33rd Conference of Rectors and Presidents of European Universities of Technology, Chalmers University of Technology, 19-20 September 2014

Universities' Role and Ability to Handle Grand Societal Challenges

Some Points for Discussion

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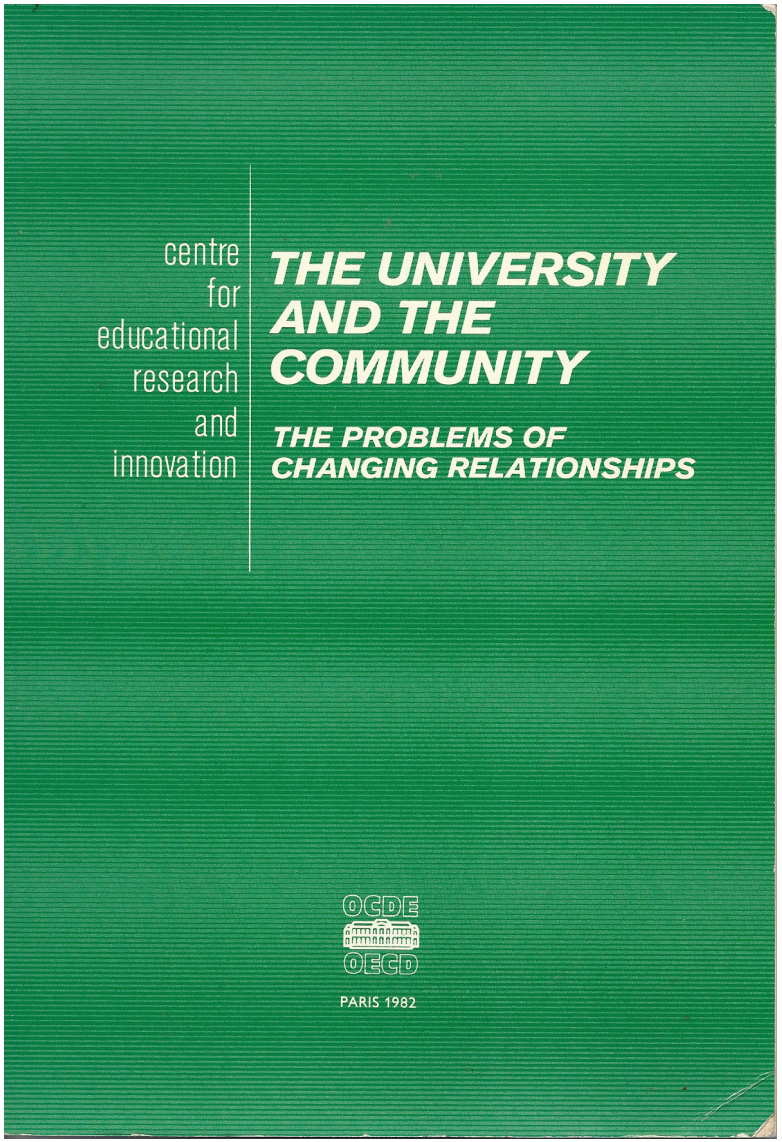
Grand Societal Challenges

Categories of issues, structures, processes

- **Challenges 1**
  - Aging population, climate change, energy, environment, transport, urbanisation, water, …
  - Cultural diversity, clashes of different religions, conflicts, economic crises, the financial system, migration, peace, poverty, privacy, security, …
  - Sustainable development
- **Challenges 2**
  - How to make optimal use of knowledge resources
  - „The community has problems and the university has departments“ (OECD 1982) …
  - Cooperation: interdisciplinary, intersectoral, etc.

Handling Grand Challenges …



Chapter 2

"COMMUNITIES HAVE PROBLEMS, UNIVERSITIES HAVE DEPARTMENTS"

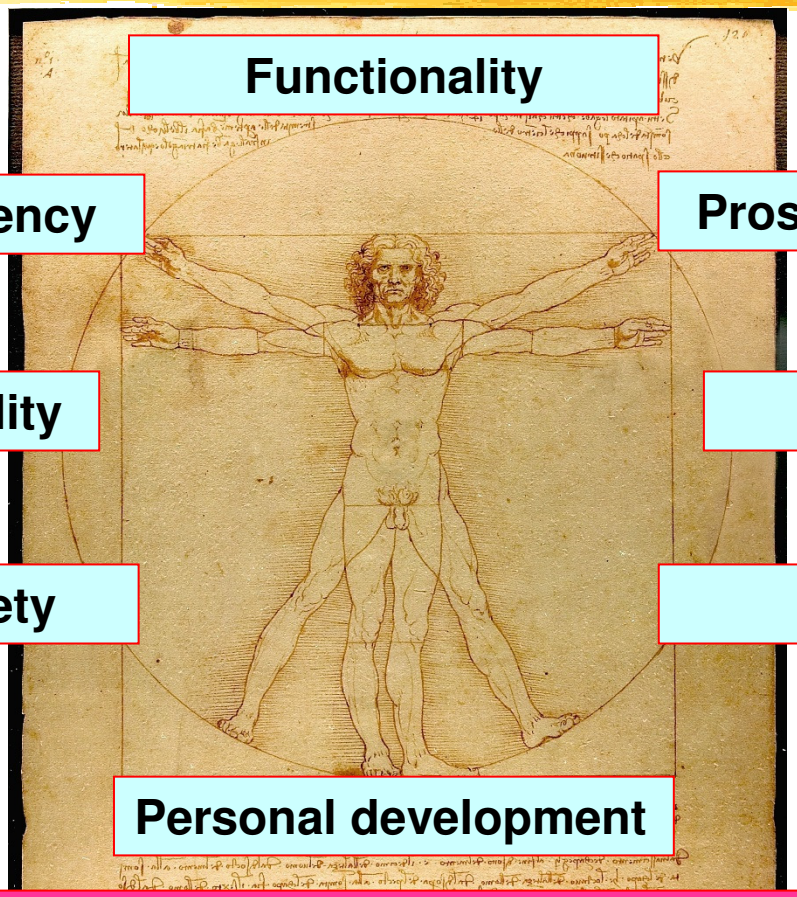
This heading neatly expresses the difficulty a university generally has in responding to an increasing number of requests from the community. The structures of higher education and more particularly the universities are still, for the most part, based on the growth of knowledge and mono-disciplinary practice. When the community brings up complex, and therefore dimensional, situations and asks for multiple action (because a real problem is never exclusively technical, social or scientific), all the university can offer is a collection of analytical structures. Already in 1965, M. Weinberg in *Science* [38] wrote "the mission of society is to solve its variety of problems, virtually none of which could be resolved by the application of a single discipline. The universities on the other hand, rather than being "mission-oriented" are "discipline-oriented". In addition to this the rapid increase in knowledge is tending to lead to an ever-increasing degree of fragmentation and specialisation which in turn is leading to ever-increasing difficulties in communication, which could in time mean that the universities could virtually lose contact with the society which supports them".

So interdisciplinarity is not just a new approach to education and research but the key to the change in the missions and social status of the university. For this reason, interdisciplinarity emerged as a major subject at the OECD Conference in February 1980 and is again the subject of various international meetings and conferences (e.g. the UNESCO Bucharest Colloquium of November 1981 on Interdisciplinarity). Again, because CERI had already carried out an in-depth theoretical exercise in 1969-70 backed up by various concrete studies and surveys on the importance of interdisciplinary education and research.

At that time we proposed some terminological and conceptual clarifications we feel it useful to recall in this chapter.

Discipline:	A specific body of teachable knowledge with its own background of education, training procedures, methods and content areas.
Multidisciplinary:	Juxtaposition of various disciplines, sometimes with no apparent connection between them. e.g.: music + mathematics + history.
Pluridisciplinary:	Juxtaposition of disciplines assumed to be more or less related. e.g.: mathematics + physics, or French + Latin + Greek: "classical humanities" in France.
Interdisciplinary:	An adjective describing the *interaction* of two or more different disciplines. This interaction may range from simple communication of ideas to the mutual integration of organising *concepts, methodology, procedures, epistemology, terminology, data,* and organisation of research and education in a fairly large field. An interdisciplinary group consists of persons trained in different fields of knowledge (disciplines) with different concepts, methods, and data and terms organised into a common effort on a common problem with continuous intercommunication among the participants from the different disciplines.
Transdisciplinary:	Establishing a common system of axioms for a set of disciplines (e.g. anthropology considered as "the science of man and his accomplishments", according to Linton's definition).

Grand challenges: Technologies are based on decisions between different alternatives



Functionality

Economic efficiency

Prosperity and wealth

Environmental quality

Societal quality

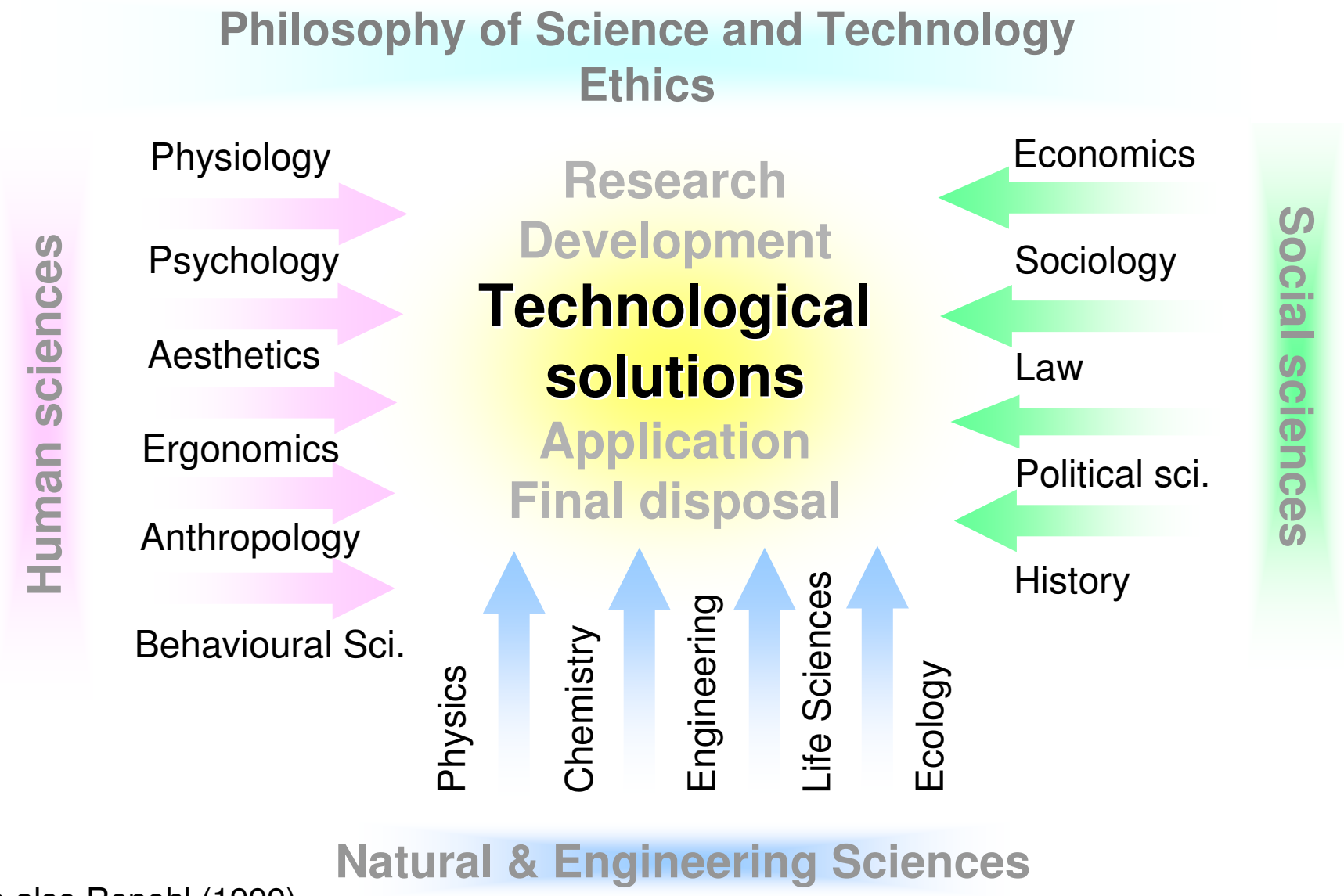
Security & Safety

Health

Personal development

Technologies result from human decisions based on different values, expectations, interests, …

A multi-dimensional concept of technology



See also Ropohl (1999)

Roles of the university

- **The university as initiator of new knowledge**
  - A key actor in the production of knowledge
  - **The creative and integrative university**
- **The university as the "melting pot"**
  - Multiple perspectives in education and research
  - **The collaborative and interactive university**
- **The university in the Innovation System**
  - The university as actor in the "real world"
  - **The innovative & entrepreneurial university**

Some points of interest of participants

Sustainable development

- Interdisciplinarity
- Cooperation – depts, unis, uni-ind
- Knowledge triangle
- Smart specialisation
- Internationalisation

- University planning & management
- New univ structures and arrangements
- Support structures, interfaces
- Incentives

Creativity, societal awareness, responsibility

Thank you for your attention!

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