

ON THE NETWORKING OF SCIENCES AND HUMANKIND,
WITH A DEDICATION TO SPIRU HARET (1851–1912)

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The map of sciences in the second half of the 20th century has an abrupt form, different from the set of sciences during the Greek antiquity, the Renaissance period, the Enlightenment and from Ampere's classification of sciences. The scientific disciplines have evolved "vertically" to the profoundness of knowledge, but there were interdisciplinary challenges (marked "horizontally"). The result is a **network of sciences** inside a space of knowledge. Here, it is delimited "vertically" and "horizontally", but with regard to the huge advance of humankind: inside the socially dynamic depth and inside its neural individual and collective (non-) revealed faculties too. So, the network of sciences – given here as a model of its reality – is proper to the comprehension of both the *profoundness of knowledge* and the *relations between sciences*. Briefly, for this last issue, there is a kind of a *fast-forward scientific connection* acting fuzzily at the intersection between the social background of sciences and the neural background of sciences; we mark it as the **socio-neural segment**.

The interference between the contemporaneous scientific network and the social and neural background may be analyzed, depicted and represented through a multitude of (nowadays classic) cycles (spanning the resources involved: human, technical and social aggregation, neural resources of the mind and of consciousness). One of these cycles is interior to this network of sciences. It is a **generative cycle**, starting from the socio-neural segment; it acts according to the profoundness of knowledge, and it will be forever (re)turning within the socio-neural segment. The existence of this cycle elicits the (cyclic) redefinition of the social and neural background (understood as interdisciplinary). The problem of an "optimal" period of time proper to the observation/re-observation, forecasting/re-forecasting of the socio-neural segment, of its generative **cycle** is an outdated one (mainly due to the reality beyond the concept of "satisfaction"). From this type of forecasting to social prevention, social education and social construction there are some long-term steps.

There results the necessity of a conceptual recovery confronting the nearly classic flow: multi-theme-multidisciplinary-interdisciplinary-transdisciplinary approaches. This recovery engenders the necessity resulting from and belonging to the dynamics of the "vertical" and "horizontal" dimensions of the network of sciences. Despite the unbroken traditional borders of scientific cognition, more and more links appear between:

- “exact” sciences and “human” sciences;
- science and technology – according with an increased engineering variety, social assistance and (self-) employment into e-Systems;
- co-existence of philosophy and scientific domains (into a wide possible science-poetry-theology/philosophy-arts-management ring);
- academic area and the large public area – more interactively connected through present mass media and Internet facilities.

This network of sciences (together with its cycles; fuzzily dependent on the models which would tend to grapple with it) exists through and is dedicated to **humankind**; but there is a relative autonomy of this network of sciences. In this context, there is a generator of *performances*; performances carried out by individuals. These become contextual individuals through *competencies*. But, for each person in relation to the global ecological system, it is very important that the contextual competencies appear resonant with the attained performances. There is a complex reciprocal **induction** between the **neural and social cycles** and the **performances–competencies balance** – across the **observable humankind**.

Scientific and technological performances (some of them based on the V and VI computer generations: expert systems involving artificial intelligence and, respectively, neural networks) do not generalize competence from technical and mixed systems (human-technical) to economic systems, towards social and ecological systems. Also, reciprocal discrepancies among great human communities (analyzed with global models of mankind: Meadows/1972, Mesarovic/1974, Naisbitt/1982), underline cultural distortions and prove the generative complexity of the real (social) life. This is life’s generative complexity. With the lack of a real-time global description of mankind and with the state of art of operative problem solving (in spite of a century of management for an operational-industrial macro-domain), the thesis of Rousseau from “Discourse upon Science and Arts”, 1750, seems more relevant than ever.

Geniuses may redefine our days; the faith may still be a salvation. But to think more actively, within inter/trans-disciplinary approaches, would be an actual aim connected with **the REAL (societal) WORLD**. The huge analytical accumulation of philosophical and literary-artistic introspection – over thousands of years – of mankind and, respectively, the sociological, ethnological, anthropological, psychological research upon mankind and the human being – over approximately the last two centuries – may cross a turning point now and reveal an open inter/trans-disciplinary program.

Some of the profound Romanian scientific interdisciplinary efforts are emergent (geographically) far from the Western elite. In Romania the scientific activity is gaining impetus, while constantly reminding us of the contribution made by great personalities (mentioned in the CRIFST activities) such as:

The founder of the Romanian School of Mathematics. **Spiru Haret (1851–1912)** – author of “Social Mechanics” (“Mécanique sociale”, 256 pages, Gautier-Villars, Paris| Ch. Göbl, Bucarest, 1910). This work is not at all a re-make after 70 years (August Comte was the first to use the terms: Social Static and Social Dynamics), and (today) it may be more than an anticipatory outlook towards the co-status of Sociology and Mathematics. Spiru Haret’s interdisciplinary work starts a renewed conceptual and modeling construction – as the basis for an on-line or/and consecutive praxis. Spiru Haret was not only a famous mathematician and astronomer of his time, he was equally considering the “shifting” of the celestial relational harmony within the social representation as a basis for research and praxis. Which did not imply – not in the least – “copying” some kind of deterministic (quantitative) methodologies into the fuzzy corpus of the sociological methodology of that time. His apparent methodological knowledge transfer had a deeper basis: the *search for the synergy of humankind production, intelligence and morality*; he depicted the civilization topos as a flow aggregating the societal resources, representing and solving its problems.

Engineer **Gheorghe Duca** (1847–1899) the founder of The Polytechnic Society – at present the Polytechnic University of Bucharest.

Gheorghe Zapan (having studied in Germany between the two wars) produced the idea of “a relativistic individual-time” – in parallel to Einstein’s idea of a relativistic space-time; he collapsed during the communist period.

Even the older Romania is a real cradle of interdisciplinary personalities: 1716, **Dimitrie Cantemir**’s academic “in ovum” futuristic research, a large scale non-systemic prediction/ analysis of the rise and fall of the Ottoman Empire – equally containing an interdisciplinary forecast of the descending period. Dimitrie Cantemir was proclaimed member of the Berlin Academy, as soon as his Latin work was translated into English.

There were and still are relevant Romanian contributions made in international contexts; especially after the 1989 Revolution.