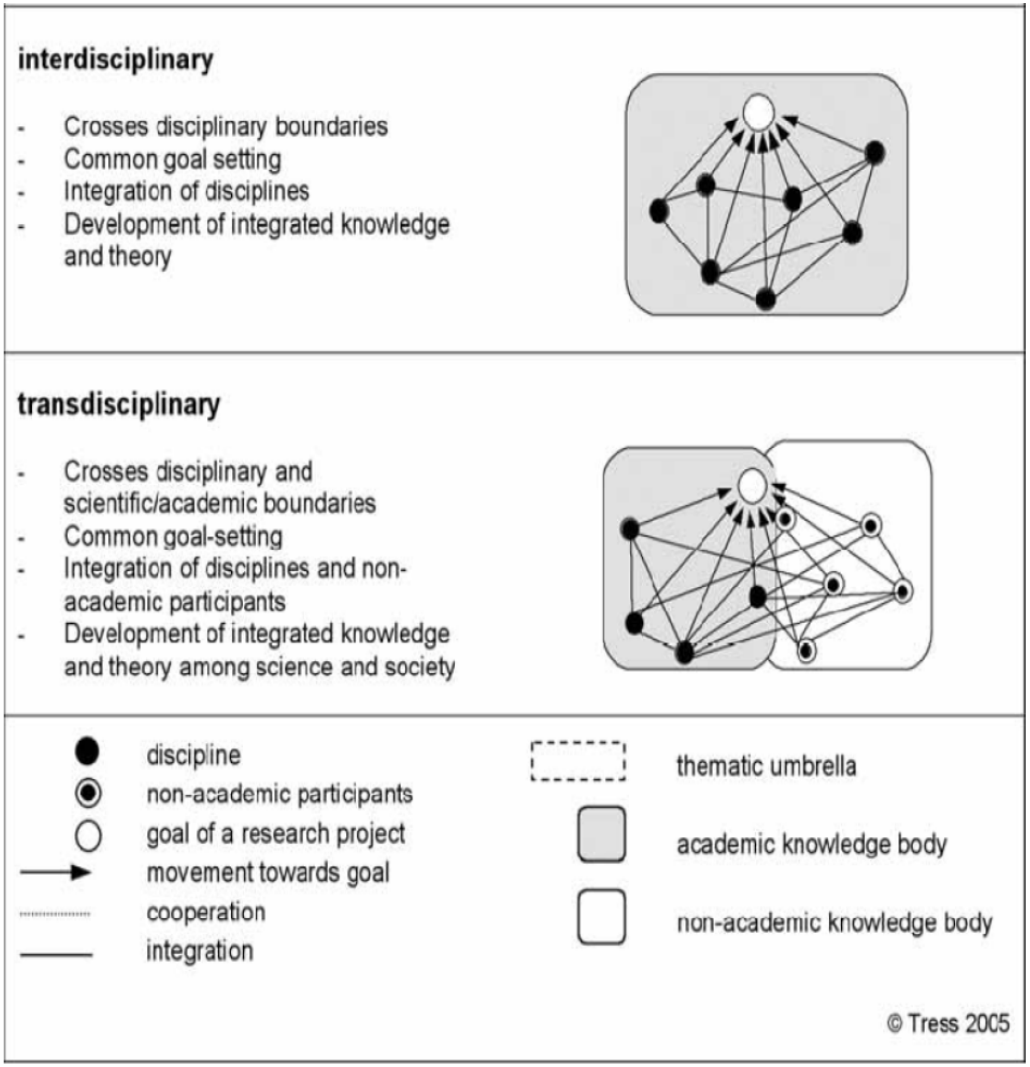
- Environmental problems and challenges turning global
  - increasingly complex problems
  - the 'risk society' (Ulrich Beck),
  - and risks turning into uncertainties
  - the demand for integrating knowledge, making it possible to handle environmental problems effectively
    - sustainability (environment–economy–welfare–institutions)
    - life course research and event-history analyses
    - commodity chains and value chains
    - the DPSIR model of drivers–pressure–state–impact–response

- Mitigating and abating problems, and adapting to existing and emerging environmental problems are not a straight forward task like it used to be;
  - not like scientists informing about any problem and then measures are implemented, but instead a contentious process with contested solutions
  - a demand for societal problem solving
  - knowledge and learning, interests and distributional consequences, power relations and class politics

- Scientific curiosity and innovative solutions to identified problems and challenges
  - Need forerunners capable of making unexpected connections

Transdisciplinary:

Knowledge Mode I	Knowledge Mode II
disciplinary, cognitive context	transdisciplinary, social and economic context
homogeneity	heterogeneity
hierarchical	interactive, reflexive
institutional knowledge mediation	diverse knowledge communication networks
quality control by peer reviewing	socially acceptability and robustness
model: pure 'science'	model: applied and interpretative science
segregated, certain, independent	integrated, uncertain, people-dependent



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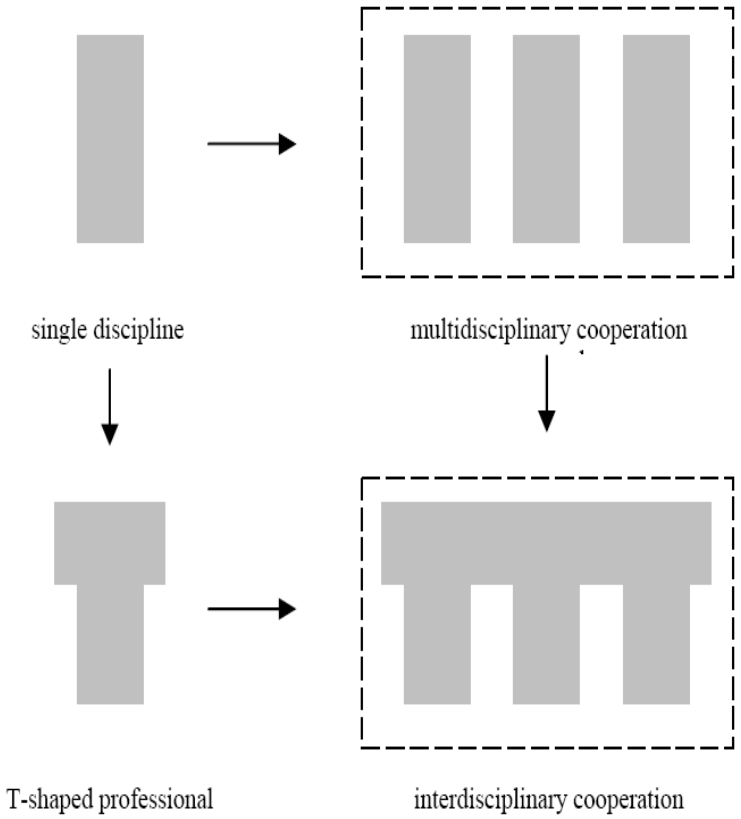
Success criteria

- Establishing teams consisting of researchers from different disciplines demands a strong professional background; and a particular communicative competence: the T-shaped professions
- and finding a way of integrating and synthesising **professional depth with professional breadth**
- Requiring pro-active team-building strategies , leadership and institutional capacity
- In summary, institutional support and individual support are essential
- Strategy for projects:
  - Co-design
  - Co-production
  - Co-delivery



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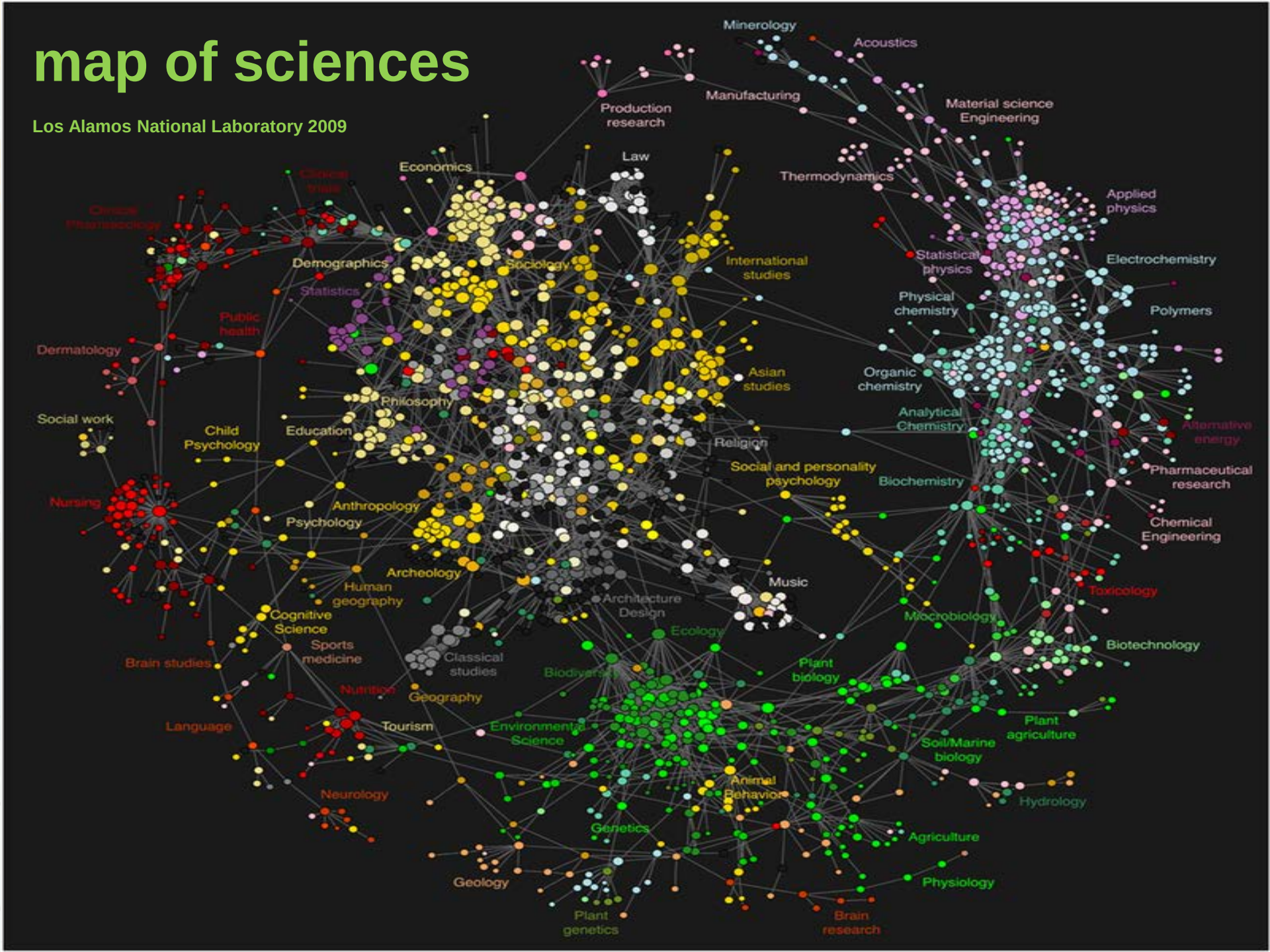
map of sciences

Los Alamos National Laboratory 2009



So far so good?

- How to get there? Easier said than done?
  - More convenient to focus on studying and analysing natural processes? Why mess with society?
  - Is it possible to distinguish between human society and the environment?
    - Many argue it is not, but still the drive for specialisation tells another story
  - Basically, the motivation for scientists to engage in cross/inter/transdisciplinary research:
    - an interest in improving or changing existing conditions
    - analysing environmental processes resulting from changes on the input side
    - analysing how societal dynamics respond to changing environmental conditions

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How to make Sinotropia become a successful trans-disciplinary project?

- 'Social science contributions to natural science'
  - 'Messing' with/intruding into the measuring methods content of P in water?
    - Surely not
  - What about threshold levels for content of P that is considered an environmental problem and something society should take actions against?
    - Entering a grey zone; both yes and no:
      - 'No' regarding the concrete environmental consequences, but 'yes' regarding what is considered to be problem, and something society should take actions against
      - Yes, when it comes to e.g. conservation of any particular biotope or eco-system
      - And yes, when it comes to allowing emitters to be exempted from regulations; e.g. tendency of big actors more often being granted exemptions, and also spatial location taken into account.

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How to make … cont

- What about the choice of models for estimating emissions and the consequences for water resources at different scales (basins, catchments, and particular lakes)?
  - Another grey zone;
    - No, because the assessment of different models is a question of in-depth professional knowledge; e.g. mechanical models versus dynamic models.
    - Yes, because some models might be based on assumptions that are bringing society onto the stage
    - Yes, the legitimacy of and support for models among different actors: arguments about what is cost-effective or efficient, and compliance for regulations by different actors

How to make … cont

- Social science providing input for nature science tasks?
  - Yes, e.g. land use and farmers' production methods
- Social science mapping/analysing society's understanding of and response to environmental issues
  - Yes, e.g.:
    - environmental knowledge, attitudes, and practising among relevant actors;
    - Formulation of and practising of regulations
    - The development of new technologies and adaptation to new conditions