

OFF-SHORING OF MANUFACTURING SMES: THE IMPACT OF KNOWLEDGE MANAGEMENT ON FIRM PERFORMANCE

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ABSTRACT

Knowledge management (KM) has been considered by many studies as crucial factor in determining the level of performance of companies. When focusing on international business and in particular on off-shoring manufacturing SMEs, knowledge become even more interesting to study considering the fact that most of the studies examine more large companies rather than small-medium. The objective of this paper is to analyze how KM impacts on firm performance. A literature review about 85 articles published on peer-reviewed journals for the period from 2006 to 2016 is offered in order to examine the related issues. Findings indicate not only that KM influences firm performance but even that different typologies of performance are driven by different typology of knowledge. This paper contributes in enhancing the literature on KM on off-shoring manufacturing SMEs performance.

Keywords: *knowledge management, internationalization, manufacturing, SMEs, off-shoring*
JEL Classification: *F2, F23, L25*

1. Introduction

Studying the process of internationalization of firms, many scholars examine which are the factors that influence the degree of this process (Oviatt & McDougall, 2005) and in particular factors that drive the level of firm performance, such as “knowledge management” (Darroch, 2005).

Many studies have been conducted in analyzing the motives of off-shoring decisions. For Kinkel *et al.*, (2007) the motives of off-shoring decisions are different such as reduction of factor costs, market and customer motives while for Roza *et al.*, (2011) consist on cost, resource and entrepreneurial drivers. When focusing on finding the drivers of firm performance, little evidence has been shown in particular for off-shoring manufacturing SMEs. In examining the firm performance most of the studies has considered “knowledge management” as key driver, however they focus only on large companies. Considering the relevant evolution of SMEs in the process of internationalization in terms of exploitation and exploration of knowledge (Chiarvesio *et al.*, 2003) and their contribution in the economy of the country, this paper focus on analyzing the role of “knowledge” in the process of internationalization as driver of firm performance (Shirokova *et al.*, 2013) and in particular focusing on manufacturing SMEs. The off-shoring process represents for many SMEs a relevant challenge in terms of changing location, risk taken, diversifying customers, knowledge exploitation and knowledge exploration (Rodriguez *et al.*,

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2010). Wang *et al.*, (2016) find that a strong relationship between intellectual capital and knowledge management strategy have a positive influence on firm performance. This paper offer a literature review in understanding how manufacturing SMEs evolve over time in their process of internationalization in terms of using an appropriate “knowledge management” as potential driver of firms performance. The word “appropriate” refers in finding and analyzing different types of knowledge that affect firms’ performance. In conducting this analysis about 85 articles are provided published in peer-reviewed journals from 2006 to 2016. Each of them are examined in order to find out the role of KM in firms performance while focusing on off-shoring manufacturing SMEs. The second section of this paper offers a literature review of the relationship between KM and firms performance in the process of internationalization. The third section refers to methodology and descriptive analysis of articles selected for the review. The fourth section describes some relevant findings and the paper concludes with discussion and conclusion.

2. Theoretical background

2.1 Knowledge management and SME performance

Knowledge, characterizing human action, has been considered as created by flow of information (Nonaka, 1994). In 1994’s study, Nonaka identify two dimensions of knowledge creation: *tacit* and *explicit knowledge*. Tacit knowledge is characterized by cognitive and technical element. Cognitive elements are based on human’s mental model and refer to beliefs, paradigm, schema that offer to individuals guidelines in order to perceive and understand the world. Technical element refers to skills, craft, know-how according to how they can be applied to specific context. Explicit knowledge refers to knowledge that can be transferred in formal language. March, (1991) in his study identify to different aspects of knowledge: exploitation and exploration. Exploration refers in adding value, enriching the existing knowledge or acquiring new one, while exploitation rooted in the existing knowledge, so using the possessed knowledge in order to innovate. How difficult is to transfer knowledge? Zander and Kogut (1995) find that transferring manufacturing knowledge depends on the way they can be codified and taught. Creating and managing knowledge represent for a firm one way to evolve over time and to capture different opportunities from the external environments (Kogut & Zander, 1996) in that firm is conceptualized as an institution able to integrate knowledge (Grant, 1996). Knowledge of course need to be not confused with knowing. According to Cook and Brown, (1999) “knowledge” is knowledge possessed by individuals or groups while “knowing” is part of action. Of course, according to the authors, there is a strong relationship between knowledge and knowing in what combining together they contribute for the firms in its interaction process with the world. According to Sawhney and Prandelli, (2000) for firms is very difficult to produce and manage knowledge autonomously for long time. In order to create knowledge firms need to co-operate with their business partners and customers, referring in this case to communities of practice (Wenger & Snyder, 2000). Many studies have been conducted in finding and examining the definition of performance and the main indicators of SME performance. Of course, due to the complexity of firm performance, this continues to challenge scholars. Each of the indicators determine a specific domain of performance. Venkatraman and Ramanujam, (1986) find several indicators to measure business performance such as financial (sales growth, earnings per share, profitability) and operational indicators (market share, product quality, introduction of new

product, marketing effectiveness, manufacturing value-added). Another typology of firm performance is the organizational performance. According to Wenger and Snyder, (2000) knowledge plays an important role in influencing organizational performance of a firm. Li *et al.*, (2008) in examining manufacturing SMEs performance find innovation strategy and formal structure as main drivers. Cerchione *et al.*, (2015) analyzing the spread of KM in SMEs point out five typology of performance: *economic and financial performance* (sales growth, cost reduction, return on investment, profit, revenue growth, profitability) (Andreeva & Kianto, 2012; Huselid, 1995), *market performance* (market flexibility, service quality, market share increase, services to customers, reputation) (Chao *et al.*, 2014; Soukhoroukova *et al.*, 2012), *technical and innovative performance* (product quality, productivity, growth in core competence, innovation, efficiency) (Ai & Wu, 2016; Lai *et al.*, 2014), *human performance* (staff performance, creativity, staff satisfaction, entrepreneurial growth) (Bettioli *et al.*, 2012; Chen *et al.*, 2013; Sheehan, 2013), and *organizational performance* (organizational agility, flexibility in the use of resources, diffusion of new idea, external partner and relationship, work relationship) (Jasimah *et al.*, 2013; Noruzy *et al.*, 2013). Recently some papers provide different factors that influence firm performance, for example Wand *et al.*, (2016) find intellectual capital as the main factor that influence firm performance.

2.2 Off-shoring phenomenon and the role of knowledge on SMEs performance

Before analyzing how KM influence firm performance in off-shoring manufacturing SMEs is important to offer some insights about the off-shoring phenomenon. Off-shoring starts when firms move their activities or a part of them abroad in order to enlarge the dynamic capabilities in terms of product development and specific activities. Different theories have examine the internationalization process of firms. Referring to the Uppsala model the internationalization is conceptualized as a gradual incremental process that has to follow several stages before the process itself can be established (Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975; Johanson & Vahlne, 1990). It means that if a company decides to internalize its activities or a part of them, this process cannot be effectuated immediately. This happens because of lack of knowledge. It means that, according to this model a firm has difficulty in acquiring knowledge about the targeted market and also difficulty in formalizing operations into foreign country. It is clear evident how knowledge is strong related to the internationalization process of the firm. This is because Johanson and Vahlne in their 1977's study consider internationalization as learning experience based on physic distance. Of course, when a firm decides do locate its production or a part of it into foreign country, it has to cope with differences in terms of language, culture, religion, education and business practices. Also in their 2009's study they introduce "trust" in their model as an important element to consider on business relationship that makes easier the possibility in exploiting new opportunities. Of course, due to the lack of knowledge, SMEs select first country that is similar to the country of origin. Another important theory such as the Innovation-related model (Andersen, 1993) considers knowledge as relevant driver of internationalization process. As behaviorally oriented this model also focus on lack of knowledge and this is due to the uncertainty that characterized the internationalization process.

Consider that knowledge plays an important role on internationalization process of SMEs it is important to underline how it can influence the performance of an SME. Lu and Beamish, (2001) argue that when SMEs internalize broadly, alliances with partners with local knowledge encourage and help them in order to surpass deficiency in terms of resources and capabilities

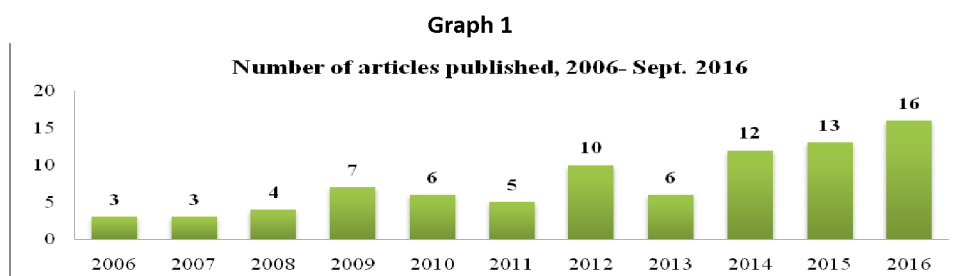
contributing so in the performance of SMEs. Considering knowledge as a function of continuous interactive learning, (Sim & Rajendran Pandian, 2003), it is important that can be transferred through agents in order to capture and manage it. For Darroch, (2005) KM is viewed as coordinating mechanism permitting at firms to use resources in more efficient way and contributing so to their innovation and performance. Of course, SMEs through managing knowledge have become important companies like the larger one in successfully coping barriers deriving from off-shoring process (Brook, 2004). Oviatt and McDougall, (2005) identify knowledge-intensity as driver of firms performance. José Acedo and Florin, (2006) argue that knowledge acquisition is important in order to accelerate the degree of internationalization process affecting in this way the firm performance (Mejri & Umemoto, 2010). For example through off-shoring SMEs can improve efficiency, selecting qualified personnel and potential customers (Roza et al., 2011).

3. Methodology

This section provides insights of how methodology is conducted. In particular, this paper adopts a literature review as method in order to examine the impact of KM on manufacturing SMEs performance in the context of internationalization. About 85 articles were individuated for the period from 2006 to 2016 published on peer-reviewed journals. The selection of these articles was carried out through searching tools such as Scopus, ScienceDirect, Springerlink, and Wiley. All articles were identified using key words such as “knowledge management”, “SME”, “manufacturing”, “off-shoring”, “performance”, and “internationalization”, and were selected only articles in English language.

3.1 Descriptive analysis

The first phase of analysis consists on examining the period when articles were published. Referring to the Graph 1, starting from year 2006 there is an increase of number of articles published on the domain of KM and firm performance, in particular most of the articles, about 16 out of 85 were published on 2016.



The second phase of analysis consists on reporting the methodology adopted from each of selected articles (Table 2). Most of the articles (about 55) focus on survey method, following by review of literature (about 19) and case study (about 11).

Table 1. Number of articles according o the methodology applied

Discipline	Nr of articles
Strategy	49
Operation management	8
Marketing	8
Logistic	12
Economics	8
Total	85

Table 2. Number of articles published in each journal

Methodology	Nr of articles
Case study	11
Review	19
Survey	55
Total	85

The third phase of analysis focuses on individuating the main discipline of journals in which articles were published. Table 3 shows that most of the articles are published on journals with strategy discipline (about 49 articles), while the remaining articles are spread on journals with logistic, operation management, economics and marketing disciplines.

The fourth phase of analysis examines the articles according to the country in which manufacturing SMEs, selected for examination, operate (Table 4). Most of the articles focus on examining multiple countries (about 37).

Table 3. Number of articles according to the country examined

Country	Nr of articles	Country	Nr of articles	Country	Nr of articles
Australia	1	Italy	3	Singapore	2
Bangladesh	2	Jordania	1	Slovenia	2
Canada	3	Korea	1	Spain	3
China	5	Malaysia	2	Sweden	1
Denmark	2	Midwestern	1	Taiwan	2
Egypt	1	Multiple	37	UK	2
Finland	1	Pakistan	1	US	2
France	1	Poland	1	Vietnam	1
Germany	3	Portugal	1		
India	2	Scandinavia	1		
				Total	85

4. Findings

After analyzing all articles according to the period of time in which they were published, the methods applied by each of them, the relative journals in which they were published, the specific discipline of journals, the country that each article refers, this section offers some main results according to the impact of KM on firm performance. All articles are examined providing insights about how different types of knowledge influence specific types of firm performance. The main results are shown in Table 5. Five typology of firm performance are identified: economic and financial, market, technical, human, and organizational (Cerchione et al., 2015). Each of them are influenced by different types of knowledge according to specific article. Only 1 article out of 85 shows that KM supports all five typologies of performance [32]. Also, only 1 of them out of 85 shows that KM supports four types of performance [77]. About 7 articles out of 85 show that KM support 3 types of performance [4, 10, 23, 29-30, 44, 85]; about 20 out of 85

articles show that KM influence 2 typology of performance [1, 13, 19, 21, 24, 33, 35, 38, 42, 45-46, 56-57, 62, 66-68, 72, 74, 80, 83]; and about 53 out of 85 articles show that KM support only one specific typology of performance [2-3, 5-9, 11-12, 14-18, 20, 22, 25-28, 31, 36-37, 39-41, 43, 47-55, 58-61, 63-65, 67-68, 70-71, 73, 75-76, 78-80, 82, 84]. Each typology of performance is analyzed below according to specific knowledge affecting them.

Table 4. The influence of knowledge management on SME performance

Author	Economic and Financial	Market	Technical and Innovative	Human	Organizational	Performance number
Amendolagine et al. (2014)	•	•				2
Ancarani et al. (2015)	•					1
Armario et al. (2008)		•				1
Ashby (2016)	•			•	•	3
Baier et al. (2015)	•					1
Behyan et al. (2015)	•					1
Belso-Martínez (2006)		•				1
Berger et al. (2012)		•				1
Boden et al. (2012)				•		1
Buckley (2016)			•	•	•	3
Camison & Villar-Lopez (2010)	•					1
Caniato et al. (2012)					•	1
Cereola et al. (2012)		•	•			2
Chelliah et al. (2010)	•					1
Chelliah et al. (2010)	•					1
Ciešlik et al. (2012)		•				1
Cincera et al. (2014)		•				1
Coreynen et al. (2016)		•				1
Cusmano et al. (2009)		•	•			2
Doole et al. (2006)		•				1
Dutot et al. (2014)			•		•	2
Eden (2010)		•				1
Fayoumi (2016)		•	•		•	3
Filatotchev et al. (2009)		•	•			2
Giannakis et al. (2012)		•				1
Gómez-Miranda et al. (2015)			•			1
Graf (2013)		•				1
Gylling et al. (2015)	•					1
Hätönen & Eriksson (2009)	•	•			•	3
Hätönen (2009)	•	•			•	3
Hilmersson & Johanson (2016)	•					1
Hitt et al. (2016)	•	•	•	•	•	5
Hsu et al. (2013)	•	•				2
Huang & Mas-Tur (2016)		•		•		2
Javalgi & Todd (2011)	•	•				2
Joniaková & Blštáková (2015)				•		1
Khalid & Bhatti (2015)					•	1
Kim & Hemmert (2016)	•	•				2

5. Discussion and conclusion

Through a literature review, the objective of this paper is to offer important insights about the role of KM on off-shoring manufacturing SME performance. Each article, part of literature review, were examined according to different aspects. There was an increase of number of articles published from 2006 to 2016. Most of them adopt survey methodology, referring to multiple country of study in which SMEs operate; are published on journal focus on strategy discipline. In order to examine the role of KM on performance, for each of articles were

individuated different categories of knowledge. Five typology of SME performance (economic and financial; market; technical and innovative; human; and organizational) were highlighted by these different categories of knowledge. These findings indicate not only how important is KM on firm performance but in particular on off-shoring manufacturing SMEs. This, because considering that most of the studies focus more first, on highlighting more the role of KM on performance of large companies rather than small-medium and second, others studies refers more on SMEs performance in general aspects but not on off-shoring manufacturing SMEs in particular (however there exist a few number of such studies).

This paper contributes to the literature of KM and SMEs performance in order to understand better the strong relationship between these two elements. Future research need to be conducted in order to compare the role of KM on performance before and after the off-shore process for the same SME. This paper also has some limitations referring to the number of articles selected for the literature review. All 85 articles individuated from 2006 to 2016 result all in open access and of course there are many other articles published during this period. It means that these results cannot be generalized, however they provide preliminary and important insights about the role of KM on SMEs performance.

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