

## Chapter 2.3

# Quality and Continuous Improvement in Knowledge Management

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### ABSTRACT

Knowledge management requires *people* to synthesize and interpret information, and *technologies* to organize, make sense of, and draw conclusions from the collection of knowledge. Together, these people and technologies shape part of a sociotechnical system. The relationships between them make the sociotechnical system behave as a network, where communication and knowledge transfer can occur, and the network becomes a community once elements of the system interact in meaningful ways. The quality of a knowledge management system depends on how

well these meaningful exchanges are promoted and cultivated. This chapter examines how to construct a high-quality knowledge management system, taking into consideration the challenging sociotechnical nature of such an effort. By relating the four stages of a continuous improvement process, the five measures of quality within a knowledge management system, and EASE (Expectations, Actionability, Sustainability, and Evaluation), we present an approach to examine the business processes associated with knowledge management. Managers can use this framework to assess the quality of knowledge management systems and formulate strategies for continually improving them.

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## SOCIO-TECHNICAL SYSTEMS, NETWORKS AND COMMUNITIES

### What is a Socio-Technical System?

A socio-technical system is a collection of people, projects, processes and products that engage in an *exchange* relationship with one another:

- **People** translate, transform and communicate within the system, and between the system and its environment
- **Projects and Processes** discover, interpret, constrain or transform aspects of the system (e.g. software, physical surroundings, laws, regulations, standards, and quality management systems)
- **Products** result from projects and processes, and provide a snapshot of the state of understanding at a particular time (e.g. documents, artifacts, software, hardware, and data)

People clearly provide the “social” part of the socio-technical system. Projects, processes and products are the mechanisms that people use to construct material objects and promote progress in general. As a result, they form the “technical” part of the socio-technical system.

### Networks and Communities

Social systems and technical systems can be represented graphically as networks, which are collections of objects (called *nodes*) linked to each other via relationships (called *edges*). When represented as a network, *at least some* of the nodes of a socio-technical system are people. Thus socio-technical networks can be contrasted with social networks, where *all* of the nodes are people, and other types of networks (e.g. PERT/CPM) where *none* of the nodes are people. In a socio-technical network, people connect to one

another, people connect to technologies, and technologies connect to other technologies.

A socio-technical network is the collection of the system’s people, its technologies, and the relationships that connect them all. By definition, a relationship within the network represent an exchange between nodes, and nothing more – this relationship could be an information exchange, a relationship of accountability, an indication of trust. The relationship does not always have to be positive. When people have a choice, they will tend to seek information from the people who inspire them or make them comfortable (the “energizers”). But there are also “de-energizers” who may be pessimistic, combative, arrogant, or otherwise unpleasant to be around. The relationships between people and those who “de-energize” them can also be represented in a network. (Cross & Parker, 2004)

A community can be considered a special type of socio-technical network. In a community, members will cluster based on shared interests, where they will tend to cooperate and seek to add value within the context of their interests. A community is thus a collection of nodes related via *meaningful and mutually constructive exchanges*, where exchanges derive meaning from the collective purpose or interest of the community. An important difference between a network that is a community and a network that is not a community are the underlying motivations of the members. Participation in a network occurs when a member or node finds value in exchanging with others in the network. In this case, people want to find out “what’s in it for *me*?” Participation in a community occurs when a member or node adds value to the common goals of the community. In contrast with a network that does not behave as a community, people in a community will tend to ask “what’s in it for *us*?” This shift in perspective influences the group’s ability to generate, codify and share knowledge.

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