

# Chapter 10

## Amplifying the Significance of Systems Thinking in Organization

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### ABSTRACT

*This chapter discusses how systems thinking (ST) can be put into context in companies and how it can be applied to initiate and sustain change. For that change to be introduced and maintained there must be a synergistic relationship between all the role players. A case study is deployed to illustrate that the path to organizational effectiveness and efficiency requires the development of computer-aided communication schema that provide the understanding and modeling of human and technical and philosophical framework in the value-creation process to increase productivity.*

### INTRODUCTION

The reality in organization is that learning never stops. People in the organization can be taught to think alike about the job at hand. Systems thinking is pervasive in highly productive organizations. Effective teams can be well-coordinated in their specific roles in the value creation system. Job specifications and descriptions are akin to tele-prompters in aiding individuals to do the right thing first time and always. They are part of the documentation necessary in successful organizations. Individuals groups and teams must learn their roles and understand what gives life to the organization. The sociotechnical conceptual model provides a description of perceived reality. It gives a systemic content of inquiry and views the organization as an open system model, a purposeful conceptual part or whole organism. Koestler (1967)

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coined the term *holon* to imply something that could be described simultaneously as a whole or part. Divisions or units in organization can be viewed as *holon* because they can be corporations in their own right and at the same time they can be *owned* by another corporation.

## **An Interdisciplinary Origin**

A system is viewed as a whole whose elements hang together because they continuously affect each other over time and operate toward a common purpose. In Stichweh (2010), systems theory is defined as an interdisciplinary study of systems in general, with the goal of discovering patterns and algorithms necessary in maintaining the value creation system to produce the goods and services demanded by the customers. Stichweh elucidates the definition of systems theory as an understanding related to the General System Theory of biologist Ludwig von Bertalanffy (Bertalanffy, 1934), physiologists Walter B. Cannon, Walter Pitts, Warren McCulloch and cybernetics technologists Claude Shannon, Norbert Wiener, and William Ross Ashby. In Daft (2013) a group of technocrats from the same organization referred to as skunkworks meet regularly in defined physical places and in cyberspace to progress organizational goals. Daft argued that the skunkworks were a people who shared the same vision about their organization. They deliberated in designing new products and appropriate technology to make those new products a reality. In Gharajedaghi (2010) systems thinking is deployed in the search for solutions to the problems the organization faces such as competition. How to effectively compete can be framed by co-constructing a shared vision of the future. Systems thinking can be applied to design and implement the competitive advantage.

## **BACKGROUND**

### **Action Research: A Lewinian Approach**

The sociotechnical systems is founded on action research (Lewin 1946) as its basic process of inquiry or purposeful human activity *holon* (Eijnatten, 1993). The Adam Smith Pin Factory is revisited to illustrate how the novice can increase their skillfulness and explicit knowledge to become specialists. The conceptual framework provides an opportunity to envision the techniques and tools essential in developing the explicit practices required in effective organization. Following the work of Adam Smith in Mupepi (2014), structures are viewed as open systems molded and determined by values and norms. They also contain job descriptions job specifications and techniques needed for the structure to make meaning contribution in the value creation process. The pin-production open system provides an opportunity to understand the explicit knowledge needed to increase output (see Figure 1). In Systems thinking the organizational structure is viewed as the pattern of interrelationships among key actors. It includes the value creation process and hierarchical chart, attitudes and perceptions, quality of products, ways in which decisions are made and how things are done. Systems dynamics demonstrate the interdependence of each position and task, and how they are all related to whole production department or *holon*. The art of sociotechnical systems thinking includes learning to recognize the ramifications and trade-offs of the actions members choose to follow (see Figure 1).

The historical development of sociotechnical systems design (STSD), can be argued to have roots in London's Tavistock Human Relations Institute before WW2. Trist & Bamforth (1951) attribute the

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