

THE HUMANISTIC BASES OF SYSTEMS SCIENCE

Alexander Laszlo

Bertalanffy Center for the Study of Systems Science, Vienna, Austria

ABSTRACT

Systems science has evolved in relation to both the theoretical and the practical concerns of human welfare. We present a brief overview and assessment of the systems sciences by considering their origins and foundations in general systems thinking. The review leads to a consideration of the ways in which it complements and contrasts disciplinary methods of human-related studies. It discusses the potential for the systems sciences to enrich descriptive, instructional, and explanatory orientations of contemporary *Geisteswissenschaften* through the inclusion of normative considerations.

The normative component of the systems sciences is considered within an evolutionary framework that presents holism as a methodology for understanding the dynamics of complex "real-world" (ontological) systems, and suggests action imperatives for their viable and sustainable design over time. Through the tools of metaphor, modeling and simulation, interactive design and other praxes, systems scientists investigate the goals and ends of systems and their interactions within environments shared with, and provided for, one another. In this way, social systems in general and human activity systems in particular can be described in function of their degree of purposefulness, in terms of the role of human values in concrete circumstances. In this sphere of the systems sciences there is a meeting place of pure and humanistic science, as the former becomes the ground for the latter. The systems sciences draw on the insights gained in both the social and the natural sciences, while both these sciences use the products and results of systems-scientific analysis and design.

Through the tools of systems thinking and design, systems science represents the world of symbols, values, social entities, and cultures as embedded in an embracing order of hierarchies that bridges the gap between C. P. Snow's "Two Cultures" of the sciences and the humanities. The use of modeling in systems sciences provides the language of design and the means by which creativity is applied in the course of inventing, making, assessing, and implementing the designs. In this way it lends to the human sciences the capability to deal with increasing systemic complexities, rapid societal changes, and design decisions that affect the sustainable evolution of human societies within the wider context of their life support systems.

Keywords: system science, human welfare, social system, holism, humanities