

## CHAPTER 5

### **PROPERTIES OF TRANSFORMATIONS, ENVIRONMENTS AND STRUCTURE PERFORMANCES**

#### **1. Choosing the Right Properties**

One way to get logical order on the elements of a set is to define a property that the elements have, one that is assigned a measure that is logically ordered. The order in which we put three individuals may be that based on the property of distance from soles of feet to the top of the head. We call it height, and we have a measure of it. At the simplest level, by looking at the three standing side by side, we can state that the measure of this property is such that it is larger for this person than it is for that. Theories on organization structures are useful only if they help in the choices of structures that do whatever we want done, and to be useful they must be based on the definition of properties that have comparable measures. Most of the work involving the analysis of and prescription for organization structures involves the use of structure properties as the variables of their analyses and prescriptions. If we are to generalize about organization structures, we also will rely heavily on the use of structure properties and on properties of the technologies, the environments, and the performances of the organization substructures. If we are to use these generalizations to design efficient structures, then we will need to define properties that are operational, i.e., only those properties which are defined in terms of real components for which we have measures that are in some logical order. This means that all properties relate directly to variables represented by knobs that can be turned to get the needed values or to dials from which the values can be read. Knobs and dials are metaphors for the ways of making chosen variable values into facts and of making values that are facts into information, or known facts. All properties we define and use in our theory and design are operational. They are not however those commonly found in the literature.

Before we create a whole list of newly defined properties, we need to look briefly at the existing literature to see why we do not

intend to use the properties we find there. Since operations analysts, theorists, describers, and designers have often done their work in terms of properties, there are a large number of them. Among them are the properties of organization structures, known as span of control and centralization. Concepts of the properties of the performance, such as adaptability and standardization of the organization, abound in the literature. Environment properties are also commonly used, and we have the concepts of uncertainty and complexity of the environment. The properties of linearity and analyzability are used in the discussion of technology. Even when the work is done in terms of classes, such as, bureaucracy, matrix and the like, the underlying concepts are ones of properties. All such classes of organization structures are defined in terms of values taken by properties, some of the structure itself, specialization, some of the environment of the structure, simplicity, and some in terms of the performance of the structure, standardization and flexibility.

But all this reliance on properties has not produced a commonly acceptable set of properties, a clear distinction between thing and property, and between property of structure and that of performance, of environment, and environment state, and so on.. The properties are not clearly defined, not specifically connected to the components or elements of the structure of which they are properties, and often confused with the things of which they are properties. For example, decentralization is never clearly defined by Mintzberg (1980), who defines it in terms of other properties such as formality and delegation, which are themselves not clearly defined anywhere. Yet he uses the property extensively in his analysis. Meanwhile Robbins (1990), identifies the components of structure as centralization, formalization, etc., when in fact these are not components that define a structure but properties of it. It is also often the case that properties are treated as if their measures were unidimensional, when in fact they are multidimensional. Properties are often defined loosely, and any generalizations made about any property can be supported against all counter arguments by merely shifting from one measure of the many that describe a value for the property to another. The properties in the literature are not operational enough nor clear enough to serve our purposes. We have to develop our own, starting with those of transformations.