

CHAPTER 8

ANALYTIC MAPPINGS: FROM STRUCTURE TO PERFORMANCE, PART TWO

1. Substructure Consistency

Information and rewards are the mechanisms for making a designed structure become a real one. Earlier we discussed the property of the controllability of the performance of the operating substructure. Now the subject is the issue of control over the structure itself, the structure that becomes a reality compared to the structure that is designed or intended to be the reality. If the design process is to be meaningful, the structure designed should be the structure that becomes a reality. There is no point in designing an organization structure if there is nothing one can do to turn the design into a reality. One thing that one can and should do to get the real structure to be the one that is designed is to design the operating, information, and reward substructures in such a manner that they are consistent with one another. Consistency means that the elements of the three substructures and also some of their properties are matched or fit well with one another according to logic and economic rules. When these rule are met, then the likelihood that the design will become the real structure is enhanced.

Design Realism: This property of the design of a structure refers to the extent to which the design can in fact become a real structure. The level of this property that is attained by a design is determined by the extent to which its three substructures are consistent.

Though discussed earlier, the subject of consistency needs more analysis in order to make the property of design realism clear and useful in the process of creating designs. Consider the case of the user of an operating decision rule. To use the rule she needs information on the values of the components of the domains of its mapping. If the information substructure has decision rules which meet this requirement and can get this information to her, then it is consistent with this one rule of the operating substructure. The extent to which such fact requirements for the use of any decision rule are met may be

used as a measure of the consistency level of the information and operating substructure for this one rule. An average level for all operating decision rules is then a measure of the consistency between the information substructure and the operating one. The higher the consistency, that is, the higher the level this measure for the operating rules of a structure, the higher the level of the realism property of the design of the design.

Team Theory (J. Marshak and Radner, 1972), (MacCrimmon, 1974) deals with the issue of the economics of information and its use in making decisions. In using the mapping of an operating decision rule, the user first determines the true value of each component of the domain of that rule. When that is established, the user may then apply the mapping to get the value of the decision variable. The set of information decision rules that is consistent with this operating decision rule is that which gives the user the relevant information or the values of the components of the domain of the mapping of the operating decision rule. One set of decision rules in the information substructure that would be consistent with this operating decision rule is one that tells the operating rule user to read the values of the parameters that define the domain of this rule. Another such set is that which has the rule for some person to read this information and another set that has rules that require that the information be sent to the user of the operating rule. The set of information rules which is a component of the designed information substructure will affect the ability of the people in the organization to use the set of operating rules which is the component of the design of the operating substructure. Substructure consistency is the concept that refers to the capacity of the former to supply the information needs of the latter. The extent to which the design of the information substructure is consistent with the design of the operating substructure will determine the extent to which this design will be realized. The issue of realism also involves the timing of the arrival of the information to the relevant users of operating decision rules, its accuracy, and so on, and arguments about their effects on realism may be made.

Finally, all arguments made for these elements of information and these two substructures may be made for other elements of any two of the three. A design of a reward substructure with higher levels of the property of decision orientation is more nearly consistent with a design of an operating substructure with lower levels of user independence, and with higher levels of comprehensiveness and of