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Using TOE and RBV theories to define a theoretical model to assess ERP value across Iberian Manufacturing and Services SMEs

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Abstract

Enterprise Resource Planning (ERP) system literature reports few studies with a focus on specificities of an industry analysis. Based on the Technology-Organizational-Environment (TOE) framework and the Resource-Based View (RBV) theory, we present a theoretically developed research model aiming at measuring and examining determinants of ERP use and value and their impact in the Iberian region (Portugal and Spain) across Manufacturing and Services industries in Small and Medium Enterprises (SMEs). The research model suggests ten hypotheses that will be tested and analysed with data from a questionnaire among firms that have adopted ERP systems in their organization. Due to the nature of the research model the data analysis will be supported by Partial Least Squares (PLS). Our aim with this research project is to provide new knowledge into which determinants contribute to ERP use and ERP value in Iberian Manufacturing and Services SMEs.

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Keywords: Enterprise Resource Planning (ERP); ERP use; ERP value; Manufacturing; Services; SMEs; Technology-Organizational-Environment; Resource-Based View

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1. Introduction

Enterprise Resource Planning (ERP) systems have been applied by many firms [1] to provide seamless integration of processes across functional areas with improved workflow, standardization of various business practices, improved order management, accurate accounting of inventory, and better supply chain management [2, 3]. The ERPs are particularly important for manufacturing and services in Small and Medium Enterprises (SMEs) [4, 5].

The is an ongoing current process of structural change in Europe, in which the share of manufacturing in the economy is declining while services are accounting for increasing shares of employment and added value [6]. However, the manufacturing and service industries are still the two main economic activities in the European Union [7, 8]. Several authors [9-11] state that SMEs are the backbone of Europe's economy, important for increasing productivity and gaining competitive advantage in the global economy, as well as important drivers of innovation and transformation. Literature reveals that little attention has been given to research on ERP in SMEs, and even less on specific industries such as manufacturing and services [12].

Hence we developed a conceptual model based on the Technology-Organization-Environment (TOE) framework to explain ERP use and Resource Based View (RBV) theory to explain ERP value between manufacturing and service industries. Theoretical perspectives are presented next, and then the research model and hypotheses are explained.

2. Theoretical Perspectives (abbreviated)

The service industry is quite unlike the manufacturing industry [13]. The growth of services in the European Union 27 countries raises questions about the adequacy of our understanding of innovation activities in service-dominated economies, especially as innovation is regarded as fundamental to the competitiveness of advanced economies [14]. Different industries have different operating characteristics and environments, and the factors related to ERP use and value may differ accordingly [11, 15]. Given the distinct nature of the offerings of manufacturing and services firms, differences in the use and value may be very plausible. Thus, it is expected that there will be systematic differences between industries in the actual use of ERP systems and related value creation.

One of the most important adoption models at the firm level is the TOE framework [16, 17]. The TOE framework identifies three aspects of a firm's context that influence the process by which it adopts, implements and uses technological innovation: (a) Technological context – which describes both the internal and external technologies relevant to the firm; (b) Organizational context – which refers to descriptive measures about the firm; and (c) Environmental context – which refers to the arena in which a firm conducts its business [17, 18].

The RBV theory remains the dominant theoretical explanation of IT business value, as IS researchers have employed the resource perspective to expand and deepen our understanding of IT business value [19-21]. The RBV theory sustains that a firm creates value by combining heterogeneous resources that are economically valuable, difficult to imitate, or imperfectly mobile across firms [22, 23]. The creation of value requires to effectively use the ERP system in the post implementation phase [24, 25]. Several studies have concluded that ERP systems can lead to sustained, competitive advantages [26, 27]. In line with the RBV theory, the present study will take into account several variables that can be perceived by firms as valuable assets, to better understand how to extract value from the ERP system.

3. Research model and Hypotheses (abbreviated)

The extent of ERP use by an organization will be influenced by its technological, organizational, and environmental contexts within the TOE framework [28]. The RBV theory is used to understand ERP value. Taking in consideration the theoretical background presented above, a conceptual model was developed to assess the use and value of ERP systems (Figure 1).