SOCIAL, ETHICAL AND KNOWLEDGE ASPECTS
IN SUPPLY CHAIN MANAGEMENT

GORDANA DODIG-CRNKOVIC

Cognition and Communication Group,
Department of Applied IT
Chalmers University of Technology and University of Gothenburg

Lecture plan

Circle Limit II
Maurits Cornelis Escher

- Aim

- Ethics in Supply Chain Management

- Values and ethics in knowledge production

- Ethics in Research and Professions

- Network as a Model of Knowledge

- Transdisciplinary Knowledge

- Sources & Resources

Aim of this lecture:
Scientific, social and ethical aspects of SCM

Supply Chain Management Seminar

Among Learning outcomes of the course:

- Ability to make assessments with consideration to relevant scientific, social and ethical aspects, and demonstrate awareness of ethical aspects of research and development.

Scientific, social and ethical aspects…
The topic is huge!
What this lecture can do is to open the window with a view

Supply Chain Management programme
120 credits (MSc, 2 years)

- The programme focuses on the design, management and improvement of supply chain management strategies. It is multidisciplinary and builds on several scientific disciplines.

- One important way a company can improve its competitiveness is to apply supply chain management (SCM). This programme helps students develop their skills in purchasing, logistics, marketing, transport and general management.

- Problem-based learning including case studies and problem solving with quantitative and qualitative models is one important aspect of the programme.

Corporate Social Responsibility & Corporate Citizenship
Across Global Supply Chains

Incidents like the 2013 Savar /Rana Plaza building collapse with more than 1,100 victims have led to widespread discussions about corporate social responsibility across global supply chains. Wieland and Handfield (2013) suggest that companies need to audit products and suppliers and that supplier auditing needs to go beyond direct relationships with first-tier suppliers. They also demonstrate that visibility needs to be improved if supply cannot be directly controlled and that smart and electronic technologies play a key role to improve visibility.

Finally, they highlight that collaboration with local partners, across the industry and with universities is crucial to successfully managing social responsibility in supply chains.[32]

Building collapse
Rana Plaza, 2013

The 2013 Savar building/Rana Plaza collapse occurred on Wednesday, 24 April 2013 in Dhaka, Bangladesh, where an eight-story commercial building Rana Plaza collapsed. The search for the dead ended on 13 May 2013 with a death toll of 1,129. [2] Approximately 2,500 injured people were rescued. Global labour- and rights-groups have criticized Western retailers saying they are not doing enough to ensure the safety at factories where their clothes are made. The companies linked to the Rana Plaza disaster include the Spanish brand Mango, and Italian brand Benetton. (Wikipedia)

Photo by rijans - Flickr: Dhaka Savar Building Collapse, https://commons.wikimedia.org/w/index.php?curid=26051590

Ethics in Supply Chain Management

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SCMA Code of Ethics for Professionals in the field of Supply Chain Management

http://scma.com/en/about-scma/join-scma/code-of-ethics
Supply Chain Management Association Code of Ethics.
 Affecting and Accepting Responsibility

A. Standards of Conduct

(Avoidance of conflicts of interest; Protection of confidential or sensitive information; Business relationships; Gifts, gratuities, and hospitality inducements; Environmental and social responsibilities)

B. Professional Principles

(Professional competency; Professionalism; Honesty and integrity; Responsible management; Serving the public good; Compliance with legal obligations)

C. Governance and compliance

(Part I. Member Compliance; Part II. Complaint Procedures)

Code of Conduct Example

http://w5.siemens.com/cms/supply-chain-management/en/
sustainability/expectations/principles/pages/code-of-conduct.aspx
Siemens

Legal Compliance
Prohibition of Corruption and Bribery
Fair competition, anti-trust laws and intellectual property rights
Conflict of interest
Respect for the Basic Human Rights of Employees
Prohibition of Child Labor
Health and Safety of Employees
Environmental Protection
Supply Chain
Conflict Minerals

Sustainability and social responsibility in supply chains.

SECH - social, ethical, cultural and health ratings

Supply chain sustainability is a business issue affecting an organization's supply chain or logistics network, and is frequently quantified by comparison with SECH ratings, which incorporates social, ethical, cultural and health footprints.

Consumers have become more aware of the environmental impact of their purchases and companies' SECH ratings and, along with non-governmental organizations (NGOs), are setting the agenda for transitions to organically grown foods, anti-sweatshop labor codes, and locally produced goods that support independent and small businesses.

Because supply chains may account for over 75% of a company's carbon footprint, many organizations are exploring ways to reduce this and thus improve their SECH rating.

Ethics issues are at the heart of supply-chain management

http://www.supplychainbrain.com/content/research-analysis/chainlink-research/single-article-page/article/ethics-issues-are-at-the-heart-of-supply-chain-management-1/

CORPORATE SOCIAL RESPONSIBILITY (CSR) - regarding the environment, health and safety: Envisioned seamless world of corporate citizenship extends beyond U.S. borders.

Nike insisted in 1990-es that labor conditions in its contractors' factories were not its responsibility – defining a code of conduct for its contractors, but with no control to determine if contractors complied with the code.

Nike's factories came under attack for their workplace practices, including the use of child labor.

Ethics issues are at the heart of supply-chain management

http://www.supplychainbrain.com/content/research-analysis/chainlink-research/single-article-page/article/ethics-issues-are-at-the-heart-of-supply-chain-management-1/

Beyond monitoring: a more collaborative approach to reforms, sharing workplace and human resource best practices.

Apple was criticized for the workplace conditions and wage rates of its Chinese manufacturer, Foxconn, which makes the iPhone.

Fair Labor Association (FLA): Workplace Code of Conduct throughout its supply chain: assesses working conditions and monitors attempts to remedy violations in factories, farms and facilities used by its affiliated companies. "We believe every worker has the right to a fair and safe work environment free of discrimination, where they earn competitive wages and can voice their concerns freely," Apple CEO Tim Cook

Values and ethics of knowledge

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Based on the article:

Nancy Tuana (2015)
Coupled Ethical-Epistemic Analysis in Teaching Ethics. Critical reflection on value choices.
CACM VOL. 500 NO. 12. Pages 27-29

Ethical-Epistemic* analysis
## How values and priorities affect knowledge

"Computer experts aren't just building and manipulating hardware, software, and code, they are building systems that help to achieve important social functions, systems that constitute social arrangements, relationships, institutions. computer experts can facilitate and constrain behavior, and materialize social *values.*"

Deborah Johnson

Values serve as a guide to action and knowledge.

Epistemology-the branch of philosophy concerned with the nature and scope of knowledge.

Values built in Knowledge

KNOWLEDGE

VALUES   ▷   ▷ VALUES

SCIENCE

INFORMATION

VALUES

DATA

VALUES

16
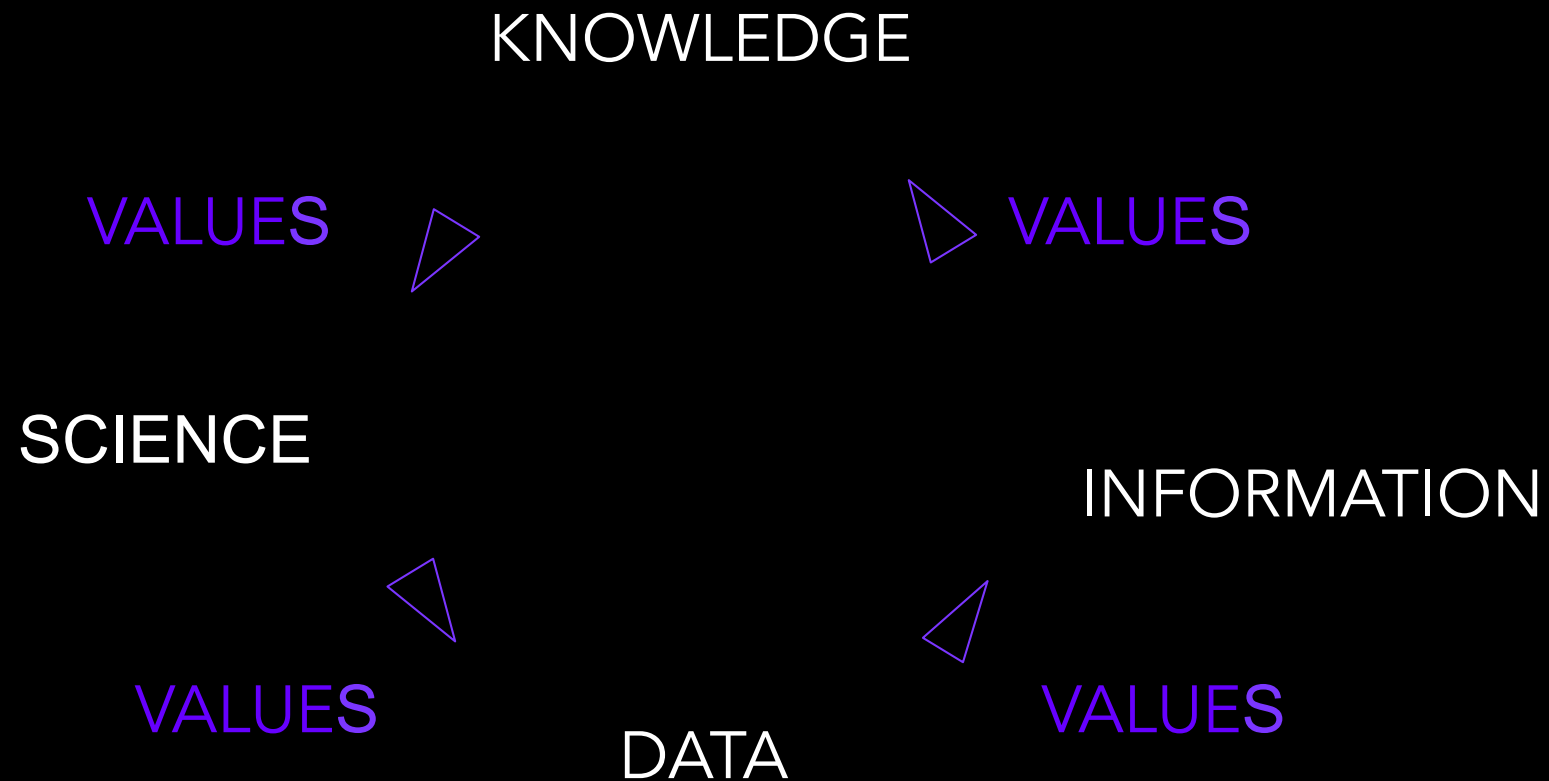
Values

Values serve as a guide to action and knowledge. They are relevant to all aspects of scientific and engineering practice, including discovery, analysis, and application.

Values and emotions

"The decisions that scientists and others need to make about what projects to pursue, what theories to accept, and what applications to enact will unavoidably have an emotional, value-laden aspect."

"The best course is not to eliminate values and emotions, but to try to ensure that the best values are used in the most effective ways."

Paul Thagard

Types of values

Various types of values can be involved in decision making and reasoning:

- ethical values (the good of society, equity, sustainability)
- *aesthetic* values (simplicity, elegance, complexity), or
- *epistemic* values (predictive power, reliability, coherence, scope).
- *economic* values, etc.

Values in research – choices we make

-   The selection of research topics. What is a good basis for
(We get involved with existing research. Or we get funding for a specific research. Or we choose freely. Why is this research worth our time and effort?)

-   Choice of approach, methodology, tools. What are the values of a model, hypothesis, or theoretical explanation in providing convincing explanation?

-   Judgment of the support for a research result. What values of evidence constitute robust evidence?

-   How are ethical aspects of research taken care of?

Requirement for transparency of values

Transparency of values is essential for trustworthiness and credibility of research. It is central to transdisciplinary research such as e.g. the National Science Foundation's Sustainability Research Network on Sustainable Climate Risk Management (SCRiM, http://scrimhub.org).

Coupled ethical-epistemic analysis helps to identify new and refined research topics, and inform modeling for multi-objective, robust decision making.

Ethics in Research and Professions

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Goals of research

"Perfection of means and confusion of goals seem, in my opinion, to characterize our age."

Einstein, 'Out of My Later Years'

New challenging technological developments

Challenge-driven innovation

Big data

Internet of things – internet of everything

Intelligent cities

Autonomous cars

Autonomous intelligent software as control systems, information systems etc.

Education is for the future - anticipation

We are educating engineers that will solve future problems

Future is already at our doors

Choices are made all the time in the design and engineering

Why ethics and value system are important?

Every technical solution is made for some reason. Was the reason good enough?

We want cars that are less fuel consuming, built with less material but those are not goals in themselves. As cheaper cars can inspire changing cars more often, more people having cars and using cars more often.

The worthwhile goal is more environmental friendly, sustainable society

STAKEHOLDERS IN AN INDUSTRIAL PROJECT

Industry
(Other firms)

Clients
Consumers

Profession
(Societies)

Engineering firm

Family,
Relatives,
Friends
(Private Sphere)

Engineer

Colleagues

Society at Large

Managers

Nature

27
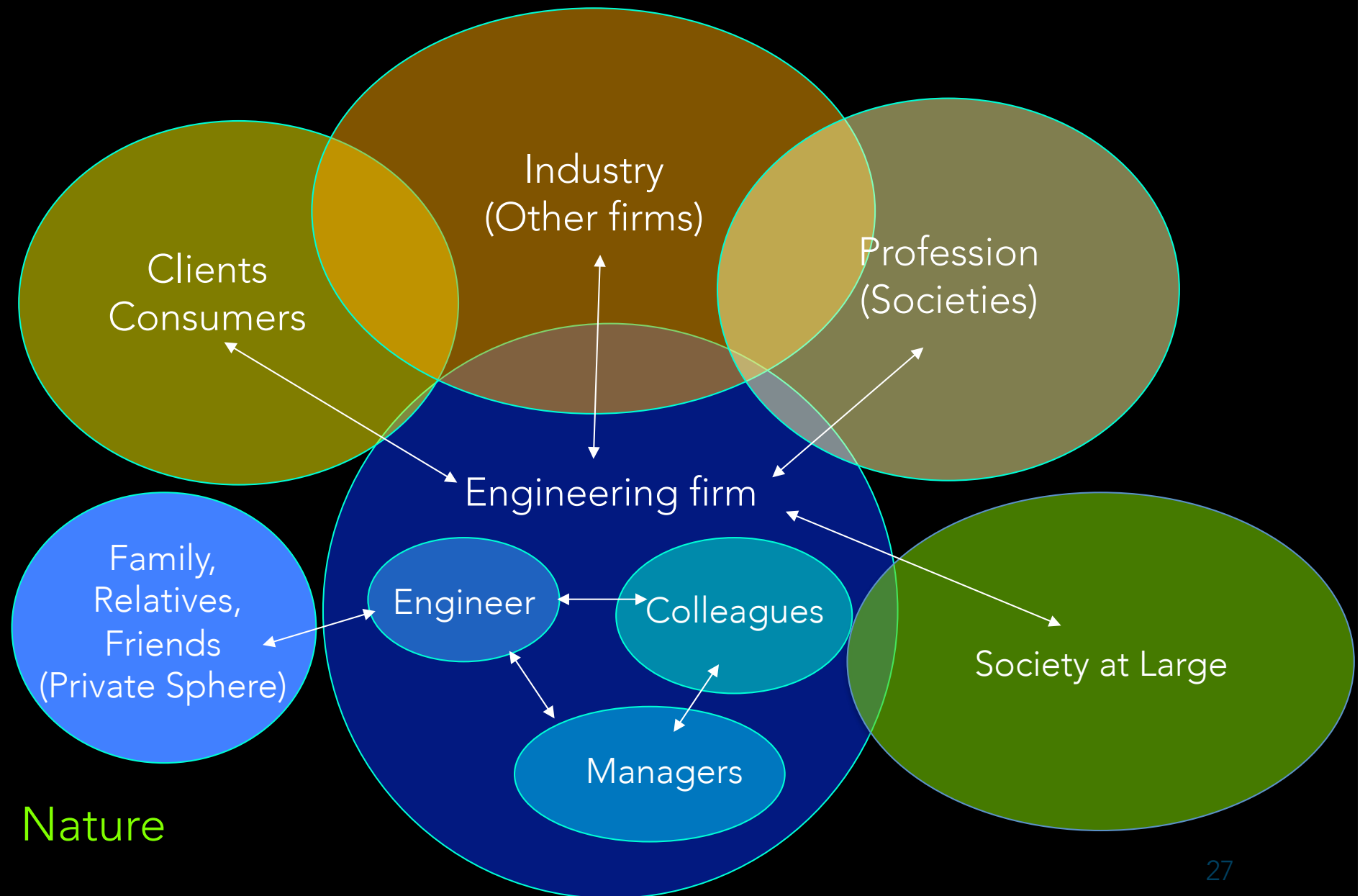
Risk, Precautionary principle & Whistle blowing

When an action presents threat to human health and the environment we should take precautionary measures even is some evidences and relations are not scientifically proven.

People have the duty to take precautionary measures to prevent harm.

All possibilities should be considered before taking and action.

When an individual employee feels that his company's actions are not right and he cannot accept them (S)he can give them publicity through the media – action called whistle blowing.

Professional Ethics

question of relations between different stakeholders

- practicing professionals
- employee and employer
- professionals and their clients
- teachers and students
- supervisors and research students

STAKEHOLDERS IN A RESEARCH PROJECT
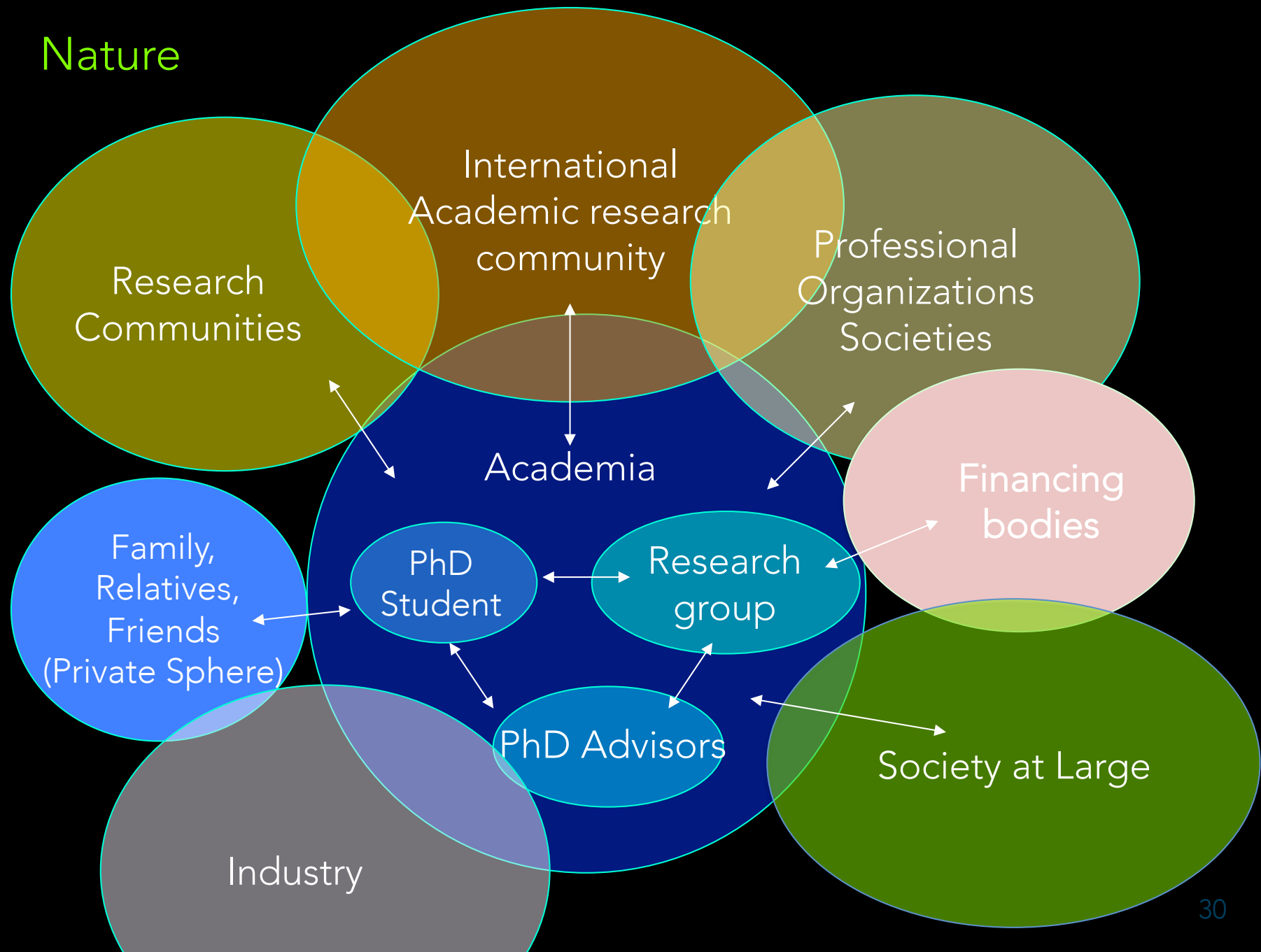
Is there Research Ethics?

"The beauty of math, of course, is that we don't need an ethicist."

Excuses not to think about Ethics

Discussion based on Paul Root Wolpe article from Cell 125, June 16, 2006 p. 1023. – class discussion

- "I'm Not Trained in Ethics"
- "My Scientific Work Has Little to Do with Ethics"
- "Ethics Is Arbitrary"
- "Ethicists Mostly Say 'No' to New Technologies"
- "Others Will Make the Ethical Decisions"
- "The Public Does Not Know What It Wants"
- "Knowledge Is Intrinsically Good"

- Can you plausibly defend any of the above positions?
- Can you plausibly refute any of the above positions?

Micro – Meso – Exo – Macro
Domains of Ethics

Macrosystem:
Cultural beliefs about being a psychologist and training practices to become a psychologist. Other factors, such as attitudes about race/ethnicity/gender/sexual orientation/disability

Exosystem
Licensure, accreditation, graduate school and other gate-keeping requirements, departmental evaluation, remediation and dismissal policies, professional competency standards, professional association policies

Mesosystem:
Interactions among colleagues, peers, faculty and supervisors

Microsystem:
The individual's direct interaction with peers, supervisors, advisor, instructors

Individual

The domain-based view in the analysis applicable to different types of problems – organization of society, sustainability of cities, ecology, economics, ethical aspects etc. Source: American Psychological Association

Network as a Model of Knowledge

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Networks on different scales

Yeast protein interaction network

Brain Cell

The Universe
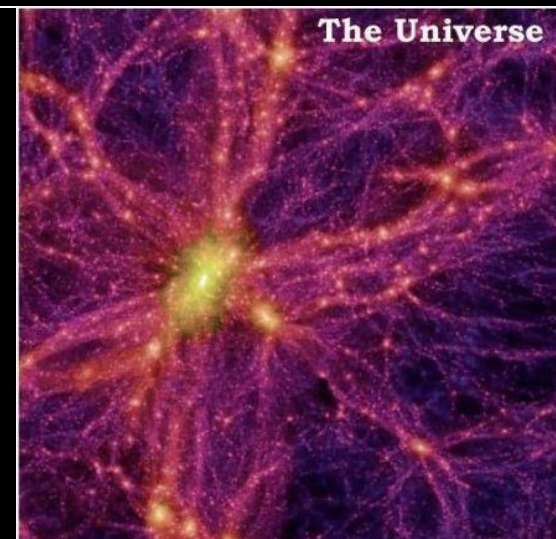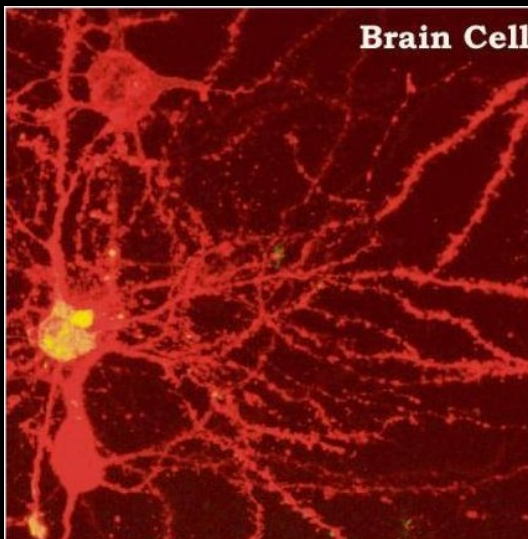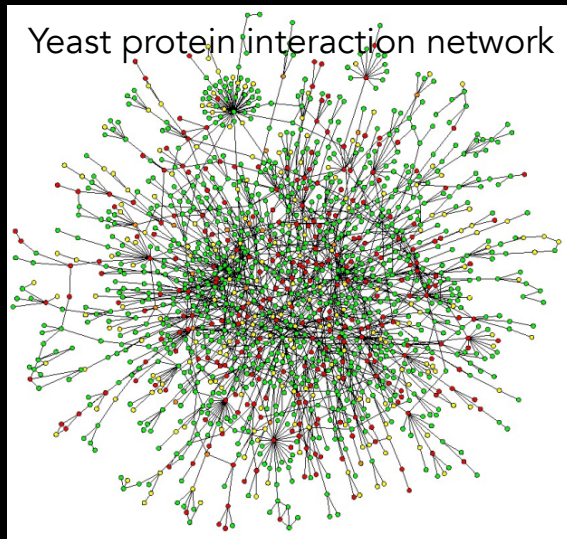
http://online.kitp.ucsb.edu/online/pattern_i03/west/oh/29.html
http://www.santafe.edu/about/people/profile/Geoffrey%20West

HUMAN SOCIAL NETWORKS

Networks, Crowds, and Markets:
Reasoning About a Highly Connected World
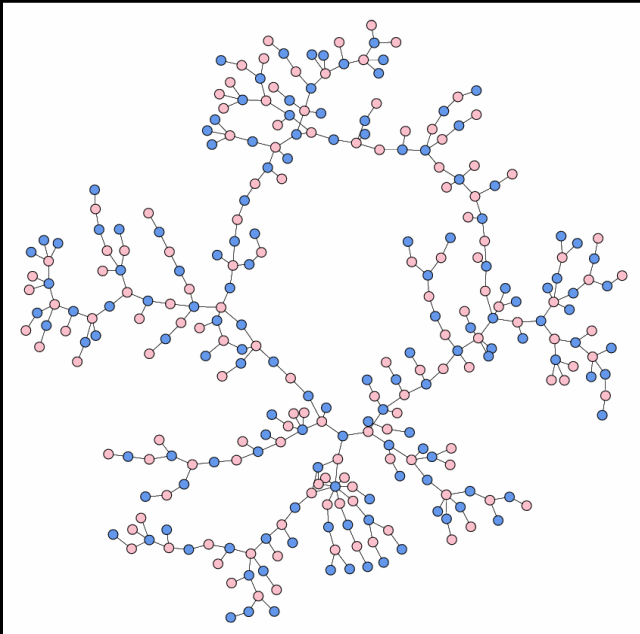
High School Dating
(Bearman, Moody, and Stovel, 2004)
(Image by Mark Newman)

Corporate E-Mail Communication
(Adamic and Adar, 2005)

Trails of Flickr Users in Manhattan
(Crandall et al. 2009)
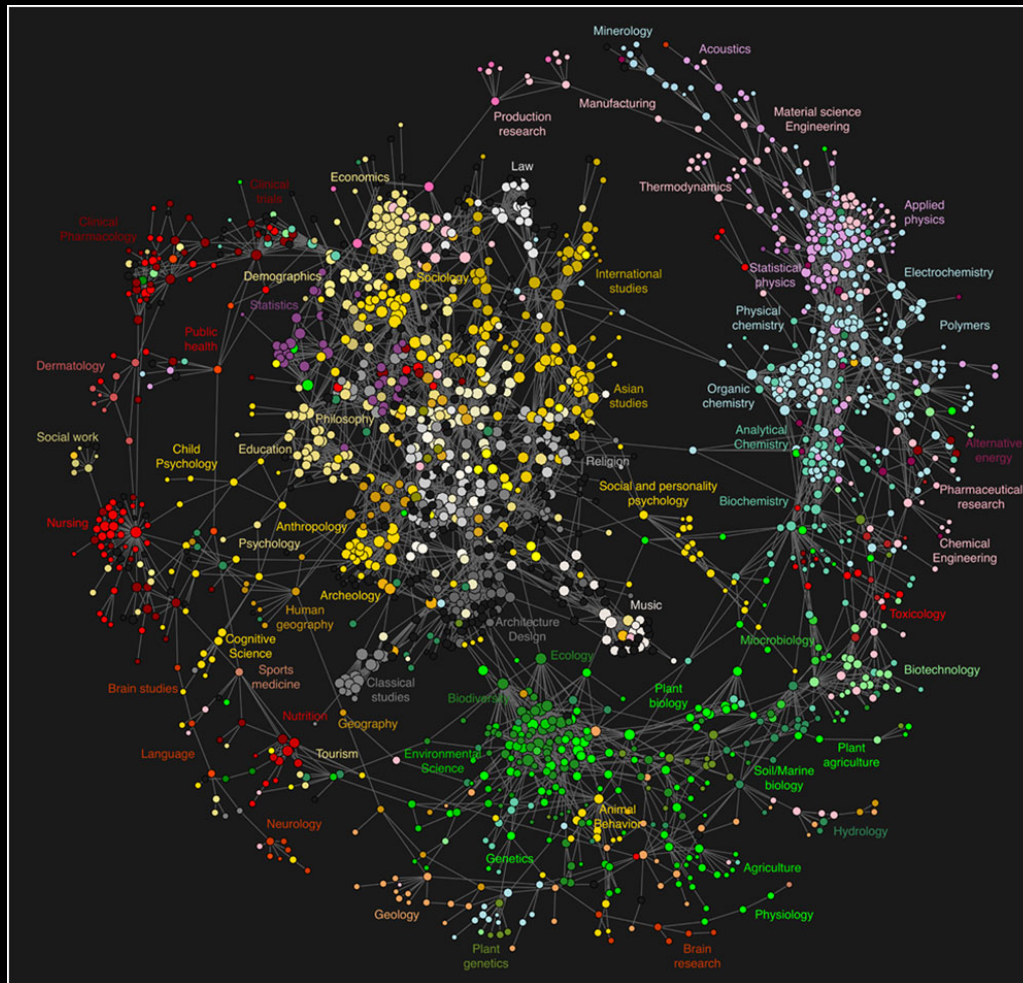
MAP OF SCIENCE

This "Map of Science" illustrates the online behavior of scientists accessing different scientific journals, publications, aggregators, etc. Colors represent the scientific discipline of each journal, based on disciplines

http://www.lanl.gov/news/albums/science/PLOSMapOfScience.jpg

http://www.lanl.gov/news/index.php/fuseaction/nb.story/story_id/%2015965

Transdisciplinary Knowledge

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FORMS OF DISCIPLINARITY

Disciplinarity manifests itself in different forms, such as:

- MONO-
- MULTI-
- INTER-
- PLURI-
- CROSS-
- TRANS-
- META-DISCIPLINARITY

MULTI-DISCIPLINARITY

Multidisciplinarity

is concerned with the study of a research topic within one discipline, with support from other disciplines, bringing together multiple dimensions, but always in the service of the driving discipline. Disciplinary elements retain their original identity. It fosters wider knowledge, information and methods.

Examples

Research Topic: Discovery of a particular drug
Host discipline: Pharmacology
Complementing disciplines: Biochemistry, Chemistry, Medicine.
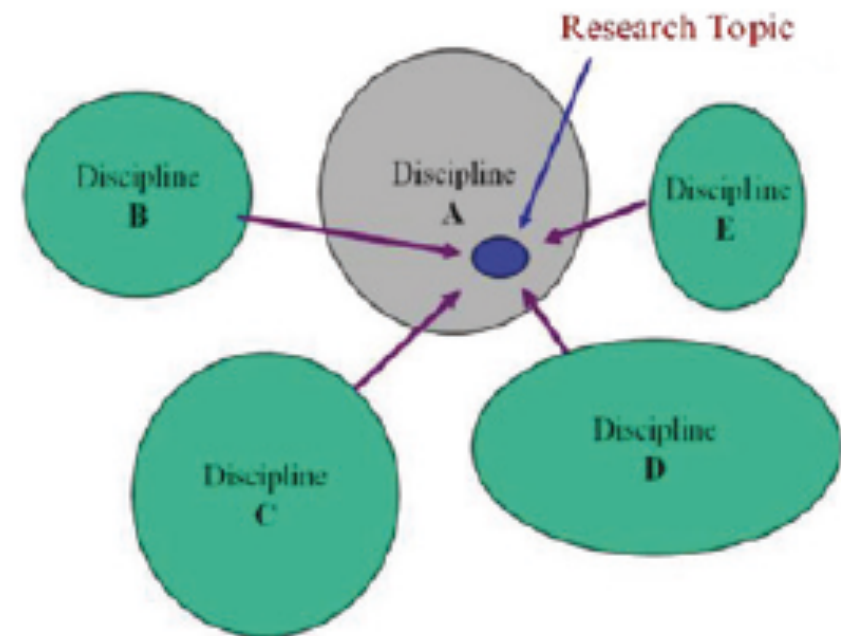
INTER-DISCIPLINARITY

Interdisciplinarity

is concerned with the study of a research topic within multiple disciplines, and with the transfer of methods from one discipline to another. The research topic integrates different disciplinary approaches and methods.

Example

Research Topic: Robotics

Host versus complementing disciplines: this has changed over the years and with the expansion of the field, there could be different host(s) and complementing disciplines from Mechanical, Electrical and Computer engineering, Mathematics, Informatics and Computer Science, Neuroscience or Psychology.

http://www.esf.org/fileadmin/Public_documents/Publications European_Peer_Review_Guide_01.pdf
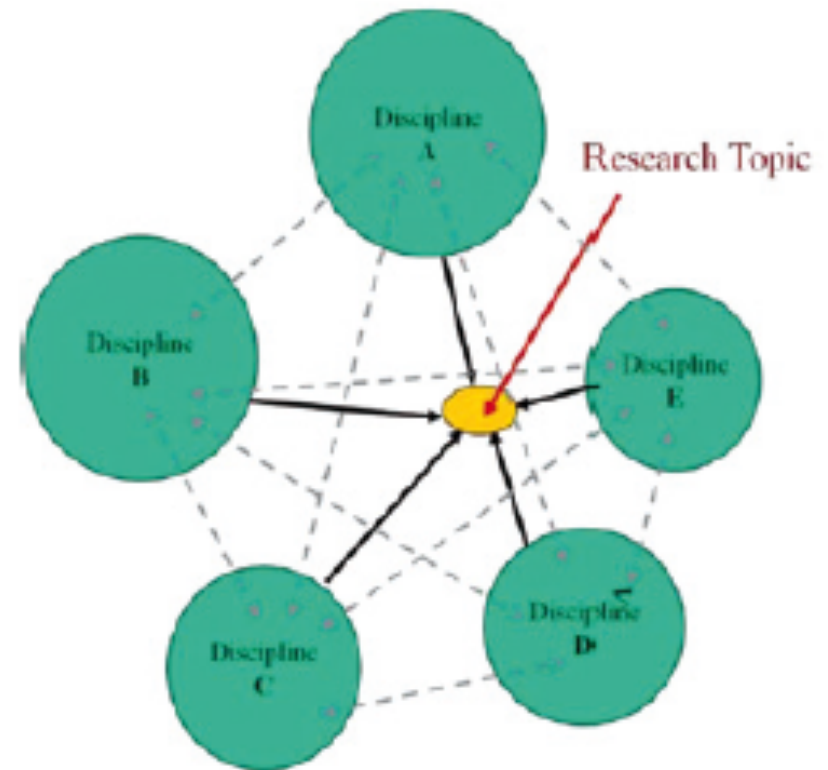
CROSS-DISCIPLINARITY

Crossdisciplinarity

is concerned with the study of a research topic at the intersection of multiple disciplines, and with the commonalities among the disciplines involved.

Example

Research Topic: Biologically Inspired Engineering
Host disciplines: Engineering, Material science
Complementing disciplines: Biology, Zoology
Interactions are very strong with commonalities in the way biological systems and engineering counterparts are viewed.

http://www.esf.org/fileadmin/Public_documents/Publications European_Peer_Review_Guide_01.pdf
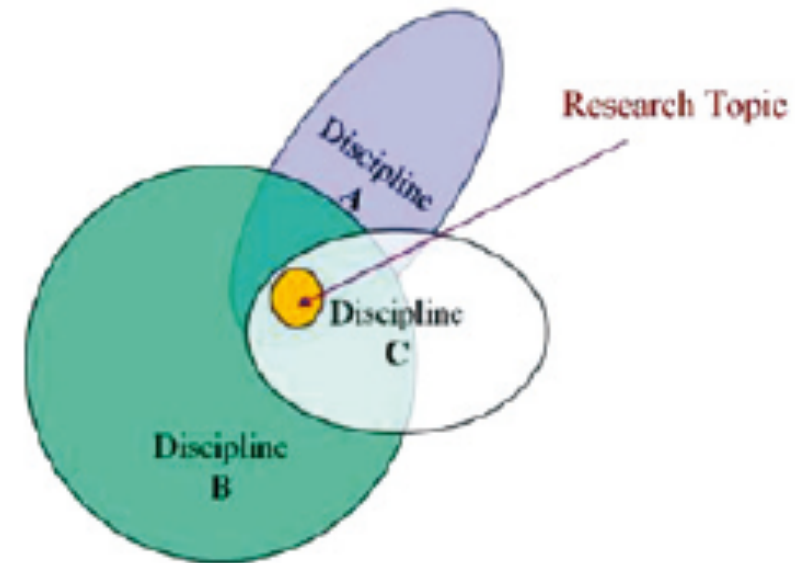
TRANS-DISCIPLINARITY

Transdisciplinarity

is concerned at once with what is between, across and beyond all the disciplines with the goal of understanding the present world under an imperative of unity of knowledge.

Examples

Research Topic: Synthetic Biology, Cognition, Artificial Intelligence
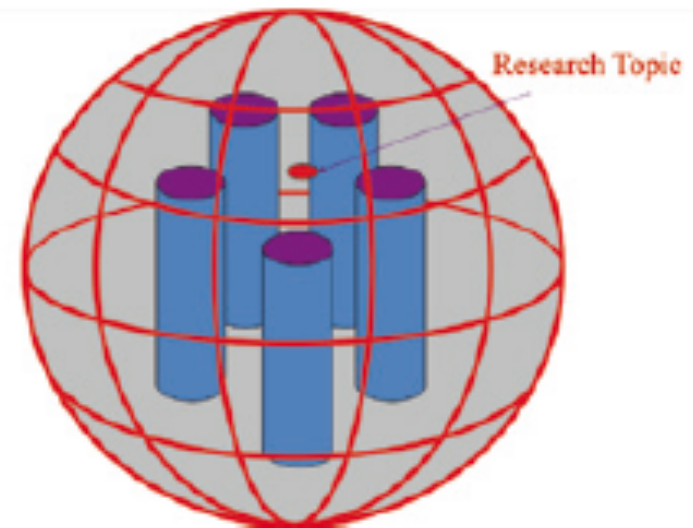
CHALLENGES OF TRANSDISCIPLINARITY

The main cognitive challenge of the research process is i n t e g r a t i o n which is based on reflexive attitude both oriented towards different actors in the research process and their mutual relations, and towards the research project as a whole in its context (Jahn et al. 2012)

The main difference to interdisciplinarity, apart from the degree of interaction, is the i n v o l v e m e n t   o f e x t r a - s c i e n t i f i c   s t a k e h o l d e r s   i n transdisciplinary research. (Frodeman et al. 2010) (Hadorn et al. 2008)

CHALLENGES OF TRANSDISCIPLINARITY

Transdisciplinary is often applied to address the real world complex problems through context-specific negotiation of knowledge that emerges from collaboration. (Thompson Klein 1996)

Research fields include environmental-, sustainability-, gender-, urban-, cultural-, and peace and conflict-, future-, public health- and information- studies, policy sciences, criminology, gerontology, cognitive sciences, information sciences, materials science, artificial intelligence, human-computer interaction, interaction design, ICTs and society studies, etc.

TRANSDISCIPLINARITY TEAMWORK

From the organizational point of view,
"Transdisciplinary research is, in practice, team science. In a transdisciplinary research endeavor, scientists contribute their unique expertise but work entirely outside their own discipline. They strive to understand the complexities of the whole project, rather than one part of it.

Transdisciplinary research allows investigators to transcend their own disciplines to inform one another's work, capture complexity, and create new intellectual spaces." (Güvenen 2015)
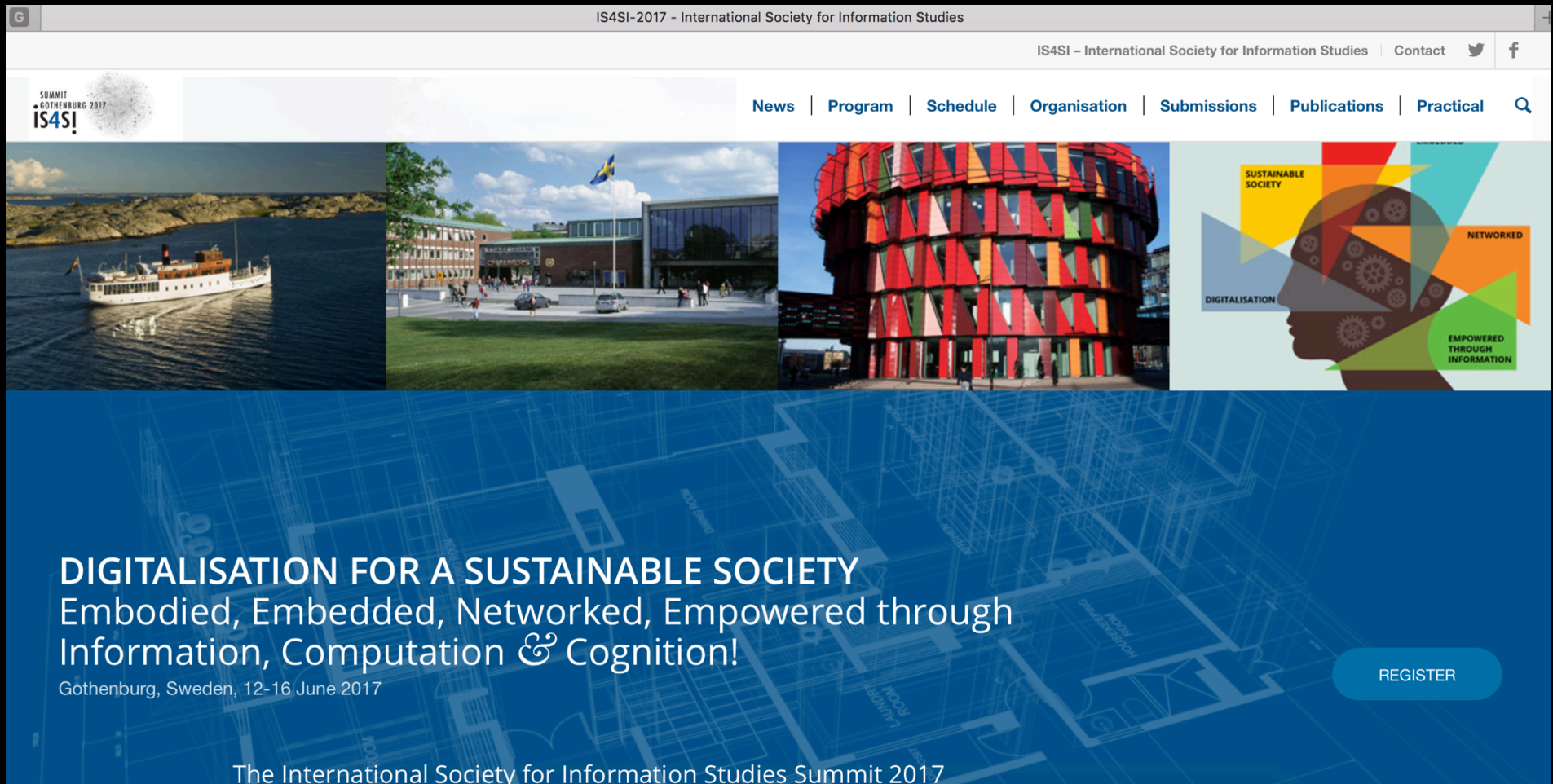
TRANSDISCIPLINARITY
AND INVOLVEMENT OF STAKEHOLDERS

Involvement of stakeholders providing the context for the solution of real-world problems is central for transdisciplinary research.

Distinctive characteristics of transdisciplinary research, according to Klein taxonomy are transcending, transgressing and transforming. (Klein 2010)

Important component: MULTI-CRITERIA DECISION ANALYSIS

New challenges: Digitalization for a sustainable society

http://is4si-2017.org

Sources & Resources

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On Being a Scientist

http://www.nap.edu/catalog.php?record_id=12192

http://www.esf.org/fileadmin/Public_documents/Publications/Code_Conduct_ResearchIntegrity.pdf The European Code of Conduct for Research Integrity

Promoting Research Integrity

Sample Chapter(s)
Introduction (46 KB)
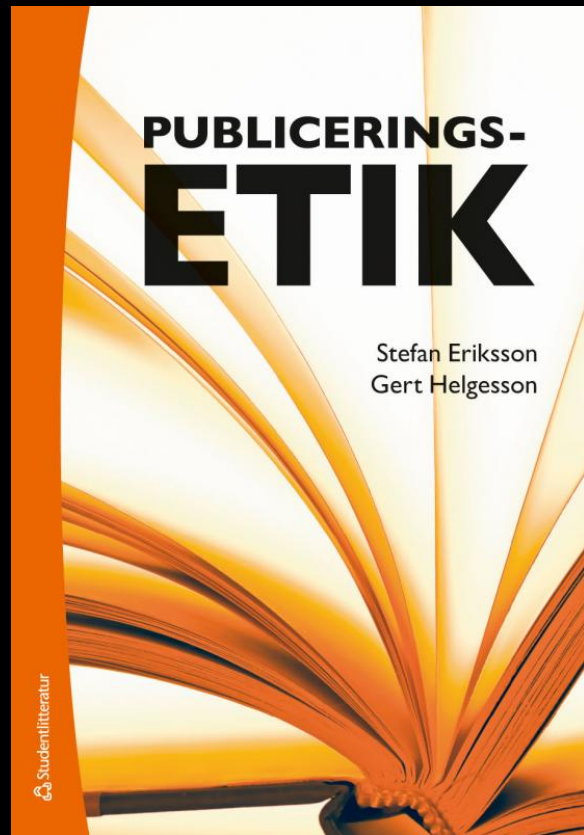Section II: Research Integrity Structures
Section III: Research Misconduct

http://www.worldscientific.coworldscibooks/10.1142/8102
Promoting Research Integrity in a Global Environment

Peer Review

Publiceringsetik (Book in Swedish)

PUBLICERINGS-
ETIK

Stefan Eriksson
Gert Helgesson

Studentlitteratur

https://www.studentlitteratur.se/#33300-01
https://www.studentlitteratur.se/#produkt/110/41433/innehall/

RESEARCH ETHICS RESOURCES

http://www.nap.edu/catalog.php?record_id=12192 On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition

http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2010_11_19/caredit.a1000111 Responsible Conduct of Research for Junior Researchers

http://www.esf.org/fileadmin/Public_documents/Publications/Code_Conduct_ResearchIntegrity.pdf The European Code of Conduct for Research Integrity

http://www.zim.mpg.de/openaccess-berlin/berlin_declaration.pdf Berlin Declaration on Open Access to Knowledge

http://www.icmje.org/urm_main.html Uniform Requirements for Manuscripts

http://www.codex.vr.se/

SWEDISH RESEARCH COUNCIL ETHICS RESOURCES
EXPERT GROUP FOR ETHICS

http://www.vr.se/inenglish/ethics.4.69f66a93108e85f68d48000116.html

http://www.epn.se/sv/start/startsida/ Etikprövningsnämnderna

COURSES I TEACH

https://www.chalmersprofessional.se/sv/utbildningar
tags=generic_skills&id=4409#.VNDpTcbvMgO Research Ethics &
Sustainable Development (Chalmers GTS course)

http://www.idt.mdh.se/kurser/cd5590/
Professional Ethics course at MDH

http://www.idt.mdh.se/~gdc/work/20160421-TRANSDISCIPLINARY-
COURSE-SCHEDULE.html Transdisciplinary Research Methods at GU

PRESENTATIONS

Preparing Next Generation of Software Engineers for Future Societal Challenges and Opportunities

Teaching Ethics to Engineering Students - Chalmers 17.04.2015

Research Ethics - ITS-EASY PhD School Workshop Wien, March 25 2014

Risk-based Decision-making Fallacies: Why Present Functional Safety Standards Are Not Enough. MARCH2017 International Workshop on decision Making in Software Architecture @ ICSA 2017 Gothenburg, Sweden. 04.04.2017.

Inclusion of Ethical Aspects in Multi-Criteria Decision Analysis
WICSA and CompArch conference

http://www.idt.mdh.se/~gdc/work/presentations.html

ARTICLES

Dodig-Crnkovic, G., Kade, D., Wallmyr, M., Holstein, T. and Almér, A. Transdisciplinarity seen through Information, Communication, Computation, (Inter-)Action and Cognition. Chapter i the book: Burgin and Hofkirchner, eds. INFORMATION STUDIES AND THE QUEST FOR TRANSDISCIPLINARITY - vol. 9 of the World Scientific Series in Information Studies, 2017, World Scientific.

pp. 217-261 http://arxiv.org/abs/1604.04711

Sapienza, G., Dodig-Crnkovic, G. and Crnkovic, I. Inclusion of Ethical Aspects in Multi-Criteria Decision Analysis. Proc. WICSA and CompArch conference. Decision Making in Software ARCHitecture (MARCH), 2016 1st International Workshop. Venice April 5-8 2016. DOI: 10.1109/MARCH.2016.5, ISBN: 978-1-5090-2573-2. IEEE

Dodig-Crnkovic, G., Preparing Next Generation of Software Engineers for Future Societal Challenges and Opportunities. ESEC/FSE 2015 SSE'15, September 01 2015, Bergamo, Italy. In Proceedings of the 7th International Workshop on Social Software Engineering (SSE 2015). ACM, New York, NY, USA, 49-52.
DOI=10.1145/2804381.2804389

http://www.idt.mdh.se/%7Egdc/work/publications.html