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Similarities and Differences among the Sub-fields of Cybernetics and Systems Theory

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It is in vogue to "take a systems approach," yet what exactly a systems approach is varies considerably depending upon the systems science tradition examined. Systems science traditions tend to share a set of underlying assumptions which are less common in other scientific fields. Still, philosophical assumptions are not consistent across systems science traditions. The philosophical assumptions that are not shared, such as in the areas of self-organization, observation, causality, reflexivity, predictability, environment, and relationships provide some explanation as to why the different systems approaches have developed somewhat separately rather than integratively. Differing philosophical assumptions also explain why models from fields such as cybernetics, general systems theory, organizational learning, operations research, total quality management, and system dynamics may produce different results.

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