# Chapter 71
# Conversation-Oriented Decision Support Systems for Organizations

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## ABSTRACT

*This chapter proposes concepts for designing and developing decision support systems that acknowledge, explore and exploit the fact that conversations among people are the top-level "supporting device" for decision-making. The goal is to design systems that support, configure and induce increasingly effective and efficient decision-making conversations. This includes allowing and motivating participation in decision-making conversations of any people who may contribute positively to decision-making and to the quality of its outcomes. The proposal sees the sum total of decisions being taken in an organization as the global decision process of the organization. The global decision process of the organization is structured in decision processes corresponding to organizational domains. Each organizational domain has associated a unit decision process. If the organizational domain contains organizational sub-domains, then its compound decision process is the union and composition of its unit decision process and the unit decision processes of its sub-domains. The proposal can be seen as extending, enlarging and integrating group decision support systems into an organization-wide system. The resulting organizational decision support system, by its conversational nature, may become the kernel decision support system of an organization or enterprise. In this way, the global decision process of the organization may be made explicit and monitored. It is believed that this proposal is original.*

## INTRODUCTION

Information and communication systems substitute and enlarge human capabilities. A striking aspect of such enlargement has been the development of automatic control devices that substitute people in taking decisions that guide machines and other physical systems. Another has been the development of decision support systems (DSSs), information systems for decision support, covering several aspects of decision-making in organizations. According to Power (2002), a decision support system (DSS) can be of five types, with respect to the way it assists users:

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- Communication-driven
- Data-driven
- Document-driven
- Knowledge-driven
- Model-driven

This classification does not exhaust all possibilities. Turoff and co-workers (2002) introduced the concept of Social Decision Support System (SDSS) as a type of information system with first objective "to facilitate the integration of diverse views into a growing knowledge base." Moreover, its "design embodies the hope that modern human networking technology can be configured and used to allow the emergence of a collective human intelligence by very large groups of individuals." A SDSS is envisaged as a DSS that allows the contributions and cooperation of a large number of people, with no special structuring requisites, to produce useful decisions on problems of wide interest. In the limit, one can formally enlarge the concept of SDSS to include the support of some conceivable decision by some conceivable population.

In such generality of possible applications, one stands out of special interest: *organizational decision*. Organizations are the social tools through which people create and access wealth, in its many forms. Therefore, the efficiency and success of organizations are a necessary condition for the well-being of people and societies. The efficiency and success of an organization depends critically on the quality of its decision processes. Arguments based on collective intelligence (Garrido, 2008) pinpoint the importance of the social dimension in decision-making. Grant (1996) also supports decentralization of decision-making based on the input of relevant knowledge being a critical factor for decision quality. Consequently, the specialization of the concept of SDSS to fit the characteristics of organizations appears as a promising research avenue. This chapter extends the results of previous research in the subject, which can be found in Garrido and Faria (2008).

When considering the import of the social dimension in organizational decision, one is led to acknowledge *the fundamental role of conversations among people* in decision processes. If conversations do not occur, organizational decisions are taken in an absolute individual fashion, or are taken by automatic devices. These no-conversation modes have their usefulness, but it is hard to deny that, from some level up of decision difficulty, conversations among people are necessary for good decisions, if not only for decisions, and that *people's practice expresses such necessity*.

In fact, people tend to enter in conversations with other people, formally or informally, when they face a decision that appears too difficult to be taken alone or that may have a significant impact on the members of a collective. Therefore, one can see conversations as the "decision support system of last resort" or, better, the "top-level decision support system". It makes sense to ask for a type of information system that supports conversations within processes of decision-making, acknowledging the unique and top-level function of conversation in decision processes. I will call *conversation-oriented decision support system* (CODSS) an information system of such type.

The concept of CODSS intersects the concept of Group Decision Support System (GDSS) but attempts to go further. GDSSs (Gray, 2008) support groups of people in an organization who meet frequently or work together in a project and must take decisions. Their role is to facilitate the decision-making for the group given a number of issues that must be considered. In this way, design of GDSSs has as a goal to make conversations more effective in leading to decisions and, in latest developments, to lift restrictions of same time or same space for the decision process to occur or go on. In this respect, a GDSS also is a CODSS. Yet, the conceptual basis of departure is different. The concept of CODSS sees conversations as a social and ubiquitous resource for decision-making, which leads to a global view of decision support