



ENVIRONMENTAL PROTECTION BETWEEN SPECIALIZATION AND MULTIDISCIPLINARY APPROACHES

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Rezumat

În cursul istoriei, cercetarea științifică în general, precum și studiile economice privind dezvoltarea durabilă și protecția mediului, în special, au fost, sunt și vor fi influențate de gândirea și de acțiunea omului, individ rațional economic și social, sugerat prin sintagma *homo oeconomicus - zoon politikon*.

Pe scurt vorbind, cele două ipostaze ale omului individ dezvăluie mișcarea continuă dintre specializare și multidisciplinare, dintre individualismul pieței și holismul instituțional științific, între ipoteză și experiment, între optimalitatea externalităților pieței și viabilitatea economică a sistemelor sociale și naturale considerate complexe.

Având în vedere contextul dezvoltării economice durabile precum și dezvoltarea integrat-regenerativă, este de considerat impactul

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conceptului rețelei clusterelor inteligente inspirat atât din economia neoclasică, cât și din economia instituțională ecologică – rațiunea umană și inteligența naturii.

În acest cadru se pune problema : protecția mediului este doar o simplă analiză a alocării optime a resurselor economice din perspectiva specializării și multidisciplinarității?

Abstract

In the course of history, both scientific research, as well as economic studies on sustainable development and environmental protection, in particular, have been, are and will be influenced by thought and action of rational-social animal human, suggested by the concepts of *homo oeconomicus* and *zoon politikon*.

Briefly speaking, the two hypostases of human individual-specialization reveals the continuously never-ending movement between specialization and multidisciplinary, modal logic versus entropic-psychological principles, hypothesis versus experiment, optimality versus sustainability of economic, social and natural systems.

Taking into account the principles of abstraction, generalization and anticipation, process of thinking-based on an ordered system of operations for collecting, processing, interpretation and use of the information, in an algorithmic or heuristic way could manifest as an intelligent cognitive ability in the development of a project by illustrating the human capacity to choose the optimal alternative from the set of initially possible, given the risks and opportunities.

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As mentioned in the literature, environmental project management is defined as the subjective, comparative and parametric and efficiency orientated process of analysis, modelling and implementation of specific temporary resources teleological-oriented to achieve a desired result.

In this framework is taking into account both the transition process from classical sustainable economic development to regenerative

economic development – from the so called triple bottom line to the triple top line paradigms –, as well as the concept of network (a matrix of structured interconnected elements), and its possible natural, economic and financial flows, interdependencies or connections within and between the natural entities and socio economic agents.

Thus, it is to consider the impact of intelligent network concept on project management approach by considering both “intelligence of market” and “intelligence of nature”, the neoclassic informational techno-pecuniary externalities as well as the institutional resilient capacity of complex adaptive systems, in the sense of material, formal, final, efficient causes or system thinking paradigms.

Intelligent network could be defined as a geographic, functional, production and institutional space of interconnected clusters that reveal concrete contrasting features: specialisation and multidisciplinary, optimisation and sustainability, market and institutions, human rationality and adaptive intelligence of nature.

Firstly, the market intelligent clusters are specialized to generate and disseminate information through the networked market supply-chains of producers and consumers utilities, in the production, social and geographic space illustrated by pecuniary and technologic informational externalities.

Just as it is known, by considering the distinction between private values and social values externalities illustrate costs or benefits induced by economic operators on tertiary natural and legal persons generating economic and social effects, positive or negative that influences production and consumption decisions of consumers and producers-taking into account the relations between the elements of its mechanism (marginal private cost, external marginal cost, social marginal cost, marginal private benefit) and the consequences of positive and negative externalities as a difference between social values and private values to compensate third parties and to determine through fiscal and regulation tools the optimal level of pollution.

At the same time, the economic literature mention the so-called Marshallian information network externalities, as illustrated in the literature under the binomial concept pecuniary externalities-technological externalities. In general, they illustrate direct and indirect interactions between economic agents, in the presence or absence of price mechanism, considering the structure of relative prices of

resource inputs-the fact that environment can be polluted not only through economic and environmental interactions but also through the benefits and costs access and use of environmental information technology.

In particular, network externalities illustrate three possibilities of manifestation circumscribed to the specific space of microeconomic interactions between the agents involved (technical-economic, socio institutional, geographical region).

Within the productive context of technical, economic and environmental efficiency, network externalities reveals the impact of the presence or absence of price mechanism, by considering the distinction between spontaneous capacity to absorb the benefits of information-technology on the one hand, and the additional costs of setting up the network of structure relative prices necessary to required knowledge of inputs, on the other, the realization that companies buy inputs (and selling products), at cost (prices), which are smaller (larger) than the equilibrium levels due to specific factors relative structure production. In other words, the focus is on the costs faced by firms to access and exploit the informational externalities.

From the social and institutional point of view, information externalities are analysed in the context of considering the features of public goods (non-rivalry, non-exclusion, non divisibility),in order to implement specific strategies for absorption of scientific knowledge, taking into account the continuous development process of public good market as is initiated by classical Arrow-Debreu and Samuelson models.

In the geographical regional space, network externalities raise the question of the distinction between the physical proximity of geographic-information technology spillover effect and functional specialization characteristics of clustered regional areas in the context of regional development: regional development could mean exchanges of information and knowledge between different areas not because they neighboured but because are interested in a real best practice interconnection.

In this context, it is illustrated the transition from spontaneous and technological externalities caused by regional endogenous growth and geographical proximity models-the Arrow-Marshall-Romer externalities (industrial concentration in a single branch), Jacobs externalities (diversity of firms and industries in a given region)

and Porter externalities (competition in the local and regional space) - to the pecuniary externalities spillover caused by the information costs induced by innovators and imitators agents, leading to specific interactions between regional operators, interested in the impact of external costs of using information (searching, structuring, understanding, absorbing, purchasing and acquisition of information by third companies).

Characteristics of the context in which firms operate are important for informational externalities in the reshaping of technological change by reconsidering the role of informational inputs costs of technological change, the effects of structure of relative prices network of other intermediate inputs and the complementarily impact of endogenous and exogenous factors specific to technical – productive, social – institutional or geographical region environment.

Secondly, the intelligent clusters illustrate another side of manifestation in terms of environmental analysis in the context multidisciplinary, institutional economics framework.

On one hand, it is noted that in terms of economic research, the two facets of the human person have illustrated over time different approaches illustrated by the binomial of market self - interested individualism or the holism of social - values, and in practice being mentioned specifically different approaches to risk management of environmental protection such as:

- the macro-social point of view (centred on implementation costs of Kyoto mechanism and directives);
- the micro-environmental accounting flow risk analysis(focused on specific matrix of relative prices network)
- and the last, but not the least, the meso integrative networked impact approach of risks and vulnerabilities on sustainable communities (considering both the business and sociologic sides - EASD projects versus the Natural Step, Melbourne Principles or the New Urbanism approaches arising from unpredictable, innovative and resilient economic, social and natural complex systems).

On the other hand, taking into account the natural entropic socio ecologic metabolism and the creative, unpredictable and resilient features of adaptive complex systems that lead to a thinking system based on the interaction between adaptive innovating management and transition management in the field of technical- economic and socio ecologic areas.

The intelligence of nature is working here as a source of inspiration, its thermodynamic entropic metabolism and the nonlinear, unpredictable and the resilient learning capacity of complex adaptive systems as is revealed by researchers among others like Nicholas Georgescu-Roegen, Jesus Ramos-Martin, C.S. Holling and B. Walker for the analysis of entropic metabolism of economic process but also for revealing the resilient dominant feature of socio ecological networked panarchies.

Briefly speaking, in this respect, the intelligent networked clusters are based on a round table debates between economists, engineers, psychologists, sociologists, political and communitarian interested groups that are in the process of individual and social learning concerning the improving the economic efficiency and sustainable communities actions taking into account the metabolic exchanges of matter, energy and information between the natural and the artificial socio economic environment.

In this context the intelligent project management acts as adaptive productive learning through spin offs and spin outs in the researches and business areas or as social learning resilient sustainable communities in the regional geographic space.

The project management illustrated in the form of intelligent specialized or multidisciplinary clusters reveal different risks and opportunities for financing environmental projects, taking into account both the climate changing risks, as well as the importance of a Mentor given with intellectual financial and experience skills, interested not only for "money investing" but more important to create a "mental abilities investment"- to reason, plan, think abstractly, opened minded to individual and social learning- in the way to minimize mistakes and maximize knowledge efficiency.

However, remains a problem.

As already stated by Fritjof Capra in his article "Is there a purpose in nature?" we may say that the natural, economic and social world laws reflects order, causation and scope, a mirror of quantic cosmogony universe laws that leads to wonder what's happened to us?

In appearance, the intelligent project management it is a matter of mechanics or routine in the sense of something useful for profit or to reflect the interaction between economics, society and nature in the process of adaptation to climate changes.

The human intelligence applied to environmental issues could be

synthetically presented as interaction between *homo oeconomicus* and *zoon politikon*.

In the future the risks of climate changing will generate new challenges that could lead to new approaches of environmental protection management, taking into account not only the simple aspects of economic rationality and economic sociology,

This means to consider another type of analysis including quantitative and qualitative aspects to illustrate the relationship between the two worlds of researcher's spirit: on one hand is about the real world of experiment in the inductive, objective probabilistic research and on the other the essentially inner intuitive subjective spiritual world, of strategic process of thinking, meditation, conceiving in a deductive syllogistic matrix manner.

And, yet, however, the socio-economic management is asymptotically-imperfect, never ending and always surprising every time.

Therefore, given the fact that random experimental science should not be confirmed by facts but must give an account of facts, that objective reality of network matrix **economy-society-environment** is an apparent transient and is not outside the human being but is a meta scientific resonance condition of reason, sensibility and spiritual awareness as well as the "optimistic-realistic" issues caused by butterfly effect - a small step now made for environmental protection and sustainability can generate much later, unpredictable, amazing progress - there is likely to maximize the potential of these visible and invisible worlds of researchers, to reflect more deeply on relationship between information, data and knowledge.

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