Exploring Information Technology and Total Quality Management Implementation by Food and Drink Manufacturing Enterprises

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ABSTRACT

The purpose of this study was to examine the implementation of Total Quality Management (TQM) as a business strategy in the Greek food and drink industry, along with the examination of the Information Technology (IT) adoption in the field. A research project was carried out in the sector companies based in Greece, using the questionnaire method. Findings showed a strong relation between IT implementation and impact of IT on TQM. Company size also seemed to affect TQM implementation, and the majority of IT implementation constructs, while company performance was not significant in terms of net profit margin and value added per employee.

KEYWORDS

company performance, Food and drink sector, Information Technology, Total Quality Management

1. INTRODUCTION

According to Gabriel et al. (2000), the term Information Technology (IT) is used to describe a set of instruments, other than computers, machines and systems for collecting, storing, processing and communicating information. Furthermore, IT refers to anything related to computing technology, such as networking, hardware, software, the Internet, or the people that work with these technologies (Christensson, 2006). Since the 1980s, IT has been a facilitator of change in the business world, advancing processing speeds and the capacity to store and share information through seamless integration of an organization's processes and systems (Davenport, 1998), irrespective of time and distance (Chandiwana & Pather, 2016). As stated by Lee (2005), IT is reshaping business performance and economic growth globally, by reducing the cost of coordination, communication, and information processing.

The modernization of enterprises (both manufacturing and service providers) through the use of IT, is a critical factor for their success, competitiveness and growth. As larger businesses are exploring the benefits offered through IT, the smaller ones are called to follow their steps, risking otherwise of not being competitive (European Commission, 2017). Moreover, an improvement of the quality management is expected via the application of IT (Khanam et al., 2014).

Porter and Millar (1985), recorded three ways in which IT influence competition, offering a comparative advantage (McFarlan, 1984) to companies that use them. More specifically, have led to

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changes in the structure and competition of industries, used to support the creation of new businesses and create competitive advantage for the companies using IT, so to outweigh their competition.

On the other hand, the concept of quality is hard to be defined, based on the literature. It is worth noting that even the quality gurus who have dealt with the theory in depth (Crosby, 1979; Deming, 1986; Garvin, 1984; Juran, 1988; Juran & Gryna, 1993) have defined quality in their own specific way. As an example, researchers notice that the English Oxford Living Dictionary (English Oxford living Dictionaries, 2016) defines quality as “a degree or level of excellence”, while the definition given by the American National Standards Institute (ANSI) and the American Society for Quality Control (ASQC) is “the totality of characteristics of a product or service that is capable of satisfying given needs”. Garvin (1988) in his book “Managing Quality - The Strategic and Competitive Edge” highlights the peculiarity of the definition of quality, describing the concept as “an unusually slippery concept”, which is easy to depict, but also extremely difficult to define. For Feigenbaum (1983) quality is defined as “being about value”, while Crosby (1979) defines quality as “conformance to standards, specifications or requirements”. On the other hand, Juran (1988) suggests that quality is “fitness for use”, while Peters and Waterman (1982) claim “quality as excellence” and Parasuraman et al. (1985) suggest that “quality is concerned with meeting or exceeding customer expectations”.

The available literature includes numerous studies regarding the adoption of TQM by Greek companies (Bouranta et al., 2017; Dervitsiotis, 1999; Fotopoulos & Psomas, 2009; Gotzamani et al., 2006; Kampouridis et al., 2015; Psychogios & Wilkinson, 2007; Tsiotras & Gotzamani, 1996; Vranaki et al., 2015). In the present study, an attempt is made to approach the relationship between IT and TQM, particularly in food and drink companies based in Greece.

Quality is a very important factor in the food industry, as it deals with highly sensitive products. Maintaining quality standards and adhering to quality requirements are imperative for the companies of the sector. In order to maintain customer satisfaction and loyalty and reduce the risk and cost of defective products, food companies pay particular attention to maintaining quality through TQM and IT. This is the main reason that this study focuses on the food industry.

This paper is constructed as follows. In section 2, literature review regarding the research area is presented. Section 2 reviews previous studies related to TQM and IT implementation and their impact to companies’ organizational and quality performance. Section 3 describes the importance of the Greek food and drink sector, for country’s economy, being dynamic, competitive and extroverted and a main driving force of manufacturing in the country. In the fourth section, the methodology followed, as well as the questionnaire used, are presented, followed by the findings of the analysis (section 5). Finally, section 6 summarizes the results and section 7 presents certain limitations and recommendations for further research.

2. LITERATURE REVIEW

Numerous researchers have dealt with TQM, trying to enlighten several issues that have emerged from its application in business administration. References are mentioned below. Douglas and Judge (2001) discovered a strong support on the relationship between the extension of TQM implementation and the competitive advantages achieved. Several studies explored the impact of TQM adoption to organizational and quality performance (Agus et al., 2007; Fuentes & Montes, 2006; Talib et al., 2013), while others tried to identify the relationship between TQM practices and organizational culture, resulting in different subsets of TQM practices to be determined by different types of culture (Prajogo & McDermott, 2005).

Using the confirmatory factor analysis approach, Isaac et al. (2004) identified critical success factors in TQM implementation in the software industry and suggested a framework for quality management. Sila (2007) developed a model combining the effects of seven TQM practices on four measures of organizational performance. The effects of these performance measure on each other, by using survey method. studied Sajjad & Amjad (2012) attempted to determine the various benefits
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