

INFORMATION POLLUTION – THERMODYNAMIC INTERPRETATION OF LOSS OF INFORMATION INTEGRITY IN *IS* AND IN INFORMATION THEREFROM

(A Research and Knowledge Development Direction)

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Abstract: Information is a higher order or derivative of matter and energy and depends on them for its existence. Informational errors lead to loss of Information Integrity. This results in inefficient and uneconomic material and energy processing. Implication of this is increase in the entropy of the system, which comprises both informational and physical work systems. Further, in the form of discharged system by-product wastes, it also contributes to the higher increase in the entropy of the system environment. This accelerates the time of *heat death* for the system. For the system designers and implementers this introduces the concern for the issue of increased environmental pollution due to the information pollution caused by informational errors in the open system that the information system (*IS*) is. What is significant is in the wake of the ever present system environmental factors of complexity, change, conversion, communication and corruption (5^{“C”}s), this information pollution takes the form of a continual phenomenon. With reference to the research field of Environmental Pollution & Engineering, this modeling makes a case for a useful research direction in the area of Information Integrity Knowledge, Science, Technology and Industry Development for controlling information pollution

For a generic description, information pollution results from the loss of: information origination integrity, storage integrity, retrieval integrity and validation integrity. Also to be considered in the same vein is information pollution due to loss of: information processing integrity, communication and distribution integrity, *use* integrity, and information discard integrity or information storage for future *use* integrity. With reference to an information system (*IS*), information pollution is the issue caused by the loss of content integrity, process integrity, and system integrity. At a more functional level, informational errors in a design setting can be described as design errors, and so can be the informational errors in other settings covering the entire information system development and implementation life cycle (*ISDILC*) model. Then information pollution can be seen to result from loss of: design integrity, development integrity, deployment (testing) integrity, data and data product integrity, and detection (audit) integrity. This leads to the recognition of the reality of information pollution due to loss of system implementation integrity, operation integrity, maintenance integrity, etc. In summary, Information Integrity is a systems concept and recognition of eventuality of informational errors in different settings presents information pollution as a systems problem.