

Chapter IV

Hierarchical Organization as a Facilitator of Information Management in Human Collaboration

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ABSTRACT

The purpose of this chapter is to discuss the relationship between three entities: hierarchical organization, information management and human collaboration. This relationship is composed of two parts: the first part is the relationship between the hierarchical organization and information management where the role of the hierarchical organization to facilitate the information management processes is discussed. The second part is the relationship between information management and human collaboration where the role of information management to improve human collaboration in problem solving is discussed. The information management processes are illustrated through an information management life cycle model. This model has three major stages: active, semi-active and inactive stages and has three major phases: creation, searching and utilization phases. The creation phase includes: information creation and using, information authoring and modifying and information organization and indexing. The searching phase includes: information storage and retrieving and information exchange. The utilization phase includes: information accessing and filtering processes. The arguments about the role of hierarchical organization in information management and human collaboration are also discussed. The author showed that the hierarchical organization acts as a facilitator for common information management processes which are required in team collaboration such as: information gathering, organization, retrieving, filtering, exchange, integration or fusion, display and visualization. Human collaboration models are discussed with emphasis on the team collaboration structural model which has four unique

but interdependent stages of team collaboration. These stages are: team knowledge construction, collaborative team problem solving, team consensus, and product evaluation and revision. Each stage has four levels: meta-cognition process which guides the overall problem solving process, the information processing tasks which is required by the team to complete each collaboration stage, the knowledge required to support the information processing tasks and the communication mechanisms for knowledge building and information processing. The author focused on the role of information management to improve human collaboration across the four collaboration stages of the team collaboration structural model. He showed that the hierarchical organization is more efficient for information management processes and team collaboration rather than other alternative organizations such as flat, linear and network organizations.

INTRODUCTION

It is widely observed that human collaboration is the true competitive advantage for the new era. Merriam Webster's dictionary defines collaboration as working jointly with others or together especially in an intellectual endeavor. Collaboration is seen as a good work practice because it should, by definition, involve share workload, multiple perspectives provided by diverse expertise, enhance creativity, innovation, and higher product reliability, creation of knowledge and information access and exchange. Collaboration and teamwork are closely coupled activities in which team members work together to produce a product, solve a problem or carry out an action (David N., 2002). Effective partnerships improve human interactions to create more efficient and effective collaboration where partners in human collaboration attempt to reach shared understanding or common ground (Scott, Mark, XiaoQi, & J. Geoffrey, 2008)). Common ground refers to the set of mutual knowledge, shared beliefs and assumptions that collaborators have. This process of establishing shared understanding or grounding involves communication using a large amount of information. According to Schrage (1995) people's collaborative efforts with different skills are required to create innovative solutions and products.

To better understand and improve the effectiveness of team collaboration there is a need to better understand cognitive processes employed when collaborating to solve high stakes problems that may be characterized with time compression, supported by uncertain and open source information. This can be achieved by studying the process by which team members may interpret data to develop information, build shared understanding that informs decisions, and collaborate to ensure that information and knowledge are shared in support of synchronized action to take decisions. Cognitive collaboration models based on information management help collaborators to attain common situational awareness among multidisciplinary, distributed team members engaged in collaboration for issue resolution or decision making. It examines the cognitive aspects of joint analysis or problem solving for the purpose of attaining shared understanding sufficient to achieve situational awareness for decision making or creation of a product (Office of Naval Research, 2008). Information management processes such as collection, retrieval, exchange, fusion and display of information help to attain shared understanding of a situation at both the individual and team levels. The shared understanding of a situation is affected by the type of collaboration environment which can be one of the following:

1. **Distributed environment:** Which is an open standard agent-based infrastructure of communications, information processing, decision support, knowledge processing and resource management

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