WHAT IS A SYSTEM?

Very simply, a system is a collection of parts (or subsystems) integrated to accomplish an overall goal (a system of people is an organisation). Systems have inputs, processes, outputs and outcomes, with ongoing feedback among these various parts. If one part of the system is removed, the nature of the system is changed.

Systems range from very simple to very complex. There are numerous types of systems. For example, there are biological systems (the heart, etc.), mechanical systems (thermostat, etc.), human/mechanical systems (riding a bicycle, etc.), ecological systems (predator/prey, etc.), and social systems (groups, supply and demand, friendship, etc.).

Complex systems, such as social systems, are comprised of numerous sub-systems, as well. These sub-systems are arranged in hierarchies, and integrated to accomplish the overall goal of the overall system. Each sub-system has its own boundaries of sorts, and includes various inputs, processes, outputs and outcomes geared to accomplish an overall goal for the sub-system.

A pile of sand is not a system. If one removes a sand particle, you've still got a pile of sand. However, a functioning car is a system. Remove the carburetor and you've no longer got a working car.

WHY IS IT IMPORTANT TO LOOK AT ORGANISATIONS AS SYSTEMS?

The effect of this systems theory in management is that there is an increasing amount of literature which can help managers to look at organisations from a broader perspective. Systems theory has brought a new perspective for managers to interpret patterns and events in their organisations. In the past, managers typically took one part and focused on that. Then they moved all attention to another part. The problem was that an organisation could, for example, have wonderful departments that operates well by itself but it doesn't integrate well together. Consequently, the organisation suffers as a whole.

Now, more managers are recognising the various parts of the organisation, and, in particular, the interrelations of the parts, for example, the co-ordination of back-offices with other departments, policy making and implementation, etc. Managers can now diagnose problems, not by examining what appear to be separate pieces of the organisation, but by recognising larger patterns of interactions. Managers maintain perspective

by focusing on the outcomes they want from their organisations. They can focus on structures that provoke behaviours which determine events – rather than reacting to events as was always done in the past.

SYSTEMS THEORY, SYSTEMS ANALYSIS AND SYSTEMS THINKING Systems theory is one of the major breakthroughs in understanding the complex world of systems. The application of this theory is called Systems Analysis. One of the tools of Systems Analysis is Systems Thinking. Very basically, Systems Thinking is a way of helping a person to view the environment, including the organisation, from a broad perspective that includes structures, patterns and events, rather than just the events themselves. This broad view helps one to identify the real causes of issues and know where to work to address them.

SYSTEMS PRINCIPLES – SOME EXAMPLES Systems theory has identified numerous principles that are common to systems, many of which help us to better understand organisations.

The system's overall behaviour depends on its entire structure (not the sum of its various parts). The structure determines the various behaviors, which determine the various events. Too often, we only see and respond to the events. That's why we can be so short-sighted and reactionary in our lives and in our work. We miss the broader scheme of things.

Too often in organisations (and in management training programmes), we think we can break up the system and only have to deal with its parts or with various topics apart from other topics. Systems theory reminds us that if you break up an elephant, you don't have a bunch of little elephants.

There are numerous other systems principles, for example:

- Systems tend to seek balance with their environments.
- Systems that do not interact with their environment (e.g., get feedback from customers) tend to reach limits.

A circular relationship exists between the overall system and its parts. Have you ever noticed how an organisation seems to experience the same kinds of problems over and over again? The problems seem to cycle through the organisation. Over time, members of the organisation come to recognise the pattern of events in the cycle, rather than the cycle itself.

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