

International Lessons in Knowledge Management: A Study of Western & Eastern Manufacturing SMEs

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Abstract: In today's competitive business market, Small and Medium Enterprises (SMEs) are seeking to adopt supporting tools in order to survive. Many large organizations have been successfully implementing Knowledge Management with productivity and efficiency gains cited. SME's on the other hand are less familiar with this practice with fewer published studies of Knowledge Management focusing on SMEs. Studies which draw global comparisons of Knowledge Management practices in SME's are particularly rare. The aim of this study is to identify and investigate similarities and differences in Knowledge Management practice between SMEs in UK and Thailand within the manufacturing sector. The objective being to better understand and facilitate the transfer of good practice and lessons between the two countries. Questionnaires investigating Knowledge Management practice have been developed and distributed to SMEs in the Manufacturing Sector across the UK and Thailand. This paper reports on the responses of a total of 384 questionnaires from 36 manufacturing companies from the UK and Thailand. The study covers a range of manufacturing sectors including food and beverage, automotive and aerospace industries etc. Findings are reported from each of the two countries followed by a comparative statistical analysis of the similarities and differences. The results show a significant difference between the numbers of manufacturing SME's that have implemented a formal knowledge management approach. With significantly more Thai organisations reporting the adoption of formal knowledge management approaches. Similarities exist in the encouragement given to employees for knowledge management activities. Significant difference exists in the barriers that the UK and Thai organisations face in capturing knowledge. The results have the potential to gain improvements and competitive advantage through understanding how knowledge management is influenced by geographic and cultural differences and the transfer of lessons and good practice between Thailand and the UK.

Keywords: *Knowledge Management, Small and Medium Enterprises (SMEs), Manufacturing, UK, Thailand*

1. Introduction

1.1 Knowledge Management in SMEs in the Manufacturing Industry

Various definitions of Knowledge Management exist depending on context. Knowledge Management is the way in which knowledge is organised and used within a company, or the study of how to effectively organise and use it (Cambridge Business English Dictionary). Knowledge Management is the tools, techniques and strategies to retain, analyse, improve and share business expertise (Groof and Jones, 2003). It can be said that knowledge management is a systematic optimization strategy to improve business and employee performance (Bergeron, 2003). Moreover, if focusing on human resources, it can be defined as awareness of getting the right knowledge to the right people at the right time to improve organisational performance (Seng et al, 2002). Overall, Knowledge Management is the effective and efficient use of knowledge within organization to benefit the customer and of course the company (Macdonald, 1999).

Effective Knowledge Management practice provides the ability to store, analyse, interpret, share and reuse knowledge as an integral daily activity (Saini, 2013). This brings many potential benefits including time saving efficiencies, improved communication and decision making, reduction in rework and improved quality. Accessing these benefits can place an organization in a position of competitive advantage in the global market place.

However, implementing and harnessing the advantages of Knowledge Management can present a number of complex challenges for organisations. Denizhan cites the main knowledge management challenges faced by global business today as defining a knowledge in a working context; dealing with tacit knowledge; utilization of information technology; cultural complexity; human resources and developing new organizational structures (2008).

SME's often find the challenges and barriers to achieving successful Knowledge Management significantly more difficult than larger organisations. A recent study identifies four main barriers to SME's capturing knowledge within their organization as social, technological, financial and process (Bhanumathi & Rathb, 2014). McAdam and Reid specifically identify investment as a key barrier to SME's implementing Knowledge Management (2001). Handling tacit knowledge can prove difficult for most organisations. Tacit knowledge is held by an experienced person making it challenging to articulate, capture and share. This can lead to knowledge disappearing when one key person leaves the company (Bhanumathi and Rathb, 2014). SME's as smaller organisations can be significantly affected if tacit knowledge held by an experienced individual is lost when they leave the company.

According to the latest Thai white paper report (2015), SME's account for 80% of overall employment in Thailand. Within manufacturing SMEs account for 67.4% of employment and contribute 22.1% of the total GDP. Manufacturing SMEs with the highest GDP were those in food and beverage industry. The UK Department for Business, Energy and Industrial Strategy (2016), report SMEs accounting for 60% of employment and 47% of turnover in the private sector. Whilst manufacturing SMEs account for only 5% of the total number of SMEs in the UK they contribute 10% in terms of employment and turnover rate.

It is clear that whilst SME's have huge capacity to gain from the benefits of KM they face significant challenges achieving successful Knowledge Management implementation and practices compared with larger organizations. The manufacturing sector contributes significantly to local and global economy, in terms of employment and turnover but there is little understanding of Knowledge Management practices in Manufacturing SME's across the globe or how these are influenced by geographic location and culture.

The aim of this study is to gain a better understanding of current international Knowledge Management practice focusing on UK and Thai SMEs in the manufacturing sector and how these might be influenced by culture and nationality. Understanding similarities and differences will allow good practice and lessons to be transferred between the two countries.

1.2 Definition of small and Medium Enterprise (SME's) in Manufacturing Sector in the UK and Thailand

The definition of an SME in the UK aligns to that of the EU. Three criteria determine SME status these being, number of employees, annual turnover and balance are used to determine three separate size SME categories specifically micro, small and medium. This is captured in Table 1.

Table 1: Definition of SMEs in UK

Enterprise category	Headcount	Annual Turnover	Annual Balance sheet
Micro-sized	less than 10	less than €2 million	less than €2 million
Small-sized	less than 50	less than €10 million	less than €10 million
Medium-sized	less than 250	less than €50 million	less than €43 million

Source: European commission, 2005

Thailand adopts a different approach to determine whether a company is an SME. Only two categories of small and medium exist. Definition and categorization depends upon the industry sector, number of employees and value of fixed assets as illustrated in Table 2.

Table 2: Definition of SMEs in Thailand

Industry Sector	Small Business		Medium Business	
	Number of Employees	Fixed Asset (Million THB)	Number of Employees	Fixed Asset (Million THB)
Manufacturing	less than 50	less than 50	51 - 200	50 - 200
Service	less than 50	less than 50	51 - 200	50 - 200
Wholesale	less than 25	less than 50	26 – 50	50 - 100
Retail	less than 15	less than 50	16 – 30	30 - 60

Source: Ministry of Industry, 2002

2. Literature review

Recent research has identified many benefits to successfully embedded Knowledge Management practices. Organisations capable of harnessing information flow can achieve improved performance, innovation and the ability to create a sustainable competitive advantage (Saini, 2015). Further advantages recognised include significant time reductions in performing data related tasks, better efficiency and staff savings (Yang, 2014) a positive impact on organizational vision and strategy, economies of scale and scope leading to increased profits (Becerra et al, 2004). Despite these benefits organisations can encounter considerable challenges as they embark on their Knowledge Management quest. Shokri-Ghasabeh (2014) found the top three to be lack of employee time, lack of resources and lack of clear guidelines.

Due to resource constraints Small and Medium Sized Enterprises (SME's) face significantly further challenge (Kevin and Yukika, 2006). SME's rely on innovation as a matter of survival (Jenet and Alton, 2013). They cannot simply adopt scaled down versions of KM practices found in larger organisations requiring creative approaches to overcome their constraints (Jenet and Alton, 2013). Hutcheson and Quintas (2008) identify that small firms are more likely to adopt informal processes, without the use of the terminology and concepts of KM, to manage knowledge. In a study of Icelandic SME's (Edvardsson, 2009) clear potential benefits are identified including improved decision making, productivity, market share, reduced costs, more innovation and higher profits. However, lack of time to share knowledge, difficulties in codifying knowledge, and capturing tacit knowledge were found to be barriers. In general, it was found that SME's lack strategy and formalisation, and rely on an unsystematic manner of sharing and utilising knowledge. Another study, Jenet and Alton (2013) found that reuse of knowledge in SME's typically centered around the owner of the firm, with them taking control of organizational knowledge only sharing when employees need it to undertake their role, keeping most of the strategic organizational knowledge to themselves. The importance of leaders as role models within SME's is a critical factor to successful Knowledge Management. Whilst Knowledge Management practices and implementation have been investigated in SME's it is clear that SME's require more support in order to achieve success and access the full range of benefits. A recent study, Alexander (2013) identifies several important topics that have not received sufficient attention in previous research these include KM in small and medium enterprises.

Some studies have investigated Knowledge Management practices within SME's in specific geographical locations. Studies from the West show that SME's display a surprisingly high awareness of KM in Finnish SME's and a clear positive correlation between knowledge management maturity and growth (Sari et al, 2005). Despite this it highlights only a minor proportion of the sample SME's has been able to benefit in terms of growth from their KM-related activities. An Icelandic study shows less than a quarter of firms have a KM programme in place (Edvardsson, 2006), with most investing in simple information and communication technology technologies. It emphasizes the need for implementation of a formal KM strategy to aid success. Whilst a UK based study, Maguire et al. (2007) suggests that SMEs need support in terms of education, training, developing the tools and methods to manage Knowledge Management to achieve the goal.

Certain studies from the eastern globe focus on India, Singapore and Thailand (Bhanumathi, 2014; Jenet and Alton, 2013; Tikakul and Thomson, 2016). Jenet and Alton (2013) provides insights into the distinctiveness of KM processes for SME's from a study in Singapore. Providing perspectives on the factors influencing KM processes, in particular, the importance of the owners's knowledge and leadership, the flexibility and adaptability of the organization, and open culture to enable the capitalization of its knowledge assets to survive and stay competitive. A study of Thai SME's, Tikakul and Thomson (2016) demonstrates that the majority of SME employees consider Knowledge Management to be a beneficial tool with the potential to solve problems. It highlights some of the barriers to KM for SME's including the greatest barrier to knowledge capture being lack of clear guidelines, with lack of time hindering sharing and storing of knowledge. Another Eastern study based on SME's in India, Bhanumathi (2014) highlights the need for Indian SMEs to increase the use of knowledge management in their day-to-day business activities. Various challenges and barriers to the implementation of Knowledge Management in Indian SMEs are slow penetration of technology, consumer awareness, cost, lack of need and cultural resistance.

More studies are needed that discuss KM in SMEs, taking country differences into consideration, since it is only natural to assume that KM activities will vary from country to country (Durst and Edvardsson, 2012). One such empirical study carried out in Austria and Switzerland describes methods of knowledge management

supporting the four key knowledge processes in SMEs, i.e. knowledge identification, knowledge acquisition, knowledge distribution and knowledge preservation (Kerstin and Christian, 2009). It proposes a “TechnicalSocialSocialTechnical Model” (TSST Model), which is a balanced system for technical and social knowledge applications. However, this study is based on two countries which share a border, a common language and similar culture. There is a distinct lack of research which highlight similarities and differences between KM practice in SME’s between countries with geographical and cultural disparity and none which compare Western and Eastern practices. This was confirmed through a systematic literature review. Which was conducted in accordance with Ridley (2012). The aim of the review was to gain an understanding of current research on Knowledge Management which draws comparisons between different global locations with a particular emphasis on SME’s within the Manufacturing sector. ProQuest Database was used with various keywords including Knowledge Management, KM, Small and Medium Enterprise, Small and medium firm, SMEs, International, Global and Cross-country were selected. The outcome of these keywords was 299 publications. Each of these abstracts was reviewed with the finding that only 18 of these publications related to Knowledge Management in SMEs. Of these 18 studies it was found that none focused on the manufacturing sector or drew comparisons of Knowledge Management practices between different countries.

Given the challenges that SME’s face globally in the implementation of Knowledge Management, opportunities may exist to share lessons across geographically and culturally disparate locations and improve the ability of SME’s to overcome the barriers they face. This research aims to fill this clear gap and address the following research questions:

Q1. What are the similarities and differences that exist between Knowledge Management practice in SME’s in the West (UK) and East (Thailand) and how are these influenced by culture and nationality?

Q2. Can practices be shared between two different countries to improve the success of SME’s implementing Knowledge Management?

The aim of this study is therefore to identify opportunities for sharing practice between the two countries that will lead to improvements in the success of implementation. Opportunities will be identified by investigating similarities and differences that exist in KM practice between SME’s in the UK and Thailand and how these might be influenced by culture and nationality. This study focuses specifically on the manufacturing industry due to its significant contribution to the economy in both countries. Emphasis on SME’s in one industry, allows accurate comparisons to be made.

3. Research methods

A survey was conducted in Thai and UK manufacturing SME’s adopting a questionnaire for data collection. A questionnaire based approach was selected to address multiple topics, draw clear comparisons, suitability for online implementation (Nardi, 2014), and low cost in terms of time and budget (Gillham, 2008). Particularly important when collecting data in geographically disparate locations.

Guidelines recommended by Sommer & Sommer (2002) and Gillham (2008) were used in the development of the questionnaire. The final questionnaire consisted of 3 parts with 31 questions. Part 1 (7 questions) gathers general information about the company. Part 2 (23 questions) captures data on current KM practice focusing on three themes of capturing, sharing and storing knowledge. Finally, part 3 (1 question) is open ended for recommendations and feedback on current KM approach within the company.

The questionnaire is available in two language versions – English and Thai. Both of which were pilot tested with backward translation used to ensure each versions is well-written, understandable and accurate. Questionnaires were distributed to SMEs in the manufacturing sector in the UK and Thailand between July 2015 – September 2016. Paper based or on-line (Qualtrics) versions depending on participants’ preference were made available. Online version available at https://stratheng.eu.qualtrics.com/jfe/form/SV_baAziC102IS8BYp.

In Thailand, participants were selected from manufacturing SMEs from across the country. Suitable participants were identified from organisations who previously collaborated with University and Government research as well as personal contacts. Selected SMEs were invited to participate and informed of potential

benefits. Communication was conducted via e-mail, telephone and post. Questionnaires were sent out to 71 Thai SMEs. In total 20 responded, meeting the target with a response rate of 28.17%.

In the UK, participants were selected initially by an internet search of manufacturing SME's supplemented by companies who had previously collaborated in university research projects. The researcher contacted these companies via telephone call, e-mail and meeting in person to explain the advantages of taking part in the study. Invitations were sent out to 150 SMEs across the UK aiming for 20 responses. A response rate of 10.67% was achieved giving 16 UK companies in total.

It was considerably more difficult to find participants in the UK to compared with Thailand. Often follow up phone calls, emails or visits to explain benefits were required to encourage response. This could be reflective of national culture, Thai's are more willing to help others especially co-operate with the public sector as universities.

In total 384 completed questionnaires were received from a total of 36 SMEs (73 from 16 UK SMEs and 311 from 20 Thai SMEs). Details of the sectors, sizes and roles of respondents for the UK and Thailand are provided in tables 3 and 7 respectively. To facilitate comparison between the UK and Thailand the size of medium UK companies was restricted to 200 employees. The Manufacturing landscape in both countries is considerably different. This is not surprising given the countries are separated by over 6000 miles, and Thailand is a developing country. This difference is reflected in the various manufacturing business sectors represented by the responding organisations in each country. Whilst this study does not cover the entire manufacturing industry a significant range of sectors are represented across the 36 companies who responded.

The 20 Thai SMEs respondents are located across Thailand and included 8 small and 12 Medium companies. As illustrated in Table 3 the manufacturing business sectors represented include 3 automotive involved in manufacturing car components, 4 manufacture electronic devices such as hard disks, light bulbs, etc. A further 6 manufacture packaging including plastic, non-plastic, food grade, and non-food grade packaging. The remaining 6 represent material and machinery example products include plastic injection molding and machinery components.

The 16 UK companies include 3 Micro, 10 Small and 3 Medium SMEs. Micro companies in Thailand are classified within the small category. The most represented sector in the UK is material and machinery accounting for 11 SMEs who are largely focused on forging and forming of components. The remaining organisations manufacture electronic devices, packaging, aerospace products, furniture and wheelchairs.

Prior to analysis all questionnaires responses were translated in to English. Questionnaire results were then analysed on a question by question basis for the UK and Thai responses separately. The results of this are presented in sections 4 (UK) and 5 (Thailand) of this paper. A comparative analysis between the UK and Thai data was then conducted using the Chi-Square test and Fishers Exact test to identify significant similarities and differences in the responses and hence Knowledge Management practices in UK and Thai SME's. Initially, all of the UK data is compared with the complete set of Thai data (section 6.1). Following this a comparison is made between the data collected in small UK and Thai companies (section 6.2). Analysing the data universally then based on comparable organisational sizes helps ensure the validity of the comparisons.

4. Overview of Knowledge Management practice in UK

This section presents the findings from the UK based questionnaire responses. Table 3 shows business sectors size categories of the SME's and the employee roles of the total UK participants. In total 73 staff from 16 SMEs across the UK responded. Just under 40% (39.7 %) have management level responsibilities with just over 60% (60.3%) in non-management level positions.

Table 3: Participant characteristics

Business Sector	Frequency
Electronic Device	1
Material and Machinery	11
Adventure Wheelchair Manufacture	1
Furniture	1
Aerospace	1
Packaging	1
Total	16
Size	
Micro	3
Small	10
Medium	3
Total	16
Role of respondents	Frequency (Percentage)
Senior Manager	15 (20.6%)
Manager	14 (19.2%)
Senior Engineer	3 (4.1%)
Engineer	15 (20.6%)
Supervisor	2 (2.7%)
Technical	2 (2.7%)
Operative	10 (13.7%)
Administrator	6 (8.2%)
Others	6 (8.2%)
Total	73

Figure 1 presents the responses to the question “Is there a formal Knowledge Management approach in your organisation ?” It illustrates that 41.1% of staff consider there is formal KM approach in their organisation, of those who consider that their organisation has a formal KM approach 66.7% responded that their organisation provides comprehensive information and training on KM prior to the implementation process. Almost 36% of staff feel their organisation does not have a formal Knowledge Management approach, of those 70 percent think that KM could support and improve their work performance.



Figure 1: Knowledge Management approach in their organisation in UK SMEs

Table 4 below presents the findings of the employee perceptions of whether their organisation encourages Knowledge Management practice. It clearly demonstrates that the majority of questionnaire respondents perceive that their organisation encourages every aspect of KM activities including capturing, sharing and storing knowledge.

Table 4: Employees perception on whether their organisation encourages KM activities in UK SMEs

Does your organisation encourage employees to participate in	Answer	Percentage
Capturing Knowledge?	Yes	68.5%
	No	31.5%
Sharing Knowledge?	Yes	72.6%
	No	27.4%
Storing Knowledge?	Yes	67.1%
	No	32.9%

Table 5 highlights the approaches UK SME’s actually employ to encourage their staff to participate in Knowledge Management activities. Provision of training, meetings, seminars and conferences are common tools to encourage staff to capture and share knowledge. Implementing IT systems such as company databases and data management systems fully support employees to capturing and storing knowledge.

Table 5: How the organisation encourages employees to participate in Knowledge Management activities

	How the organisation encourages employees to participate in		
	Capturing	Sharing	Storing
Activities	Attending conferences, training and meetings within and outside the organisation	Open communication, everyone has a voice	Providing company database
	Using continuous improvement mechanism	Organising seminars and workshops within the organisation	Using storage and index system
	Providing IT systems to make it easy to capture knowledge	Cross-department meetings to share with the rest of workforce	Mandatory to store project / work procedure information
	Writing reports on project output for future reference	Working as a group and using team approach to solve the problem	Using data management system

Table 6 highlights the biggest barriers identified by participants to different types of KM activities within their organisations. Specifically it considers barriers to capturing, sharing and storing knowledge. Barriers to sharing

knowledge have been separated in to practical barriers such as IT issues, organizational policy and procedural challenges etc. and cultural barriers i.e. lack of trust, willingness to share etc. From table 6, it can be seen that lack of time is an issue for both sharing and storing knowledge with approximately half of respondents highlighting this as a major issue.

Table 6: The biggest barrier to Knowledge Management activity in UK SMEs

The biggest barrier to	UK	Percentage
capturing your knowledge	Lack of clear guidelines on KM approach	37.0%
sharing your knowledge (practical barrier)	Lack of Time	50.7%
sharing your knowledge (cultural barrier)	Lack of awareness of other people needs/requirement	38.4%
storing your knowledge	Lack of Time	48.0%

5. Overview of Knowledge Management Practice in Thailand

This section presents the findings from the Thai based questionnaire responses. Table 7 shows business sectors represented by the participating organisations together with the size categories of the SME's and the employee roles of the Thai participants. In total 311 staff from 20 SMEs across the Thailand responded. Just over 10% (10.6 %) have management level responsibilities with the remainder in non-management level positions.

Table 7: Participant characteristic

Business Sector	Frequency
Automotive	3
Electronic Device	4
Material and Machinery	5
Packaging	6
Food and Beverage	1
Other	1
<u>Total</u>	<u>20</u>
Size	
Small	8
Medium	12
<u>Total</u>	<u>20</u>
Role of respondents	Frequency (Percentage)
Senior Manager	7 (2.3%)
Manager	26 (8.4%)
Senior Engineer	2 (0.6%)
Engineer	13 (4.2%)
Supervisor	66 (21.2%)
Technical	27 (8.7%)
Operative	118 (37.9%)
Administrator	43 (13.8%)
Others	9 (2.9%)
<u>Total</u>	<u>311</u>



Figure 2: Knowledge Management approach in their organisation in Thai SMEs

Figure 2 illustrates how employees consider the status of KM in their company. It can be seen that almost 80 percent of Thai respondents consider there is formal KM approach in their organisation with 95 percent of these reporting that the company provide comprehensive information and training prior to the implementation process. Just under 16% of Thai participants consider there to be no formal Knowledge Management approach in their organisation 80 percent of which believe that KM will improve their work performance.

Table 8 below presents employee perceptions of whether their organisation encourages Knowledge Management practice. It clearly demonstrates the majority of questionnaire respondents perceive their organisation encourages every aspect of KM activities including capturing, sharing and storing knowledge. However, the perception is that encouragement for storing knowledge is slightly less than other KM activities at just over 60%.

Table 8: Employees perception on organisation encouragement on KM activities in Thai SMEs

Does your organisation encourage employees to participate in	Answer	Percentage
Capturing Knowledge?	Yes	65.6%
	No	34.4%
Sharing Knowledge?	Yes	69.8%
	No	30.2%
Storing Knowledge?	Yes	60.5%
	No	39.6%

Table 9 presents the responses of how the organisation actually encourages employees. Arranging meetings and training is also common practice in Thai SMEs. Furthermore, there are several additional approaches that Thai SMEs employ to encourage their staff to share knowledge such as incentives and using public address systems during breaks to share knowledge. While provision of company databases and establishing standard processes is adopted support storing knowledge.

Table 9: How the organisation encourages employees to participate in Knowledge Management activities

	How the organisation encourage employee to participate in		
	Capturing	Sharing	Storing
Activiies	Arrange internal and external meeting / training	Arranging seminar / training / meeing within organisation	Providing company database
	Morning Talk	Show and Share activities	Using ISO as a guildline
	Using standard form to record new knowledge	Experienced staff to teach and work along with new staff	Setting and impliment standard process
	Applying Kaizen in to the job	Incentive	
		Morning Talk	

Table 10 highlights the biggest barriers identified by Thai SME participants to different types of KM activities. More than half of employees believe that lack of clear guidelines is an issue for capturing knowledge. While the biggest barrier for sharing and storing knowledge is lack of time.

Table 10: The biggest barrier to Knowledge Management activity in Thai SMEs

The biggest barrier to	Thailand	Percentage
capturing knowledge	Lack of clear guidelines on Knowledge Management approach	55.0%
sharing knowledge (practical barrier)	Lack of Time	49.5%
sharing knowledge (cultural barrier)	Knowledge sharing is extra workload	30.6%
storing knowledge	Lack of Time	39.9%

6. Comparative Analysis Study

6.1 Complete Data Set

The Chi – Square test (significance level of 0.05) was applied to determine if an association exists between location (UK and Thailand) and perceived existence of a formal Knowledge Management approach (Figures 1 and 2 above). In this section all of the responses received from Thailand and the UK are compared.

Table 11: The Chi-Square Test - Knowledge Management approach within organisation – Complete data set

		Is there a formal KM approach in your organisation?			Total
		Yes	No	Do not know	
Location	UK	30	26	17	73
	Thailand	243	49	19	311
	Total	273	75	36	384

		Is there a formal KM approach in your organisation?
Location	Chi Square	41.96
	Degrees of Freedom	2
	p-value	0.00

As the results in Table 11 show the P-value (0.00) is less than the significance level (0.05). Clearly highlighting that there is a statistically significant difference between the UK and Thailand and perception of formal Knowledge Management within organisations.

The Chi-Square test was also used to investigate differences between Thai and UK SME's on how organisations are perceived to encourage their employees in capturing, sharing and storing knowledge

Table 12: The Chi-Square Test - company encouragement in KM activities – complete data set

		Does your organisation encourage employees to participate in								
		Capturing Knowledge?			Sharing Knowledge?			Storing Knowledge?		
		Yes	No	Total	Yes	No	Total	Yes	No	Total
Location	UK	50	23	73	53	20	73	49	24	73
	Thailand	204	107	311	217	94	311	188	123	311
	Total	254	130	384	270	114	384	237	147	384

		Does your organisation encourage employees to participate in		
		Capturing Knowledge?	Sharing Knowledge?	Storing Knowledge?
Location	Chi Square	0.22	0.23	1.11
	Degrees of Freedom	1	1	1
	p-value	0.64	0.63	0.29

In Table 12, the p values of 0.64, 0.63 and 0.29 indicate that there is not a statistically significant difference between the two locations and how organisations encourage employees to participate in KM activities.

Table 13: Similarities and differences between how UK and Thai SMEs' encourage KM activities

	Similarities	Differences	
Capturing Knowledge	External and Internal Meetings Conferences, Workshops and Seminars Using Continuous Improvement in UK while applying Kaizen in Thailand	UK SMEs	Writing final report on project output for future reference Providing IT system to make it easy to capture knowledge
		Thai SMEs	Daily Morning Talk activity Using standard format to record new knowledge
Sharing Knowledge	Seminars, training and meetings within organisation Everyone in organisation can get involved with sharing knowledge facilitated by open communication in UK and Show and Share activities in Thailand	UK SMEs	Working as a group and using team approach to solve the problem Cross-department meeting to share with the rest of workforce
		Thai SMEs	Morning Talk activity Experienced staff work with new staff 1:1 Public address system (Internal radio channel) Incentives
Storing Knowledge	Providing company database Setting and implementing standard process and guideline in Thailand and using storage and index system in UK.	UK SMEs	Mandatory to store project / work procedure information Using data management system
		Thai SMEs	Using ISO as a guideline

Table 13, clearly shows that arranging training and seminars are key activities adopted in both Thai and UK SME's to encourage employees to participate in capturing and sharing knowledge. However, Thai SME's also adopt the 'daily morning talk' to encourage staff to capture and share knowledge. Thai employees also highlighted the use of public address systems and incentives as key motivations to share knowledge in their organisations. Whereas, UK SME's are more likely to employ a team work approach to stimulate these activities. Provision of company databases and guidelines for the use of the database is common practice in both countries. UK employees also state the mandatory nature of storing project information and knowledge to avoid similar mistakes being made in the future.

Finally the Chi-Square Test was applied to determine the relationship between location and barriers to KM.

Table 14: The Chi-Square Test – Barriers to Knowledge Management activities – Complete Data Set

		In your opinion, which of the following is the biggest barrier to capturing your knowledge?					Total
		Lack of motivation	Lack of clear guidelines on KM approach	Lack of time	Lack of resource	Others	
Location	UK	10	27	23	8	5	73
	Thailand	68	171	48	14	10	311
Total		78	198	71	22	15	384

		In your opinion, which of the following is the biggest barrier to sharing your knowledge?					Total	
		Lack of Time	Poor IT Tools / Poor Technology	Organisational policy	Poor KM system / software	Poor KM process		Others
Location	UK	37	7	5	5	14	5	73
	Thailand	154	42	41	17	46	11	311
Total		191	49	46	22	60	16	384

		In your opinion, which of the following is the biggest barrier to storing your knowledge?					Total	
		Lack of Time	Poor IT Tools / Poor Technology	Organisational policy	Poor KM system / software	Poor KM process		Others
Location	UK	35	8	4	9	11	6	73
	Thailand	124	65	34	29	109	9	311
Total		159	73	38	38	61	15	384

		In your opinion, which of following is the biggest barrier to you		
		Capturing your knowledge?	Sharing your knowledge?	Storing your knowledge?
Location	Chi Square	20.22*	5.19*	10.65*
	Degrees of Freedom	4	5	5
	Fishers Exact Test	19.33	5.38	10.39
	p-value	0	0.37	0.06

*Note : The Chi-Square approximation may be inaccurate - expected frequency less than 5.

:Fishers Exact Test consider to replace Chi-Square

The table 14 above shows the relationship between barriers to Knowledge Management activities and location. The first column on the left of the table refers to barriers to capturing knowledge, the middle column to sharing knowledge and the right hand side column deals with storing knowledge. The results show there is not a significant difference in the barriers that UK and Thai manufacturing SME's face in sharing and storing knowledge the biggest being lack of time. However, there is a significant difference between both countries and the barriers in capturing knowledge ($p < 0.05$). In Thailand the biggest barrier to capturing knowledge is lack of clear guidelines on knowledge management approach. Whilst lack of time and clear guidelines are identified as barriers to capturing knowledge in the UK.

6.2 Comparative analysis of small companies

This section focusses on comparing data collected in small sized SMEs in the UK and Thailand. Questions from section 6.1 are reanalyzed using only data from the small companies. UK companies were restricted to 200 employees allowing a direct comparison with Thai companies. Fisher's Exact Test was applied to determine the association between location (UK and Thailand) and perception of a formal KM approach (significance level of 0.05)

Table 15: Fisher's Exact Test - Knowledge Management approach – Small Companies

		Is there a formal KM approach in your organisation?			Total
		Yes	No	Do not know	
Location	UK	12	21	10	43
	Thailand	92	29	4	125
	Total	104	50	14	168

		Is there a formal KM approach in your organisation?
Location	Fisher's Exact Test	31.701
	p-value	0.00

As the results in Table 15 show the P-value (0.00) is less than the significance level (0.05). Clearly highlighting there is a statistically significant difference between location and perception of a formal Knowledge Management approach.

The Chi-Square test was then applied to investigate differences between small SMEs in the UK and Thailand and how they encourage their employees in capturing, sharing and storing knowledge.

Table 16: The Chi-Square Test - encouragement of Knowledge Management activities – Small Companies

		Does your organisation encourage employees to participate in								
		Capturing Knowledge?			Sharing Knowledge?			Storing Knowledge?		
		Yes	No	Total	Yes	No	Total	Yes	No	Total
Location	UK	24	19	43	25	18	43	25	18	43
	Thailand	75	50	125	83	42	125	66	59	125
Total		99	69	168	108	60	168	91	77	168

		Does your organisation encourage employees to participate in		
		Capturing Knowledge?	Sharing Knowledge?	Storing Knowledge?
		Location	Chi Square	0.232
	Degrees of Freedom	1	1	1
	p-value	0.630	0.329	0.544

As shown in Table 16, the p value of 0.630, 0.329 and 0.544 indicates no significant difference between Thailand and the UK for encouragement of employees in Knowledge Management activities.

Finally, Fisher’s Exact Test was applied to determine the relationship between location and barriers to KM.

Table 17: Fisher’s Exact Test - barriers to Knowledge Management activities – Small Companies

		In your opinion, which of the following is the biggest barrier to capturing your knowledge?					Total
		Lack of motivation	Lack of clear guidelines on KM approach	Lack of time	Lack of resource	Others	
Location	UK	6	19	13	4	1	43
	Thailand	25	67	22	4	7	125
Total		31	86	35	8	8	168

		In your opinion, which of the following is the biggest barrier to sharing your knowledge?						Total
		Lack of Time	Poor IT Tools / Poor Technology	Organisational policy	Poor KM system / software	Poor KM process	Others	
Location	UK	18	4	5	5	8	3	43
	Thailand	54	21	21	7	19	3	125
Total		72	25	26	12	27	6	168

		In your opinion, which of the following is the biggest barrier to storing your knowledge?						Total
		Lack of Time	Poor IT Tools / Poor Technology	Organisational policy	Poor KM system / software	Poor KM process	Others	
Location	UK	17	6	3	8	7	2	43
	Thailand	48	34	19	11	11	2	125
Total		65	40	22	19	18	4	168

		In your opinion, which of following is the biggest barrier to you		
		<u>Capturing</u> your knowledge?	<u>Sharing</u> your knowledge?	<u>Storing</u> your knowledge?
Location	Chi Square	6.861*	5.510*	9.661*
	Degrees of Freedom	4	5	5
	Fishers Exact Test	6.418	5.532	9.741
	p-value	1.53	0.342	0.070

The results of Fisher’s Exact Test (Table 17) show that there is not a significant difference in the barriers that small sized SMEs in UK and Thai in manufacturing sector face in capturing, sharing and storing knowledge ($p \geq 0.05$). As reported in table 17 the biggest barrier small sized SMEs in the UK and Thailand face when sharing and storing knowledge is lack of time. Their biggest barrier to capturing knowledge is lack of clear guidelines.

7. Discussion and conclusion

This study reports on the results of a questionnaire investigating Knowledge Management practices in both Thai and UK manufacturing SME’s. In particular, it statistically analyses the similarities and differences in the KM practices between the two countries. SME’s in the Manufacturing sector play a significant and critical role in the economy of both countries in terms of employment and turnover. There is currently no evidence of any existing studies which investigate and draw comparisons between Knowledge Management practice in Thai and UK manufacturing SME’s. Knowledge Management has the ability to improve efficiency and profit of organisations hence there is potential to transfer lessons between the two countries. Each of the original two research questions will be addressed and discussed.

Considering the first research question - what are the similarities and differences that exist between Knowledge Management practice in SME’s in the West (UK) and East (Thailand) and how are these influenced by culture and nationality?

Similarities

Across the manufacturing sector no significant difference exists in the encouragement that organisations give their employees in engaging with Knowledge Management activities. Both Thai and UK manufacturing SME’s strongly encourage Knowledge Management activities. This encouragement is not surprising as large organisations have reported significant gains and benefits from the adoption of Knowledge Management.

This aligns with previous research by Edvardsson and Durst (2013) which stated that SMEs can benefit from Knowledge Management in term of employee development, innovation, customer satisfaction and organisational success.

Although, SMEs cannot just scale down the Knowledge Management activities adopted within large organisations (Jenet and Alton, 2013). SMEs are capable of encouraging Knowledge Management in their organisation. As can be seen more than 65% of employees in UK SMEs perceive that their organisation encourages them to participate in Knowledge Management activities which include capturing, sharing and storing. In Thailand this is slightly lower at 60%. Once both Thai and UK SMEs recognise the benefits of

Knowledge Management, they are willing to implement Knowledge Management and fully encourage their employees to engage to gain maximum benefit.

Barriers to Knowledge Management are similar for sharing and storing knowledge with no significant difference between Thailand and the UK. Both identify lack of time as the biggest challenge. Most SME employees focus on their daily or short term tasks. This may lead to resistance to spending time on KM related activities opting instead to spend time on their particular individual task(s). This may be because the employees do not see the tangible benefit of Knowledge Management. Whilst there is a general understanding that Knowledge Management helps to improve organisational performance, individuals may not recognise immediate tangible benefits.

Differences

The results show that there is a significant difference between formal Knowledge Management approaches in UK and Thai SME's. Thailand demonstrates a significantly higher percentage of manufacturing SME's with a formal Knowledge Management approach (78.1%) whilst in the UK report 41.1%. These results show potential for transferring lessons from Thailand to the UK in terms of adopting a formal Knowledge Management approach.

It is surprising that there is more formal Knowledge Management in Thai SMEs than UK SMEs, as there is limited published research on Knowledge Management in Thai SME's. It appears that Knowledge Management is more wide spread in Thai manufacturing SMEs. This may be because Knowledge Management does not require high investment. Furthermore, most SMEs in Thailand are family oriented businesses with top down management. As part of Thai culture, junior staff are typically very respectful of their managers. Managers act as decision makers and central leaders. Non-management staff would not routinely question organisational process or procedure but simply what they are asked to do. Therefore, if there is a management lead strategy to implement Knowledge Management within an organization staff will follow the policy. This corresponds to previous research by Jenet and Alton (2013) who cite the importance of leadership as a critical success factor of successful in Knowledge Management implementation.

The other factor that may account for the high percentage in Thailand is questionnaire bias. Thai people are culturally always polite and respectful to others seldom criticising. For this reason, they will typically provide positive feedback when completing questionnaires, which may have resulted in skewed results.

A significant difference exists in the barriers to capturing knowledge. In the UK lack of time and lack clear guidelines hamper knowledge capture. Whilst in Thailand lack of time is not reported to be an issue when capturing knowledge. This may be attributed to cultural differences between the two nations i.e. willingness to help others and patience. UK workers tend to be task oriented and driven to moving on to the next task without taking time to reflect. Whilst Thai workers are more likely to take time to reflect and help others. As patient people, Thai workers may be more willing to spend time capturing new knowledge that has been generated.

Sharing Practice Between Countries

This study suggests that UK SME's can potentially learn and improve their practices from Thailand. In response to research Q2 'Can practices be shared between two different countries to improve the success of SME's implementing Knowledge Management? It is clear that where the greatest differences occur between the two countries' respective responses is where the biggest opportunities exist.

There is potential for UK SME's to learn from Thai SME Knowledge Management practices, in particular, how management communicate and allocate new policies and strategies to employees. UK SMEs could consider how Thai SME's typically adopt 'the morning talk session' to encourage employees to capture and share knowledge. Morning talk session is 5-15 mins meeting before the commencement of every working day where employees can share details of their current tasks and activities, share problems and seek advice etc. As well as, the public address system adopted during work breaks or lunchtimes which Thai SME's again use as a key opportunity to communicate with their staff. Furthermore UK SME's could learn from the reflective and patient culture adopted in Thai SME's this may be helpful for capturing knowledge.

On the other hand, Thai SMEs could in turn learn from some UK practices. Specifically, at the closing stages of projects. UK SME's cited the common practice of conducting project review meetings at the end of each project in collaboration with writing a mandatory report detailing project output. The main purpose of the meeting is retaining and transferring knowledge in conjunction with identifying lessons learned. The final project output report should detail what went well, challenges, lesson learned together with any other information that could benefit future projects. These are beneficial to organisations in helping to avoid repetition of mistakes. Furthermore, they can prove useful in building on past knowledge to finding better solutions for future projects. Currently, some Thai SMEs apply ISO standards as a guideline for storing knowledge in the organization. ISO standard is required for document and records control which means the company must have procedures for controls of documents and records. Additionally, ISO standard could be applied to benefit SMEs in the area of capturing and sharing knowledge.

Thai SMEs could learn how to implement and use IT and data management systems similar to UK SME practice. In particular how best to make decisions of which IT and data management system is appropriate for their company. This could help Thai SMEs improve the capturing and storing knowledge. IT and data management system in Thailand are more widely adopted in large companies.

Another solution commonly adopted by Thai SME's to encourage employees in capturing their knowledge is to provide incentives to their staff such as bonuses at the end of the year, cash, extra holiday, small gifts or it owns product. Furthermore, assigning experienced staff to teach and work along with fresh employees is another method that is applied in Thai SMEs to increase knowledge sharing in organisations. Thai employees are focused on the importance of personal relationships with work colleagues. They are willing to spend time patiently building relationships with colleagues and developing trust which is beneficial to successful KM implementation from which the UK could learn.

Limitations and Future Work

Further, investigation is required to draw more transferable lessons between Thailand and the UK. Detailed case studies could be used to explore these findings further and develop a framework for improvement. Future work could also focus on exploring specific sectors within the manufacturing industry. As manufacturing SME's contribute significantly to the employment rate and the economy in both Thailand and the UK improvements and benefits gained from better Knowledge Management practices have the potential to improve the competitiveness of both countries in the global market place.

A key challenge of this study was finding participants in the United Kingdom. Less UK companies were willing to participate in the study in comparison to Thailand. Despite there being less UK participants, data collection in took longer. It took 1 year to collect data from 16 UK SME's whilst it took only 2 months to collect data from Thai SME's. This difference may also be due to Thai culture. Thai people appear more willing to provide collaboration with government and educational institutions. As a result there were considerably more Thai respondents in the study which may have influenced the results. Furthermore, as discussed in the conclusions, there is potential that Thai culture may have caused a positive bias.

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