Knowledge Management for Interoperable Quality Management System

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Extended abstract

Quality Management System (QMS) can be defined, according to the international norms as “that part of organisation’s management system that focuses on the achievement of results, in relation to the quality objectives, to satisfy the needs, expectations and requirements of interested parties, as appropriate”. [4]
Having in mind that a system is a set of heterogeneous entities interacting for achieve a common goal, also a QMS can be seen as a set of some interacting subsystems (for ex. management subsystem, operative subsystem, control subsystem and support subsystem). The first one allows the organisation definition of policies and targets, for the whole organisation, planning of each activities, including resources for their execution and identification of procedures, ruling flows of operations and also of guidelines for Quality Manual. The operative subsystem generally consists of design area, industrialisation area, production area, testing area and supplier area. It allows the operative management of an enterprise, by the definition of operative processes. The control subsystem allows examination of the organization, as concerning quality targets, designing and execution of periodic audit and analysis of their results. The last subsystem consists of each activities allowing the efficient working of the other subsystems, for example training, prevention and comparison with external enterprises.
Not all organisations, implementing a QMS, identify the previous subsystems, someone prefer having management, operative and support subsystem. That implies a different point of view about how managing and deploying activities.
Let us assume that an organization have to collaborate with other organizations to achieve a common goal; in this case it is necessary to take into account a new paradigm in implementing the respective QMS’s: interoperability. In general term, it consists in assuring the ability of parts of the QMS to support cooperation, under quality assurance constraints, with one or more other parts of the cooperating organisations. The problem turns then to be how to achieve an efficient and effective interoperation to pursue a common goal within a defined interval of time while addressing quality targets [2], taking into account that the identification of which part of the two organi-

zations can interoperate could be not easy. In fact, according to the previous considerations, the cooperating organisations not necessarily have identified the same subsystems. Design criteria for an Interoperable Quality Management System (IQMS) need to be appropriately defined to support quality targets in the cooperating processes; taking into account that the cooperating organizations, implementing a IQMS, needs to restructure the management approach as well as the target of performances. They have also to identify operative praxis, responsibility and tasks for each interoperating process, as well as the abilities and knowledge necessary for each involved activity. Designing a IQMS is also an occasion for creating shared experiences (building blocks of organizational memory): the working together of organization members creates shared understanding as well as common memories [5], and ISO documentation houses those memories for future workers. In addition, as a codebook, ISO 9000 provides a process of knowledge codification.[1] All these characteristics are essential for knowledge creation practices, then some basic principles of knowledge management have been recalled herewith to better structuring the cooperative processes, during the design of an IQMS. New modelling methodologies for supporting the design of an IQMS have also been applied, taking into account the impact of the design oriented to quality for the organisation. According to this, advanced enterprise models has been developed to support the simulation of design effects, the analysis of their performance and the influence on management of their operations.[3]. Enterprise models have been structured for the implementation of the necessary interoperability features by including interface descriptions and infrastructure characteristics. A case study to explain evidences related to interoperable quality management system is also provided.

References

1. Bénézech, D., Lambert, G., Lanoux, B., Lerch, C., Loos-Baroin, J. :Completion of knowledge codification: an illustration through the ISO 9000 standards implementation process. Research Policy, Vol.30, No. 9, pp.1395-1407 (2001)
2. Dassisti M., Scorziello F, Enterprise model interoperability: a case study of two university laboratories, SEMINARIO CIRP '04 SORRENTO 29 GIUNGO-2 LUGLIO, (2004)
3. Fox Mark S., Gruninger Michael, , Enterprise Modeling, AI Magazine, pp. 109-121 (1998)
4. ISO Quality Management Systems–Fundamentals and Vocabulary2001, ISO, 2nd ed., Switzerland. (2000)
5. Zuckerman, A.: Gaining added value from the year 2000 ISO 9000 revisions. World Trade, Vol.13, No. 2, pp. 60-62 (2000)