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GENERAL FRAMEWORK FOR OPEN SYSTEMS

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ABSTRACT

Leontief, Nobel laureate in Economy, argued: “How long will researchers working in adjoining fields...abstain from expressing serious concern about the splendid isolation in which academic economics now finds itself?". That may be difficult for researchers from some overly specific domains because they may build hard boundaries against other knowledge domains. Therefore, it might be worth other researchers investing time for closing such knowledge gaps. By proper language translating among knowledge domains, unsolved problems or missed opportunities might reveal themselves as not so hard to treat as they appear.

To somewhat close such gaps, this paper defines a system as a subset of environment, which is all undifferentiated fields whatsoever, the former being differentiations of the latter. To relate system and environment, one uses the concept of entropy to model the availabilities of environment towards a system, which then gets separated from other systems and environment by boundaries. From such fundamental definitions one develops a simultaneous equation set based on the conservation of quantities and entropy to calculate the maximum sizes of the elements within a system. If one manages to know the network distribution factors amongst the elements of a system, one can calculate the maximum sizes of such elements to cope with the support capacities of environment, also find the optimum system by tweaking the very network distribution factors. Some applications are given: hybrid energy farm, circular system, mathematical relation for project appraisal, EVA-Economic Value Added revisited, risk value added approach, and project as a system. In addition, the entangled quantities time, entropy, and energy are readdressed in one of the appendixes.

At last, the definitions of environment and system enable discoursing about broad and speculative issues like life, consciousness, individuality, and god, for which there is no consensus by the canonical knowledge fields.

Keywords: energy, entropy, environment, system

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