

Logical Process from the M. Em-Power Principle to the M. Ordinality Principle

Such a process can symbolically be represented as follows

$$Tr \rightarrow (\tilde{d}/\tilde{d}t)^{(\tilde{m}/\tilde{n})} \quad (1),$$

where Tr is Odum's Transformity, usually defined in *steady state* conditions, whereas $(\tilde{d}/\tilde{d}t)^{(\tilde{m}/\tilde{n})}$ indicates the "incipient derivative" of Ordinality (\tilde{m}/\tilde{n}) , which, in turn, represents the Self-Organization Generative Capacity of the System under *dynamic conditions*.

Such a Logical Process can synthetically be articulated in *four steps*:

i) The representation of the three fundamental Processes pointed out by Odum, that is Co-production, Interaction and Feed-back, in terms of "incipient derivatives" of order $1/2, 2, \{2/2\}$, respectively;

ii) The possibility of representing more Complex Systems by adopting the same concepts, that is by means of the "incipient" derivative of order (\tilde{m}/\tilde{n}) ;

iii) The third step is based on the fact that Transformity (Tr) can always be articulated in two factors

$$Tr = Tr_{\phi} \cdot Tr_{ex} \quad (2),$$

where Tr_{ex} (dissipative Transformity) accounts for the losses of Exergy used up during the generation process of a given product or service, whereas Tr_{ϕ} (Generative Transformity) accounts for the ever-increasing content of *Ordinal Information* due to the three afore-mentioned Generative Processes. In this sense, the formal representation in terms of "incipient derivatives" is always referable to the sole Generative Transformity;

iv) The last step corresponds to the first enunciation (and associated mathematical formulation) of the Maximum Ordinality Principle, which was made possible by all the previous "converging" logical steps.