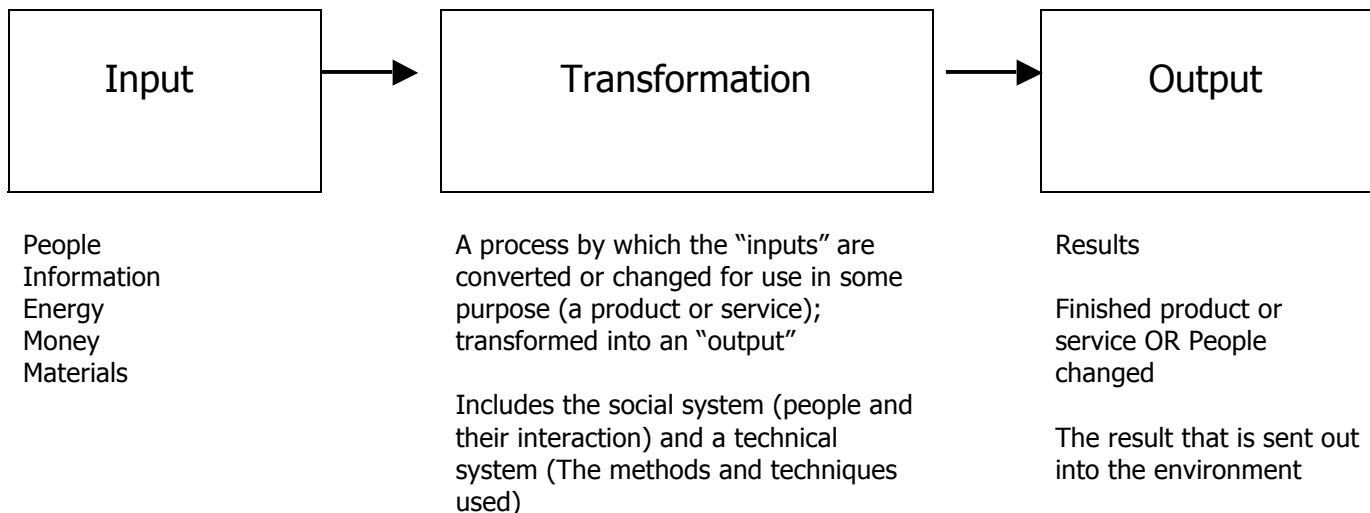# Systems Theory

A tool for understanding organizational dynamics.

Systems
- A system is a series of interdependent parts (Burke, 1980)
- A "whole" with interdependent elements or sub systems
- A system integrates its elements into a functioning unit

Input-Transformation System –Output

Input	Transformation	Output

Input	Transformation	Output
People Information Energy Money Materials	A process by which the "inputs" are converted or changed for use in some purpose (a product or service); transformed into an "output" Includes the social system (people and their interaction) and a technical system (The methods and techniques used)	Results Finished product or service OR People changed The result that is sent out into the environment

Open System – A system that is in active exchange with its environment. Its permeable boundaries allowing an easy exchange of information and resources. This allows a system to adapt.

Closed System – A system with very limited exchange with its environment; its boundaries are too rigid, difficult to penetrate

Boundary – Inside is the system; outside is the environment. Not easy to identify in most systems. Useful to approach in pragmatic terms, i.e., what will help us understand/act in this situation? Boundaries are part of what help a system to maintain its integrity and integration.

Purpose (mission, goals, etc.) -- Provide the reasons for the system's existence. Alignment of "outputs" with purposes reinforces the system's sense of purpose. Offers a sense of integrity. If the environment no longer wants the outputs of a system it will, in time, cease to exist.

Entropy – All systems disintegrate unless they bring in more energy than they use. Entropy is "the degree of disorder or uncertainty in a system" or "a process of degradation or running down or a trend to disorder" (Merriam-Webster Online)

Homeostasis - The ability or tendency of a system to maintain balance or equilibrium by adjusting its processes.

Equifinality - a condition in which different initial conditions lead to similar effects

Feedback – "Information regarding the actual performance or the results of the system" (Cummings & Worley, 1997) Allows the system to take action to maintain a productive stability or to improve how it functions.. Feedback can come in the form of 1). market research (i.e., does the environment need/want what the systems produces?) or 2). Congruence (i.e., is there alignment between the purpose and the outcomes?)

Alignment – Alignment or "fit" has to do with bringing elements of a system into relationship in a manner that produces desired results and conditions; helping the parts harmonize or mesh

Robert A. Gallagher   2003