

# THE EVALUATION OF INFORMATION IN ORGANIZATIONS

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## 1. Introduction

In an organization, individuals typically differ in at least three important respects: (1) they control different action variables, (2) they base their decisions on different information, (3) they have different goals. Thus it would seem that the theory of games provides the most suitable mathematical framework for the study of organizations. However, many interesting aspects of organizations are related to differences of types (1) and (2) only. Furthermore, in some cases the members of the organization may have nearly identical goals; or, as in the case of organizing machines, it may be appropriate to consider only the goal of the organizer. Finally, in its present state of development, the theory of games of more than two persons does not appear to provide many clues as to how to proceed in a general analysis of organizations.

All of this suggests the study of theoretical organizations in which differences of type (3) are absent, that is, in which there is a single payoff function reflecting the common goals of the members, or of the organizer. J. Marschak has called such an organization a *team* (see [3]). In the theory of teams, as in statistical decision problems in general, two basic questions are: (a) for a given structure of information, what is the optimal decision function? (b) what are the relative values of alternative structures of information? For example, consider an airline company with a number of ticket agents who are authorized to sell reservations on future flights with only partial (if any) information about what reservations have been booked by other agents. One can study the best rules for these agents to use under such circumstances, taking account of the joint probability distribution of demands for reservations at the several offices, the losses due to selling too many or too few reservations in total, and so forth. One can also study the additional value that would result from providing the agents with complete information about the other reservations already booked; such an additional value figure would place an upper limit on the expense that it would be worthwhile to incur in order to provide the agents with that information. M. Beckmann in [1] has analyzed airlines reservations problems along these

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