Completion of knowledge codification: an illustration through the ISO 9000 standards implementation process

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Abstract

This paper looks at the role played by the ISO 9000 registration process in contributing to the knowledge codification within the firms. The ISO 9000 standards concern the way a company should elaborate a quality system by providing guidelines and models. They are considered as a code, i.e. a common language, which leads to communication and industrial relationship. This paper focuses on how this code might be used within the firms to enhance knowledge codification. It explains the standards implementation process by studying the three steps needed to complete codification within the firm: (1) the starting point of the implementation; (2) the subject of the codification, that means the material and behavioural characteristics of the production process; (3) the impact of the ISO 9000 implementation on knowledge accumulation within the firm. This paper addresses the fact that the ISO implementation is related to knowledge codification through a learning process, which includes both individual and collective knowledge conversions. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: Codification process; ISO 9000 standards; Knowledge management; Quality; Learning process

1. Introduction

Elaborated for the first time in 1987 by the International Organisation of Standards, the ISO 9000 is a series of five related standards [1] about quality management and quality assurance. This quality assurance includes all systematic actions devoted to demonstrate to customers that the quality required will finally be obtained. The ISO 9000 series provides not only quality system models for quality assurance covering development, production and final inspection, but also guidelines for selection and use of these models. The first purpose of the ISO 9000 standards is clearly to contribute to develop and generalise quality systems in organisations. Since 1994, its implementation has been associated with a certification process, which includes both third party assessment and periodic audit to confirm that the system adheres to the standards. The certificate can be considered as evidence of a commitment to quality and it is supposed to facilitate exchanges among both different firms and different countries. Most contributions have demonstrated that the ISO 9000 series has become the most prevalent quality initiative among firms in the whole world today (e.g. Tsiotras and Gotzamani, 1996; Ismail and Hasmi, 1999; Lee and Palmer, 1999; Beattie and Sohal, 1999). This diffusion is partly due to the competitive advantage these standards are supposed to provide. Actually,

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[1] It concerns the ISO 9000:1994 standards, which were used by firms during the empirical study. In December 2000, a revised series has been published (noted ISO 9000:2000), which is based on the same principles, but has another structure (only three standards).

most ISO 9000 studies focus on this topic (Curkovic and Pagell, 1999; Docking and Dowen, 1999; Withers and Ebrahimpour, 2000). But few of them address the fact that achieving the ISO 9000 certification supposes a learning process inside organisations. There has been little examination of the relation between these standards and knowledge accumulation and management within the firms.

This is the main topic of this paper. Its primary objective is to examine the implications of the ISO 9000 standards for the codification process within the firms. According to Winter (1995, p. 461), "Quality management ideas provide an interesting perspective on the nature of productive knowledge and the processes by which it is maintained and improved in organisations". Quality management and consequently quality assurance are based on a dynamic process of acquisition and accumulation of knowledge that can be oriented by the ISO 9000 standards. Because of its widespread international acceptance, the ISO 9000 series can be viewed as a code, a language used by firms to extend their industrial relationship and their market share. As this code establishes the documentation requirements that must be met to demonstrate a company's compliance with a quality system, it will be considered as an intermediate code. Indeed it has to be related to the characteristics of the firm to complete codification.

We assume that the ISO 9000 series is a codification tool, which has to be well used by the firm to produce an efficient accumulation of knowledge within it. In order to gain an understanding of the specific use of this tool, the paper seeks to identify different steps in the ISO 9000 implementation process. Using a case approach, it compares two SMEs on the following issues: (1) reasons for seeking implementation (why); (2) the effective implementation process (on what and how); and (3) the impacts of the ISO 9000 standards on the knowledge accumulation (results).

The paper is organised as follows. First, we argue that the ISO 9000 series is a codification tool, used as intermediate code within the firms. Second, we briefly describe the case study, which will provide opposite examples on the use of this tool. And the following sections focus on the analysis of the ISO 9000 standards implementation, dealing with the three steps of this process.

2. The ISO 9000 standards and the codification process

In order to explain the links between the standards and knowledge accumulation, it could be useful to begin this paper by an examination of the nature of knowledge.

2.1. Standards and knowledge

Knowledge can take two forms (Polanyi, 1966): implicit (tacit) or explicit (codified). The distinction and the relationship between tacit knowledge and codified knowledge are complex and constitute the topic of much analysis (e.g. Lundvall and Johnson, 1994; Cohendet and Steinmueller, 2000; Cowan et al., 2000). Following literature, implicit knowledge has to be translated into a common representation to become transmittable and useful. The codification process describes the way by which tacit knowledge is extracted from people in which it is embedded, in order to produce codified knowledge. Thus, codified and tacit knowledge are not in an opposite relationship: "While tacit knowledge can be possessed by itself, explicit knowledge must rely on being tacitly understood and applied" (Polanyi, 1966, p. 7). These two forms of knowledge have to be associated to become useful to agents (Nelson and Winter, 1982). The codified knowledge refers to a "code", which has to be known by people who attempt to communicate. According to Cowan et al. (2000), this code can be recorded in a "codebook", which defines vocabulary, technical specifications and management procedures. It enters a firm as an information that should be properly interpreted to become efficient and refers to both explicit knowledge and tacit knowledge embedded in people.

We argue that the ISO 9000 standards constitute a "codebook", which is both a dictionary used by agents to understand written documents and the documents themselves. The standards, established by a recognised body (the ISO), are based on an inventory of what exists (in science, technology, experience, and usual practices, etc.), in relation to some observations. The second step is a selection process in order to identify relevant information. This selection process finishes in establishing and recording a limited set of solutions to solve matching problems. After-