CHAPTER 2

LITERATURE REVIEW

The title of this research implies that it is a study of knowledge management applied to small and medium enterprises and its effect on sales performance. This chapter presents some of the popular theories, concepts, authors and language used in the knowledge management field today, a brief discussion on small and medium enterprises specifically in the auto parts components industry and finally some words on developing countries in order to provide context for the reader. The chapter begins with a discussion on what is knowledge and then moves into the concept of knowledge management followed by relevant concepts, theories and models; then a discussion on the other topics mentioned above.

2.1 What is knowledge?

2.1.1 Definition of Knowledge

As per the Longman Dictionary of Contemporary English, knowledge is defined as what a person knows; the facts, information, skills, and understanding that one has gained, especially through learning or experience (Longman Dictionary, 1987: 581).

Even though the dictionary gives a straight forward definition for what knowledge is, there is a vibrant philosophical debate on the subject that dates all the way back to the Socrates and Plato eras. In general the discussion starts with Plato’s formulation of knowledge as "justified true belief" and extends to a distinction between knowing that and knowing how. Below are some other popular definitions/explanations of knowledge:
Knowledge is defined as the capacity to act (Sveiby, 1997:37). This capacity to act is generated continuously by a process of knowing. Knowledge is both about issues, and the context within which those issues are being dealt.

Competence in an individual consists of five mutually dependent elements-explicit knowledge, skill, experience, value judgments and social network. We can also see that competence is the manifestation of individual knowledge (Shukla and Srinivasan, 2002: 26).

Knowledge is experience or information that can be communicated or shared (Allee, 1997: 27).

Knowledge, while made up of data and information, can be thought of as much greater understanding of a situation, relationships, causal phenomena, and the theories and rules (both explicit and implicit) that underlie a given domain or problem (Bennet and Bennet, 2000: 19).

Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knower. In organizations it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms (Davenport and Prusak, 1997: 5).

Knowledge is the full utilization of information and data, coupled with the potential of people's skills, competencies, ideas, intuitions, commitments, and motivations. In the highly volatile and extremely competitive global economy of today, knowledge is people, money, leverage, learning, flexibility, power, and competitive advantage. Knowledge is more relevant to sustained business than capital, labor or land. Nevertheless, it remains the most neglected asset. It is more than justified true belief and is essential for action, performance, and adaption. Knowledge provides organizations with the ability to respond to novel situations and thus generate and sustain competitive advantage over their rivals (Warier, 2007: 4-5).
Knowledge as “understanding gained through experience or study.” It is “know-how” or a familiarity with how to do something that enables a person to perform a specialized task. It may also be an accumulation of facts, procedural rules, or heuristics (Awad, Ghaziri, 2007: 57).

Knowledge is the judgment of the significance of events and items, which comes from a particular context and/or theory (Bell, in Tsoukas and Vladimirou, 2001: 976).

Knowledge is the individual ability to draw distinctions within a collective domain of action based on an application of context and theory, or both (Tsoukas and Vlaimirou, 2001: 976).

Knowledge can be classified into two types: “explicit knowledge” and “tacit knowledge”. Explicit knowledge can be expressed in formal and systematic language and shared in forms of data, scientific formulate, specifications, manuals and such like. This kind of knowledge can be readily transmitted between individuals formally and systematically. Tacit knowledge is highly personal and hard to formalize, making it difficult to communicate or share with others. Subjective insights, intuitions and hunches fall into this category of knowledge. Tacit knowledge is deeply rooted in an individual’s actions and experience as well as the ideals, values, or emotions he or she embraces (Nonaka and Konno, 1998: 42).

Knowledge is the insights, understandings, and practical know-how that we all possess; it is the fundamental resource that allows us to function intelligently. Overtime, considerable knowledge is also transformed to other manifestations, such as books, technology, practices, and traditions, within organizations of all kinds and in society in general. These transformations result in cumulated expertise and when used appropriately, increased effectiveness. Knowledge is one, if not the, principal factor that makes personal, organizational, and societal intelligent behavior possible (Wiige, 1993: 38-39).
2.1.2 Distinguishing Knowing that from Know How

Knowing that refers to facts and rules and is generally referred to as propositional knowledge, while knowing how also know as imperative knowledge refers to understanding of a process or a set of steps. For example in mathematics $2 + 2 = 4$ is a fact and would fall in the category of knowing that but solving a quadratic equation is a process and would fall in the category of knowing how.

2.1.3 Knowledge as a Subset of Truth an Belief

Plato stipulated that at least three criteria must be satisfied for statements to be considered knowledge; the statement must be justified, true, and believed (Lehrer and Paxson, 1969: 225).

![Figure 2.1 Knowledge a subset of both true and believed (Wikipedia, the free encyclopedia)](image)

2.1.4 Working Definition of Knowledge

A working definition of knowledge follows along the lines of the Longman definition and does not cross over into the realm of philosophy (since the debate on this subject, like most subjects in philosophy, seems eternal). In this research, knowledge will be taken to mean ‘know how’ and ‘know that’ which is acquired through own or others experience and education. Put another way, knowledge is insights and experiences, where insights is defined as what was learnt from an experience and experience is taken as a record of some activity, process or
phenomena. Implicitly the working definition of knowledge takes into account Plato’s criteria, because in order for experiences and insights to be accepted they must be the truth and or believed and they must be justifiable.

2.2 Knowledge Management

2.2.1 Definition of Knowledge Management

It is difficult to say what knowledge management is exactly, since it appears in many forms and fashions. However describing what knowledge management consists of, gives a clear enough picture to recognize it in practice. Online encyclopedia, Wikipedia, states knowledge management “comprises a range of practices used in an organization to identify, create, represent, distribute and enable adoption of insights and experiences.” From the working definition of knowledge in section 2.1.4 insights and experiences refers to knowledge, so the statement above implies knowledge management is about creating, representing, distribution and adoption of knowledge. Below are some more definitions or explanations of knowledge management by prominent authors in the field:

Knowledge management refers to the systematic organization, planning, scheduling, monitoring, and deployment of people, processes, technology, and environment, with appropriate targets and feedback mechanisms, under the control of a public or private sector concern, and undertaken by such a concern, to facilitate explicitly and specifically the creation, retention, sharing, identification, acquisition, utilization, and measurement of information and new ideas, in order to achieve strategic aims, such as improved competitiveness or improved performance, subject to financial, legal, resource, political, technical, cultural, and societal constraints (Lehaney, 2004: 3).

Knowledge management is performing the activities involved in discovering, capturing, sharing, and applying knowledge so as to enhance, in a cost-effective
fashion, the impact of knowledge on the unit’s goal achievement (Becerra-Fernandez, Gonzalez, and Sabherwal, 2004: 31).

Knowledge management addresses business problems particular to your business, whether it is creating and delivering innovative products or services, managing and enhancing relationships with customers, partners, and suppliers, or improving work processes (Ahuja, 2000:425-455).

Knowledge management is the process of identifying, capturing, organizing and disseminating the intellectual assets that are critical to the organization’s long-term performance (Debowski, 2006: 16).

2.2.2 Knowledge Management Models

A significant part of knowledge management theory and practice can be expressed in models. The following are models which capture different perspectives of the knowledge management process:

The DIKW Model

The model places data, information, knowledge and wisdom into an increasingly useful pyramid. The model shown in figure 2.2 describes the DIKW framework.

Figure 2.2 The DIKW model of knowledge Management (Wikipedia, the free encyclopedia)
In the DIKW model, data represents stimuli or signals (Zins, 2007: 479–493), that are "of no use until...in a usable (that is, relevant) form" (Rowley and Hartley, 2006: 5-6). This non-usable characteristic of data is known as "know-nothing" (Zeleny, 1987: 59-70). Information differs from data, in that it is "useful", usually it is simply data which has been processed in some way to make sense. Information is inferred from data, in the process of answering interrogative questions (e.g., "who", "what", "where", "how many", "when") (Ackoff, 1989: 3-9), thereby making the data useful for "decisions and/or action". The knowledge component of DIKW "is generally agreed to be an elusive concept which is difficult to define. Knowledge is typically defined with reference to information." Definitions may refer to information having been processed, organized or structured in some way, or else as being applied or put into action. Wisdom is the ability to increase effectiveness given knowledge. Wisdom adds value, which requires judgment on when and how to use knowledge gained.

**SECI Model**

The model shown in figure 2.3 describes the Nonaka framework. It is utilizes Polanyi’s distinction between tacit and explicit knowledge.

![SECI Model Diagram](image)

**Figure 2.3** Nonaka’s knowledge management framework model SECI model (Nonaka, Toyama, and Konno, 2000: 12)

The four modes of knowledge conversion are:
• **Socialization** (from tacit knowledge to tacit knowledge)

  This process focuses on tacit to tacit knowledge linking. New knowledge is created when people socialize due to interactions, observations, discussions, analysis and the general sharing of information which occurs from living or operating in the same environment. Organizations can gain new knowledge from outside its boundaries by socializing with customers, suppliers stock holders etc.

• **Externalization** (from tacit knowledge to explicit knowledge)

  This process focuses on tacit to explicit knowledge linking. As tacit knowledge comes out of its boundaries and becomes group knowledge, it can be put to use, tried, tested and crystallized. Externalized knowledge often appears as metaphors, analogies and/or models.

• **Combination** (from explicit knowledge to explicit knowledge)

  Combination is a process where knowledge transforms from explicit to explicit knowledge. It the process by which knowledge from various sources is combined and new knowledge emerges e.g. a finance department collects all financial reports from each department and publishes a consolidated annual financial performance report. This report may then be used to create new knowledge .The creative use of databases to get business report, sorting, adding, categorizing are some examples of combination process.

• **Internalization** (from explicit knowledge to tacit knowledge)

  Internalization is the process where knowledge transforms from explicit to tacit knowledge. Organizations provide frameworks, training and guidance to employees throughout their careers based on explicit knowledge. Employees in term internalized what they have learned, making it tacit knowledge. Once knowledge is internalized, it may be shared or developed, thus potentially producing new knowledge.

  Nonaka’s model is not a circle, but rather a spiral as knowledge continues to flow through the stages described above and evolves it is continually shared within and outside an organization (Nonaka, Toyama, and Konno, 2000: 12-15).
The Choo Sense-Making KM Model

Choo asserts that the “knowing organizations” are those that use information strategically in the context of three arenas, namely, (a) sense making, (b) knowledge creation and (c) decision making (Souza and Neto, 2009: 3).

![Figure 2.4 Overview of Choo’s Knowledge Management Model](image)

**Figure 2.4** Overview of Choo’s Knowledge Management Model

Sense making – its immediate goal is to allow the organizations’ members the construction of a mutual and shared understanding of what the organization is and what it does. Strategic reflections must be done concerning the organization’s mission, vision, values and culture, allowing its members to bring meaning to their lives and jobs. An ambitious and challenging vision or state of the future reveals the organization’s intention and it is extremely valuable, contributing to communicate the types of knowledge that are welcomed and will be nurtured. Sense making’s long term goal is the warranty that organizations will adapt and continue to prosper in a dynamic and complex environment through activities of prospect and interpretation of relevant information that allow them to understand changes, trends and scenarios about clients, suppliers, competitors and other external environment actors.

Knowledge creation – is a process that allows an organization to create or acquire, organize and process information in order to generate new knowledge through organizational learning. The new knowledge generated, in its turn, allows
the organization to develop new abilities and capabilities, create new products and new services, improve the existing ones and redesign its organizational processes.

Decision-making – the enterprise must choose the best option among those that are plausible and presented and pursue it based on the organization’s strategy. The decision making process in organizations is constrained by the bounded rationality principle (March & Simon, 1975) below is a list of some of the principles:

- The decision making process is driven by the search for alternatives that are satisfactory or good enough, rather than seeking for the optimal solution
- The choice of one single alternative implies in giving up the remaining ones and concomitantly in the emergence of trade-offs or costs of opportunity.
- A completely rational decision would require information beyond the capability of the organization to collect, and information processing beyond the human capacity to execute.

**Skandia Intellectual Capital Model of Knowledge Management**

Knowledge management was not only seen as the transfer of tacit and explicit knowledge but it has also been argued as intellectual capital (Chase, 1997: 38-49; Roos and Roos, 1997: 413-426). The intellectual capital model of knowledge management was developed by a Swedish firm called Skandia as an approach for measuring its intellectual capital. The model focuses on the importance of equity, human, customer and innovation in managing the flow of knowledge within and externally across the networks of partners (Lank, 1997: 406-412). suggests that this model assumes a scientific approach to knowledge and assumes that intellectual capital can be transformed into commodity or assets of organizations but unfortunately, this intellectual view of knowledge management ignores the political and social aspects of knowledge management. Indeed, this is consistent with Nonaka’s view of knowledge management.
Skandia intellectual capital model of knowledge management gives a strong emphasis to measurement associated with each of the decomposed elements (human, customer and structure) of knowledge management assuming that it can be tightly controlled. However, this approach can result in attempts to fit objective measures to subjective elements. Hence, this mechanistic approach to measurement is more consistent with Nonaka’s process of externalization and combination (Lank, 1997: 406-412).

These models provide general ideas and themes about the knowledge management process and are explicitly or implicitly used in this research.

2.2.3 Knowledge Management Views

There is a broad range of thoughts on knowledge management with no unanimous definition. The approaches vary by author and school. Knowledge management may be viewed from each of the following perspectives:
- **Techno-centric**: A focus on technology, ideally those that enhance knowledge sharing/growth.

- **Organizational**: How does the organization needs to be structured and managed to facilitate knowledge processes? Which organizations work best with what processes?

- **Ecological**: Seeing the interaction of people, identity, knowledge and environmental factors as a complex adaptive system.

In addition, as the discipline is maturing, there is an increasing presence of academic debates within epistemology emerging in both the theory and practice of knowledge management. British and Australian standards bodies have both produced documents that attempt to bound and scope the field, but these have received limited acceptance or awareness.

In chapter five of this research a model is presented to analyze the knowledge management process of small and medium enterprises (SME). This model will take into account the technological, organizational and ecological aspects of knowledge management.

There are many models which have been developed and published where knowledge management is concerned. Some of these models have been presented in the previous section however they tend to focus on large enterprises, while this research focuses on small and medium enterprises. Some of the terminology and theories will be borrowed from these models throughout this research. One such concept, developed by Nonaka, is ‘*ba*’. Even though through out the research this concept may not be specifically referred to, its theme will show up.

### 2.2.4 The Concept of ‘*ba*’

The concept of ‘*ba*’ refers to a shared space or environment where entities feel safe to share their information, ideas and knowledge (Nonaka and Konno, 1998: 40-54). This shared space could be physical or virtual. In the case of physical it may be a thinking room, board room or employee lounge, while in the virtual sense, it may refer to message boards, emails or chat rooms. As long as entities feel
comfortable enough to exchange thoughts, experiences and knowledge freely, ‘Ba’ exists.

2.2.5 Knowledge Management Success Stories

Probably one of the most well known documented cases of knowledge management successes can be found in the works of the prominent Japanese author, Ikujiro Nonaka. In his book titled “The knowledge-creating company: how Japanese companies create the dynamics of innovation”, Nonaka documents the knowledge management strategies of major Japanese companies in the automobile and electronics industries. Companies such as Honda, Canon, NEC and Nissan are analyzed to investigate the relationship between their knowledge management strategy and their success (Nonaka, 2008: 23-56).

Other examples of documented success cases can be found in the book “Leading with knowledge: Knowledge Management Practices in Global Infotech Companies” by Madanmohan Rao, where prominent companies such as Novell, Oracle and IBM are studied for links between their knowledge management strategies and their successes (Rao, 2003: 339-532).

2.2.6 Knowledge Management in Small and Medium Enterprises

High-tech SMEs

The size difference between SMEs and large size enterprises (LSEs) gives them certain behavioral advantages like rapid decision making, flexibility, less strict regulations, governmental support, fast internal communication rather than material advantages like possessing research facilities, access to external capital, professional management, risk spreading (Rothwell, 1994: 33-53). These characteristics cause SMEs and LSEs to play different roles in society (Nooteboom, 1989: 109-128).
Within the SME class of companies there are variations with respect to the use of technology (Kraaijenbrink, Faran, Hauptman 2006: 18 – 19). The following table characterizes SMEs based on their use of technology.

**Table 2.1 Industry classification (OECD Science, 2001: 139)**

<table>
<thead>
<tr>
<th>High-technology industries</th>
<th>Medium-high-technology industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft and spacecraft</td>
<td>Electrical machinery and apparatus</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>Motor vehicles, trailers and semi-trailers</td>
</tr>
<tr>
<td>Office, accounting, computing machinery</td>
<td>Chemicals excluding pharmaceuticals</td>
</tr>
<tr>
<td>Radio, television, and communications equipment</td>
<td>Railroad and transport equipment, Machinery and equipment</td>
</tr>
<tr>
<td>Medical, Precision and optical instruments</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium-low technology industries</td>
<td>Low technology industries</td>
</tr>
<tr>
<td>Coke, refined petroleum and nuclear fuel</td>
<td>Other manufacturing and recycling</td>
</tr>
<tr>
<td>Rubber and plastic products</td>
<td>Wood, pulp, paper, paper products, printing and publishing</td>
</tr>
<tr>
<td>Other non-metallic mineral products</td>
<td>Food products, beverages and tobacco</td>
</tr>
<tr>
<td>Fabricated metal products, except machinery and equipment</td>
<td>Textiles, leather and footwear</td>
</tr>
<tr>
<td>Basic metals</td>
<td></td>
</tr>
<tr>
<td>Building and repairing of ships and boats</td>
<td></td>
</tr>
</tbody>
</table>

It is noteworthy that according to table 2.1, the auto components manufacturing industry would fall in the medium-high-technology category.

**Knowledge Integration by SMEs – Practice**

Knowledge integration (KI) is the process of external knowledge identification and acquisition, and internal utilization of external knowledge (Kraaijenbrink, Groen and Wijnhoven, 2006: 29). It is an activity of the knowledge management process. There are a large number of solutions for KI problems. In 2005, Kraaijenbrink, Groen and Wijnhoven conducted a study to investigate the ‘use of’ and ‘satisfaction with’ various prominent methods for KI. They separated the methods for KI into two categories; those which used software and those which did not use software. The respondents of the study were SMEs which belonged to the high and medium-high technology categories. The following are graphs from the
results of their study. The graphs list the activity on the Y-axis and the number of respondents on the X-axis, with the ratio of satisfied against unsatisfied users given on the right hand side.

Figure 2.6 Response to use of popular non software methods for KI (Kraaijenbrink, Groen and Wijnhoven, 2006: 37)

Figure 2.7 Response to use of popular software methods for KI (Kraaijenbrink, Groen and Wijnhoven, 2006: 38)
**Codification – Knowledge Maps**

Besides knowledge integration another important aspect of the knowledge management process is knowledge codification and dissemination. Knowledge codification takes place when knowledge is written down in books and manuals, stored on films (e.g., instructional videos) or embedded in everyday work procedures or software (e.g., diagnosis software, expert systems). These media are widely used and serve the purpose of articulating, transferring and storing explicit human knowledge.

Knowledge maps, in contrast, do not attempt to codify the knowledge itself, but rather to codify “knowledge about the knowledge”. Like geographical maps, they guide the way and help to find knowledge, either in the form of knowledgeable people and experts or in the form of knowledge media (Wexler, 2001: 249-264). Knowledge maps are extremely useful for the dissemination and retrieval of knowledge. Furthermore, knowledge maps are used to structure a knowledge domain in order to provide a shared understanding and common vocabulary and to preserve meta-knowledge about a topic (Jetter, 2006: 77-79).

In many cases, however, knowledge domains are unstable: because of shifting business environments (e.g., new markets, technological progress), formerly important knowledge can lose its relevance, while new knowledge becomes important. Knowledge maps can be employed to analyze shifting knowledge territories by codifying the different individual views or “mental models” people have about reality. These models can be transferred to other people, assessed, updated, and improved, subsequently leading to increasingly adequate shared mental models of reality (Weick, 1990: 1-10).

SMEs can perform knowledge codification duties easily by utilizing freely available software like Free Mind™.
2.3 Small & Medium Enterprises (SMEs)

2.3.1 Small & Medium Enterprises (SMEs) in India

Small and medium enterprises in India are defined by the Ministry of Small Scale Industries & Ministry of Agro & Rural Industries, Government of India, The Micro, Small and Medium Enterprises Development (MSMED) act which came into effect 2006. The act is summarized in figure 2.8.

![New Nomenclature and Classification of MSME](image)

**Figure 2.8** The classification of Indian Enterprises as per the MSMED act of 2006.

**Classification of Enterprises**

Manufacturing enterprises defined in terms of investment in plant and machinery are classified into:
• Micro Enterprises – investment up to Rs. 25 lakh
• Small Enterprises – investment above Rs.25 lakh & up to Rs. 5 crore
• Medium Enterprises – investment above Rs. 5 crore & up to Rs.10 crore

Service enterprises defined in terms of investment in equipment are classified into:
• Micro Enterprises – investment up to Rs.10 lakh
• Small Enterprises – investment above Rs. 10 lakh & up to Rs. 2 crore
• Medium Enterprises – investment above Rs.2 crore & up to Rs. 5 crore

2.3.2 Small & Medium Enterprises (SMEs) in Thailand

Small and medium enterprises in Thailand are defined according to a regulation passed by the Ministry of Industry in September 2002. The Ministry defines SME by business sector and, within each sector, by the number of employees or value of fixed assets (excluding land). The four business sectors are as follows:

Table 2.2 Classifications of SMEs in Thailand (Ministry of Industry, 2002)

<table>
<thead>
<tr>
<th>Type</th>
<th>Small No. of Employees</th>
<th>Fixed Assets (THB million)</th>
<th>Medium No. of Employees</th>
<th>Fixed Assets (THB million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>Not more than 50</td>
<td>Not more than 50</td>
<td>51-200</td>
<td>51 - 200</td>
</tr>
<tr>
<td>Services</td>
<td>Not more than 50</td>
<td>Not more than 50</td>
<td>51-200</td>
<td>51 - 200</td>
</tr>
<tr>
<td>Wholesale</td>
<td>Not more than 25</td>
<td>Not more than 50</td>
<td>26-50</td>
<td>51 - 100</td>
</tr>
<tr>
<td>Retail</td>
<td>Not more than 15</td>
<td>Not more than 30</td>
<td>16-30</td>
<td>31 - 60</td>
</tr>
</tbody>
</table>

Manufacturing enterprises defined in terms of permanent assets and include the value of the land are classified into:
• Small Enterprises – fixed assets not more than 50 million Bath and number of employees not more than 50
• Medium Enterprises – fixed assets above 50 & up to 200 million Bath and number of employees above 50 & up to 200
Service enterprises defined in terms of permanent assets and include the value of the land are classified into:

- Small Enterprises – fixed assets not more than 50 million Bath and number of employees not more than 50
- Medium Enterprises – fixed assets above 50 & up to 200 million Bath and number of employees above 50 & up to 200

Wholesale enterprises defined in terms of permanent assets and include the value of the land are classified into:

- Small Enterprises – fixed assets not more than 50 million Bath and number of employees not more than 25
- Medium Enterprises – fixed assets above 51 & up to 100 million Bath and number of employees above 25 & up to 50

Retail enterprises defined in terms of permanent assets and include the value of the land are classified into:

- Small Enterprises – fixed assets not more than 30 million Bath and number of employees not more than 15
- Medium Enterprises – fixed assets above 30 & up to 60 million Bath and number of employees above 15 & up to 30

In various countries, either classified as developed or developing ones, the definition and the importance of SMEs are similar. However, the intention in looking for new approaches in order to make SMEs a genuine source of national revenue might be different.
2.4 Overview of Automobile Component Industry

2.4.1 Overview of Auto-components Industry in India

The following are extracts taken directly from the SME Rating Agency of India (SMERA) and is quoted as presented in their online report.

Introduction

The Indian auto component industry has been navigating through a period of rapid changes with great excitement. Driven by global competition and the recent shift in focus of global automobile manufacturers, business rules are changing and liberalization has had sweeping ramifications for the industry. The global auto components industry is estimated at US$1.2 trillion. The Indian auto component sector has been growing at 20% per annum since 2000 and is projected to maintain the high-growth phase of 15-20% till 2015.

The Indian auto component industry is one of the few sectors in the economy that has a distinct global competitive advantage in terms of cost and quality. The value in sourcing auto components from India includes low labor cost, raw material availability, technically skilled manpower and quality assurance. An average cost reduction of nearly 25-30% has attracted several global automobile manufacturers to set base since 1991. India’s process-engineering skills, applied to re-designing of production processes, have enabled reduction in manufacturing costs of components. Today, India has become the outsourcing hub for several global automobile manufacturers.

Innovation and cost pruning hold the key to meeting the global challenge of rising demand from developed countries and competition from other emerging economies. Several large Indian auto component manufacturers are already gearing to this new reality and are in the process of substantially investing in capacity expansion, establishing partnerships in India and abroad, acquiring companies overseas and setting up greenfield ventures, R&D facilities and design capabilities.
Some leading manufacturers of auto components in India include Motor Industries Company of India, Bharat Forge, Sundaram Fasteners, Wheels India, Amtek Auto, Motherson Sumi, Rico Auto and Subros. The India’s Top 500 Companies, published by Dun & Bradstreet in 2006, listed 22 auto component manufacturers as top companies in India with a total turnover of US$ 3 billion. These companies are in the process of making a mark on the global arena, and some have already acquired assets abroad.

**Industry Structure**

As per and Automotive Component Manufacturers Association of India (ACMA) report, the turnover of the auto component industry was estimated at over US$ 18 billion in 2007-08. The industry has the resources to manufacture the entire range of auto products required for vehicle manufacturing, approximately 20,000 components. The entry of global manufacturers into India during the 1990s enabled induction of new technologies, new products, improved quality and better efficiencies in operations. This in turn effectively acted as a catalyst to the local development of the component industry.

The Indian auto component industry is extensive and highly fragmented. Estimates by the Department of Heavy Industries, Government of India, indicate there are over 400 large firms who are part of the organized sector and cater largely to the Original Equipment Manufacturers (OEMs). Another 10,000 firms exist in the unorganized sector that operates in a tier-format. The firms in this segment operate in low technology products and cater to Tier I and Tier II suppliers and also serve the replacement market.

Around 4% of the companies operating in the auto component segment cater to 80% of the demand emanating from OEMs. Within the unorganized segment, apart from supplying in the aftermarket, a number of players are also involved in job work and contract manufacturing.
The range of products manufactured, with each broad product segment having a different market structure and technology, has negated any possible concentration of the market in a few hands. The market is so large and diverse that a large number of players can be absorbed to accommodate buyer needs. However, there are a select few large companies that have integrated their operations across the value chain. The key to competing in this industry is through specialization by product-type, and integrating operations across the related area of specialization.

An interesting insight provided by a study conducted by the National Council of Applied Economic Research revealed that the market segments for auto components included OEMs constituting 33%, local components having 25% with the balance 42% comprising of spurious market including re-conditioned parts. A large part of the spurious or grey market companies are in the unorganized sector.

The regional base of auto component manufacturers is mostly concentrated in the West, North and South of India. This regional concentration of auto component manufacturers has been dictated by the emergence of automobile manufacturers in these regions. The set up of Tata Motors, Bajaj, Mahindra & Mahindra and TVS in the 1950s and 1960s laid the foundation for auto component manufacturers in the West and South, whilst the entry of Maruti during the 1980s created the base in the North.
**Industry Growth**

Production of auto ancillaries was estimated at US$10 billion in 2005-06 and has been growing at a robust 20% per annum since 2000. Exports of auto components have been strong growing at 24% per annum since 2000. This growth in exports if sustained for another five years will see India’s auto components exports will touch US$ 5 billion by 2011 from the US$ 2 billion at present.

![Exports of Auto Components](image)

**Figure 2.10** Exports of Auto Components (ACMA)

Till the 1990s, the auto component industry was solely dependent on the domestic automobile industry to drive the demand for ancillary products. This composition of the market however is undergoing radical changes with global outsourcing gaining momentum. In recent times, exports has emerged as a significant driver of growth, and the demand emanating from global OEMs and Tier I manufacturers has opened new opportunities for the auto component industry in India. At the same time, a bright outlook for the domestic automobile industry also offers significant growth potential, given the fast rising income levels with a rapidly growing middle and high income consumers.

Share of exports in total production has risen from 10% in 1997 to 18% in 2006. The composition of exports in terms of the proportion of OEM and aftermarket has also undergone a sweeping change since the past decade. The ratio of OEM to
aftermarket has changed from 35:65 in the 1990s to 75:25 in 2006. While exports have been booming, there has been a sharp rise in imports of auto components as well, especially in the last three years. From an import of US$ 250 million in FY03, they have gone up to US$750 million in FY06. This is a healthy trend, indicative of rising domestic demand.

**Investment**

Since 2000, the auto component industry has recorded an investment level of Rs 18 billion and has attracted US$ 530 million in terms of foreign direct investment. Investments in the sector have been growing at 14% per year. In 2005-06, investments touched US$ 4.4 billion, and are expected to grow significantly in future.

**Figure 2.11** Investments in the Auto Component Industry (ACMA)

The Investment Commission has set a target of attracting foreign investment worth US$ 5 billion for the next five years to increase India’s share in the global auto components market from the present 0.4% to 3-4%. This is a sizeable target considering the meager amount of FDI currently coming into the industry. The changing perception of global auto makers is however fast altering this scenario.
With less than 1% share in the global market, India has tremendous potential to emerge as a supply base. Several global giants like Ford and Toyota have already set up base in India to source auto components. Outsourcing is fast catching up with domestic OEMs as well, with most Indian OEMs today sourcing nearly 70-80% of their component requirements from vendors.

This changing business scenario is leading to an inevitable outcome of consolidation within the industry. The takeovers of Kar Mobiles by Rane Engine and of Gero Auto by Uma Precision are a few instances. However, such mergers and takeovers will be few and far in between in the auto component industry, unlike the churn out anticipated in other emerging industries – the principal factor being the vastness of the market and the range of products that need to be delivered.

**Table 2.3 Foreign Acquisitions by Indian Companies (ACMA)**

<table>
<thead>
<tr>
<th>Indian Company</th>
<th>Acquired</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bharat Forge</td>
<td>Carl Dan Peddinghaus</td>
<td>Germany</td>
</tr>
<tr>
<td></td>
<td>CDP Aluminiumtechnik</td>
<td>Germany</td>
</tr>
<tr>
<td></td>
<td>Federal Forge</td>
<td>USA</td>
</tr>
<tr>
<td></td>
<td>Imatra Kilsta AB</td>
<td>Sweden</td>
</tr>
<tr>
<td></td>
<td>Scottish Stampings Ltd</td>
<td>Scotland</td>
</tr>
<tr>
<td>Motherson Sumi</td>
<td>WOCO Group</td>
<td>Germany</td>
</tr>
<tr>
<td></td>
<td>G&amp;S Kunststofftechnik GmBH</td>
<td>Germany</td>
</tr>
<tr>
<td>Amtek Auto</td>
<td>GWK</td>
<td>UK</td>
</tr>
<tr>
<td></td>
<td>New Smith Jones Inc</td>
<td>USA</td>
</tr>
<tr>
<td></td>
<td>Zelter</td>
<td>Germany</td>
</tr>
<tr>
<td>Sundaram Fasteners</td>
<td>Bleisthal Produktions GmBH</td>
<td>Germany</td>
</tr>
<tr>
<td></td>
<td>Cramlington Forge</td>
<td>UK</td>
</tr>
<tr>
<td></td>
<td>CDP GmBH</td>
<td>Germany</td>
</tr>
<tr>
<td>EL Forge</td>
<td>Shakespeare Forgings</td>
<td>UK</td>
</tr>
<tr>
<td>TVS Autolec</td>
<td>RBI Autoparts SND BHD</td>
<td>Malaysia</td>
</tr>
<tr>
<td>Sona Koyo</td>
<td>Fuji Autotech</td>
<td>France</td>
</tr>
</tbody>
</table>

Indian auto component companies are also setting up bases in other emerging economies, who are potential competitors, for instance, Sundaram Fasteners’ greenfield facility in Zhejiang and Bharat Forge’s joint venture with the Chinese automotive major FAW Corporation. Another auto component manufacturer with plans to enter China is PMP Components, which intends to set up a sourcing base to establish itself as a low cost supplier.
These trends are indicative of the changing business environment in the country. Top auto component manufacturers are gearing to take big risks. Their cross-border vision has established them as global companies. Though the going-global phenomenon is limited to a handful of companies, the smaller companies are also indirectly gearing to this trend by entering into formal manufacturing contracts and specialization.

![Production of Auto Components](image)

**Figure 2.12** Production of Auto Component (ACMA)

**Prospects**

Looking forward, the industry displays tremendous potential in generating employment and boosting entrepreneurship in the country. The spate of new investment plans announced by global and domestic automobile manufacturers promises the emergence of India as a global hub for auto components.

The industry is transforming, and the boost in demand will see the emergence of several new players in the industry. The vast market for auto components, and the diverse products and technology involved ensures a place and role for many. At the same time, the entry of several global automobile manufacturers will bring in more regulation into the industry and see a pruning of the spurious market. Among the smaller players in the unorganized segment, this implies moving away from being standalone companies, to entering into either contract manufacturing or being
ancillary units. The newly defined rules are specialization, development and delivery that hold the key to success in the auto component industry.

2.4.2 Overview of Automobile and Auto-component Industry in Thailand

Introduction

Thailand has established itself as a global automotive manufacturing hub in Southeast Asia. Its growth in this sector surprisingly came as a consequence of the economic crisis in 1997. During this time, Thailand saw a dramatic increase in passenger car and commercial vehicle exports, with automotive exports accounting for more than one-third of total automotive production. From 1997 onwards companies such as Ford, Isuzu, Mazda, Mitsubishi and Toyota, have used Thailand as a major production base for both the domestic and export markets.

The Office of Industrial Economics, Ministry of Industry, Thailand estimated that approximately 225,000 workers were employed by the automotive industry by the end of 2006 (Office of Industrial Economics, 2006: 17). Due to its immaculate reputation, access to many markets in South East Asia, and government investment in infrastructure, Thailand is poised to become a major hub of automotive production in Asia.

Growth

The Thai automotive industry was originally developed with the objective of substituting imports, and large automotive manufacturers initially established themselves in Thailand primarily to boost their domestic sales, with exports as a secondary target. In 1997, however, things changed abruptly in the wake of Thailand’s economic crisis; there was a sudden and disastrous drop in domestic demand for cars, coupled with a dramatic devaluation of the baht. Automotive manufacturers found a solution to the problem of excess production capacity in
export, and Thailand’s automotive exports jumped from 14,020 units in 1996 to 332,057 units in 2004, or almost 23.7 times in a period of only nine years. In 2008 the industry was Thailand’s third-largest sector generating annual revenues of 930 million baht (US$28.34 million or 12% of the country’s GDP).

**Business Environment**

Thailand offered its investors generous tax breaks, a highly skilled, low-wage workforce, and an extensive network of plants and suppliers. Thailand’s ambitious plan to become the preferred industry hub of the region also prompted it to invest heavily in infrastructure projects, including a new international airport, the Bangkok subway and an upgraded expressway and road network, to facilitate supply chains and logistics for its investors.

In terms of government policy towards the automotive industry, Thailand’s open-door approach to foreign manufacturers certainly helped the cluster to grow. Unlike nations such as Indonesia and Malaysia that in the past set up national car programs to develop their local industries and reduce reliance on foreigners, the Thai government consistently pursued a strategy aimed at attracting global vehicle and automotive parts manufacturers to the country. Table 2.4 shows how Thailand compares to its neighbors in the automotive sector.

**Table 2.4 How Thailand compares to its neighbors (Thailand Automotive Institute)**

<table>
<thead>
<tr>
<th></th>
<th>Policy environment</th>
<th>Brands</th>
<th>Status of cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>Initially interventionist</td>
<td>Blue chip MNKs, e.g., Toyota, Honda, GM, Ford</td>
<td>Highly competitive with world markets, especially pickup trucks</td>
</tr>
<tr>
<td></td>
<td>Switched from import substitution to facilitating exports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Intense government intervention</td>
<td>Inflated national car brand, “Timor” (Teknologi Industri Mobil Rakyat)</td>
<td>Now known in Indonesia as “bajaj” yang sunda tua” (an old baby)</td>
</tr>
<tr>
<td></td>
<td>Rent-seeking activity</td>
<td></td>
<td>Never reached economies of scale</td>
</tr>
<tr>
<td></td>
<td>High import protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>Government directly involved in production; attempting to reduce reliance on foreigners</td>
<td>Tried to create national brand Proton</td>
<td>Ten times fewer exports than Thailand (in value)</td>
</tr>
</tbody>
</table>

38
Over the last three decades the Thailand automotive industry continued to grow. Table 2.5 shows the growth of the industry from 2005 to 2008.

**Table 2.5** The growth of the Thai automotive industry from 2005 – 2008 (The Federation of Thailand Industries)

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production (CBUs)</td>
<td>1,125,316</td>
<td>1,193,885</td>
<td>1,301,149</td>
<td>1,391,728</td>
</tr>
<tr>
<td>Domestic Sales (CBUs)</td>
<td>703,261</td>
<td>682,163</td>
<td>631,251</td>
<td>614,078</td>
</tr>
<tr>
<td>Export sales (CBUs)</td>
<td>440,705</td>
<td>538,966</td>
<td>690,100</td>
<td>775,652</td>
</tr>
</tbody>
</table>

CBU = completely built-up units

**Global Market Share**

On the global scene, Thailand was consistently increasing its market share and in 2007 was second only to Japan. Table 2.6 provides exports summary information for ASEAN automobile producing countries.

**Table 2.6** Summary information for automobile exports for ASEAN automobile producing countries (Thailand Automotive Institute (TAI))

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>128,210</td>
<td>147,045</td>
<td>166,579</td>
<td>189,380</td>
<td>215,846</td>
</tr>
<tr>
<td>China</td>
<td>66,240</td>
<td>176,239</td>
<td>340,000</td>
<td>449,948</td>
<td>584,933</td>
</tr>
<tr>
<td>India</td>
<td>143,475</td>
<td>186,499</td>
<td>235,203</td>
<td>280,777</td>
<td>341,845</td>
</tr>
<tr>
<td>Indonesia</td>
<td>48,114</td>
<td>63,345</td>
<td>30,974</td>
<td>52,730</td>
<td>73,822</td>
</tr>
<tr>
<td>Japan</td>
<td>4,979,000</td>
<td>505,3000</td>
<td>5,967,000</td>
<td>6,379,000</td>
<td>6,889,000</td>
</tr>
<tr>
<td>Malaysia</td>
<td>21,922</td>
<td>28,176</td>
<td>37,987</td>
<td>52,351</td>
<td>69,690</td>
</tr>
<tr>
<td>Thailand</td>
<td>332,057</td>
<td>440,640</td>
<td>538,966</td>
<td>619,811</td>
<td>734,846</td>
</tr>
</tbody>
</table>

c/f = BMI estimate/forecast
Auto-components Industry

The auto components industry in Thailand was supplying to both a domestic and an international market. Apart from being one of the biggest one-ton pickup truck manufacturing hubs in the world, Thailand was also globally significant in component manufacturing. Over the last five years, the country witnessed an increase of investments in its automotive parts segment and most of the international Tier One suppliers had bases in Thailand. Having a strong component manufacturing segment provided cost competitiveness to automakers since it was easy to source locally, and in some cases prodding by automakers was a significant driver for investments there.

The following are extracts taken from the Automotive Industry in Thailand report 2006 provided by the Office of Industrial Economics, Ministry of Industry, Thailand:

Domestic Production and Joint Venture

The Thai auto-part industry incorporates approximately 700 First-tier or original equipment manufacturers (OEMs), 1,100 of 2nd and 3rd tier manufacturers. Since around 80% of the country's overall auto assembling capacity belongs to Japanese makers, most of these OEMs are mainly members of Japanese keiretsu groups supplying to their own customer base. These companies can be categorized into three groups: a member in Japanese family companies, a joint venture with Japanese technology owners, and a company having technical assistance or licensing agreements with Japanese firms. However, in recent year, many new investments from non-Japanese 1st tier suppliers entered the country. The majority of pure Thai companies are in the 2nd tier and 3rd tier.

According to the Japan Automobile Manufacturers Association (JAMA), quality of automotive parts in Thailand is rated the best among ASEAN countries. The local part manufacturers supply approximately 80% of all the parts used for the assembly of pickup trucks, less than 50% for passenger cars and nearly 100% for motorcycle. Locally produced or assembled parts include engines, suspension control and spring, axles, hubs, propeller shaft, brakes, clutches, steering systems, body parts,
electronic parts, air conditioning, tires, wheels, internal and external trim components and glass.

In recent years, the number of parts manufacturers for non-Japanese assemblers has increased considerably as a result of Auto Alliance (Ford) and General Motors establishment in the Thai automotive industry. The American assemblers have brought a number of their own 1st tier suppliers to Thailand. Although European assemblers have entered the market earlier, they tend to have fewer local part suppliers due to their small assembling volume. Thus, they tend to have a much higher import content and in-house part manufacturing.

**Technology Transfer and Development**

Technology and new management strategy can be transferred efficiently from the parent company to the joint venture company. Financial support from the parent company is common in the joint venture company. The supports are normally for high technology machines, research activities and development programs to continuously improve products and production quality. Also, Joint Venture companies can take advantage from having very low interest funding from their parent company. However, management problems among partners in some cases might have led to a high-cost problem due to the higher expenses in management.

Some local part manufacturers have technical assistance agreement with foreign companies. Foreign companies offer technical support in which the agreement will be made on a product-by-product basis. This technical assistance usually not covers any funding or management issue. Effective management style needs to be self developed by the local company without any support from foreign companies. Management costs for this kind of company is relatively cheaper than that of Joint Venture companies.

Pure Thai Companies are Thai manufacturers without any supports from any foreign company. Production technology and management style are originated within the organization. Recently, many of the pure Thai companies have been transferred into JV and TA companies due to the financial crisis and inadequate technical
capability. Some of the remaining pure Thai have opted for foreign technical support for helping them improve their technical know-how. Pure Thai companies are appropriate for manufacturing parts for which high technology is not required. Production cost for those companies is relatively inexpensive due to the less-expensive production technology which requires cheaper machines and lower salary for workers. Though most Thai products currently are well accepted internationally, some parts do not meet international standards, especially the ones that need high technology for production. The weaknesses are out of dated technology and management problems. Consequently, PT companies need to improve their technical and research capabilities to meet the global market requirements, as manufacturers tend to buy parts in a more complex module or a complete set. They should also catch up with the information technology trend.

**Market Access Factor**

As the regulation that limitation of the number of automotive firms and the Local Content Requirement Regulation were abolished, Thailand no longer has any specific measure set up to obstruct any entry of new companies or imported vehicles and components. However, imported vehicles and parts are required to meet safety and emission standards. Also, assemblers importing parts for local assembling are prohibited from importing certain fully assembled system as part of their completely knock down (CKD) imports, and are required to make certain that their imported parts are in compliance with the CKD definition (in order to be eligible for CKD import duties and for local assembling).

Regarding product quality, end users are the principal enforcer of products standards while intensified competition in the market is the forceful obstruction to market entry in Thailand. For parts and components exporters to succeed in Thailand, they must meet the international quality standards (ISO, QS) set by their potential clients who are mainly global vehicle manufacturers.

On the import side, the majority of local importers have good knowledge and experience in handling customs procedures, and it is in their best interest to advise foreign manufacturers on the issue.
Free Trade Agreement

In the last decade, it is clear that automotive industry has become much more globalized and the world economies have become increasingly integrated. Free Trade Agreement or FTA, either on regional or bilateral basis, leads to greater trade and investment liberalization, facilitation, and co-operation in various areas to simplify trans-border flow of resources such as goods, services, people, and capital. FTA provides a larger market which leads to greater opportunities and larger economies of scale for all automotive investors in Thailand.

As of January, Thailand concluded FTA with Australia, India and New Zealand for automotives and parts. Automotive tariff reductions were set as follows;

Thailand-Australia
- Australian tariff on vans and pickup trucks and similar vehicles had been eliminated since January 2005.
- Australian Tariff on passenger cars had been eliminated since January 2005.
- Australian Tariff on parts/accessories used as components in passenger motor vehicle shall be eliminated by January 2010.

Thailand-India
- India tariff on gear boxes used for the motor vehicles shall be eliminated by September 2006.

Thailand-New Zealand
- New Zealand tariff on vans shall be eliminated by January 2010.
- New Zealand tariff on passenger cars shall be eliminated by January 2010.
- New Zealand tariff on most of pickup trucks shall be eliminated by January 2010.
- New Zealand tariff on most of parts/accessories shall be eliminated by January 2010.
Current Situation of the Industry

As Thailand recovered from the Asian economic turmoil in 1997-1998, the automotive and auto parts industries’ production and sales has continued to increase steadily ever since. The production has expanded at high growth rate due to the relocation of the pickup production line to Thailand. Moreover, the domestic auto market has been enlarging due to strategic alliances between auto companies and partly due to the government’s promotion-and-support policies on automotive industry.

There are approximately 1,800 automotive parts suppliers in Thailand. About 700 of those are OEM suppliers. Locally produced parts include engines, suspension system, brakes, clutches, steering wheels systems, body parts, electronic parts, accessories, tires, plastics and glass, etc. It could be said that the production volume of the auto parts industry has always correlated to that of the automotive industry. However, this may no longer be true, as the Local Content Requirement Regulation has been abolished.

Nowadays, auto parts produced in Thailand are increasingly competitive in terms of productivity and quality. One-hundred and seventy-eight (178), companies of our part makers are now QS9000 certified. Two-hundred (200) companies are ISO9000 certified. And, thirty-four (34) companies are ISO14000 certified. Almost auto parts reach international standard and get approval from developed countries, proved by their export to the markets like EU, Japan and the North America where quality and standard are stringent.

Government was also supportive of the Thai auto components industry by providing many policy initiatives. Policy initiatives to promote the Thai automotive industry include the Board of Investment (BOI) offering priority activity status to automotive component investments. This status confers fiscal incentives, such as eight-year tax holidays, duty-free machinery imports and other benefits such as work permit support and land ownership rights.
On the international scene, Thailand was increasing its market share for auto-components. Table 2.7 shows Thailand’s exports for auto-components from 2005 – 2007.

Table 2.7 Revenues gains in millions of Baht from Thailand’s auto-components exports from 2005 – 2007 (TAI)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (baht)</th>
<th>CBU Units</th>
<th>Value (baht)</th>
<th>Engines (baht)</th>
<th>Spare parts (baht)</th>
<th>Jig and die</th>
<th>OEM parts (baht)</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>294,241,901</td>
<td>440,705</td>
<td>203,025,36</td>
<td>7,900,79</td>
<td>4,100,74</td>
<td>683,42</td>
<td>70,328,58</td>
<td>1,742,90</td>
</tr>
<tr>
<td>2006</td>
<td>342,655,95</td>
<td>538,966</td>
<td>240,714,25</td>
<td>8,447,99</td>
<td>5,026,38</td>
<td>135</td>
<td>6,777,28</td>
<td>729,29</td>
</tr>
<tr>
<td>2007</td>
<td>469,303,35</td>
<td>690,100</td>
<td>325,079,72</td>
<td>21,757,24</td>
<td>8,115,21</td>
<td>730</td>
<td>39,910,06</td>
<td>72,432,02</td>
</tr>
</tbody>
</table>

Amount: Million Baht

This snapshot of the Thai automotive industry taken in early 2008 showed it was not only strong, but it was also increasing its strength. The automobile industry was extremely strong and as a consequence the auto-components industry was proportionally strong.

2.5 Developing Countries

2.5.1 What is a Developing Country?

The United Nations (UN) which is the body that introduced the term of developing countries, states there is no clear definition for a developing country or a developed country. The terms are a result of terminology used by UN statistics arm (United Nations Statistics Division).

The International Monetary Fund (IMF) uses a lose criteria for making the classification of whether a country is developed or developing. The classification depends on the per capita income, export diversification, and degree of integration into the global financial system.
2.5.2 India and Thailand as Developing Countries

Even though there is no clear classification of what is a developing country, what is clear is that both India and Thailand are categorized as developing countries according to the IMF. This classification and the fact that they both possess vibrant auto component industries are two of the primary reasons why they have been chosen for this study.

As stated in the opening sentences of this chapter, the intention was to provide the reader with context as it relates to this research. The subsequent chapters will provide the analytics necessary for supporting or refuting the claim that knowledge management process of SMEs.