CHAPTER – I
INTRODUCTION

1.1 Introduction

In the new global era successful firms are those that accurately anticipate market trends and quickly respond to changing customer needs (Stalk et al., 1992). According to Towill and Christopher (2002), the end customer in the marketplace determines the success or failure of supply chains. They further state that “getting the right product, at the right price, at the right time to the right consumer is not only the linchpin to competitive success but also the key to survival”. Chase et al. (2000) contend that in the new global era companies are forced to find flexible ways to meet customer demands. The global marketplace has become very volatile with customers demanding lower prices, faster delivery, higher quality and increasing variety (Christopher, 2000; Narasimhan & Das, 1999; Power & Sohal, 2001; Vokurka &Lummus, 2000). In order to respond to this ever increasing complexity, turbulence, uncertainty, and demand for value it is now increasingly recognized that these interconnected and interdependent supply chains must consciously incorporate integrative behaviors with internal and external partners, flexibility, leanness and agility practices to obtain the core competences into the supply chains in which they participate.

The concept of supply chain management (SCM) increasingly has been noted as critical to creating and sustaining competitive advantages (Girard, 2001; Shankar, 2001). Mentzer et al. (2001) defined a Supply Chain as “a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances and information from source to customer”. The shift in emphasis to SCM is largely due to realization that maximizing performance of one firm may lead to less than optimal performance of the whole supply chain when a firm performing individually (Monczka et al., 1998).

Lai and Cheng (2003), define Supply Chain Management (SCM) “as the systemic and strategic coordination of the traditional business functions within a particular firm and across businesses within the supply chain, for the purpose of the improving the long term performance of the individual firms and the supply chain as a
whole”. This definition includes all business functions, such as logistics, production, purchasing, marketing, sales, finance, research and development, forecasting and information technology (Mentzer et al., 2001). Therefore SCM is not limited to logistical and operational functions. Rather, efficient and effective SCM requires integration of all business functions within and across firms in a supply chain, including both supply and demand related activities. In order to obtain the appropriate levels of integration, it is thought that supply chain orientation have a significant impact on the internal and external integration exhibited by a supply chain (Hult et al., 2000; McKee, 1992). **Supply Chain Orientation (SCO)** is the recognition by a firm of the strategic value of managing operational activities and flows across a supply chain.

**Internal Integration (II),** which refers to coordinated management of a company’s internal operational activities, may be a necessary prerequisite for external integration (Rosenzweig et al., 2003; Stevens, 1989; Vickery et al., 2003). Intuitively it makes sense that if firms cannot coordinate and integrate their own internal activities there will be significant difficulties with attempts to integrate and coordinate processes with external entities. **External Integration (EI)** that refers to the integration of activities external to the company is an antecedent of agility (Christopher, 2000; van Hoek et al., 2001). A supply chain must also exhibit the capabilities of flexible and lean operations in order to achieve agile capabilities in the supply chain (Christopher, 2000; Christopher & Towill, 2001; Mason-Jones et al., 2000; van Hoek et al., 2001). The **Supply Chain Flexibility (SCF)** concept focuses on the ability of the firm / supply chain to adapt to changes in business conditions (Gosain et al., 2004). The **Supply Chain Leanness (SCL)** paradigm is about adding value to the customer through the elimination of waste, including time, from the value stream (Womack & Jones, 1996). Lean is all about doing more with less (Christopher, 2000).

These lean and flexible capabilities will in turn support the development of agile capabilities in the supply chain (Mason-Jones and Towill, 1999). **Supply Chain Agility (SCA)** is the ability to produce a broad range of low cost, high quality products with short lead times in varying lot sized built to individualized customer specifications (Narasimhan & Das, 1999).
To summarize the above, it is posited that the organizational characteristics of culture and SCO will have an impact on the practices exhibited by an organization. These organizational practices, internal and external integration, flexible, lean and agile supply chain will then have an impact on supply chain performance and the benefits that firms can obtain through these practices since some hindering issues might be arise in between.

The remainder of this dissertation will be organized as follows. The next section will detail the problem definition, objectives of the study and research methodology of this proposed study. Chapter 2 will contains the literature review. The third chapter will contain the individual case analysis, factor analysis, synthesis analysis and testing the hypotheses. Chapter 4 discusses the research findings. The fifth chapter is discussion of results conclusions, limitations and future research.

1.2 Problem Definition

Today, Supply Chain Management (SCM) applications increase rapidly. This concept originated from the recognition that the process of transforming raw materials into final products and delivering those products to ultimate customers is becoming increasingly complex. On that note, it has become increasingly apparent that analysis as well as the subsequent improvement of the individual supply chain does not lead to improvement of the supply chain as a whole. Therefore, the concept of the SCM emerged to describe all production stages from raw material procurement to final product delivery to the end user (Sabri et al., 2000).

Competition in the manufacturing environment has shifted from individual firms to their respective supply chains, therefore only a firm with flexible, lean and agile supply chain can sustain the effective competitive edge (Li et al., 2006). With product demands being more customized, shrinking product life cycles and global competition especially in automotive and electronic industries and also electric and electronic industry, there is a need for an effective management of the supply chains.

For an effective implementation of supply chain management, all parties involved must be taken into account, such as the supplier’s suppliers, wholesalers, distributors, retailers and every party whose contribution can aid in the promotion of
the organization’s market share. According to Lai et al. (2002) and Mentzer et al. (2007) affective supply chain management increases organizational effectiveness and lead to improved customer’s value, better resources utilization and improved revenue.

Srivastva (2006) investigated the state of SCM practices in India. He found that, while Indian manager are well aware of the need to develop customer and supplier partnership, integrate and co-ordinate the flow of goods from supplier’s supplier to ultimate customer and share information among supply chain partners, the infrastructure necessary to facilitate the supply chain is yet unavailable.

Hence, this study tries to identify the present status of various practices of SCM (supply chain integration, supply chain flexibility, supply chain leanness and supply chain agility) that companies are performing and points out their supply chain benefits as well as barriers that they are effacing in their supply chain management.

1.3 Objectives of the Study
The study is designed with the following specific objectives:
I. To evaluate the present status of supply chain orientation in the firms under study.
II. To assess the supply chain integration in the firms under study, in terms of,
   a. Internal-firm-integration,
   b. Supplier-firm-integration, and
III. To evaluate the level of operational characteristics of supply chain management in the firms under study, in terms of,
   a. Supply chain flexibility,
   b. Supply chain leanness, and
   c. Supply chain agility practices.
IV. To identify the specific barriers to effective supply chain management practices in the firms under study.
V. To identify the benefits and competitive advantages that can be derived from implementation of SCM in the firms under study.
1.4 Hypotheses of the Study

The following research hypotheses have been constructed in order to satisfy the research objectives.

I. There is no significant difference between expected score and obtained score in Supply Chain Orientation (SCO) practices.

II. There is no significant difference between expected score and obtained score in Internal-Firm-Integration (IFI) practices.

III. There is no significant difference between expected score and obtained score in Supplier-Firm-Integration (SFI) practices.

IV. There is no significant difference between expected score and obtained score in Customer-Firm-Integration (CFI) practices.

V. There is no significant difference between expected score and obtained score in Supply Chain Flexibility (SCF) practices.

VI. There is no significant difference between expected score and obtained score in Supply Chain Leanness (SCL) practices.

VII. There is no significant difference between expected score and obtained score in Supply Chain Agility (SCA) practices.

VIII. There is no significant difference between expected score and obtained score in the barriers to supply chain management.

IX. There is no significant difference between expected score and obtained score in the benefits of supply chain management.

X. There is no significant difference between Automotive Components (AC) industry and Electronic Industry (EI) in different SCM practices.

1.5 Scope of the Study

This research is a multiple case study to investigate the different practices and strategies of SCM in selected automotive and automotive components industries and also electric and electronic industries in India. These following cases have been chosen for this research: TVS Motors Company, Automotive Axles Ltd., J.K Tyres & Industries Ltd., Larsen & Toubro (L&T) Ltd., AT&S India Pvt Ltd. and WeP Peripherals Ltd.. The present research focused on assessing the Supply Chain Management (SCM) practices and strategies adopted by above cases to explain and identify the present status of those strategies and also barriers to SC as well as benefits of an effective supply chain management.
1.6 Research Methodology

There is a wide variety of views as to what research consists of, and great differences in actual practices as to what people research and how. There are alternative perspectives of what the process of undertaking research should look like (Blaxter et al., 1996). The mission of research is to generate knowledge. The research, and how it is conducted, is influenced by the research’s epistemological standpoints. The different theoretical paradigms and perspectives of research that the researchers believe in shaped how the researchers looks at the world and acts in it (Denzin and Lincoln, 1994).

The choice of research approach is not only dependent on the researcher’s epistemological position, but should also be based on the type of research questions we set out to illuminate (Yin, 1994; Merriam, 1998). The objective to generate knowledge regarding different kind of SCM practices, by studying, analyzing and describing the status of these practices in the chosen firms. Therefore this chapter describes the research design and methodology employed in this research. This chapter is divided into sections: 1) Case study research design, 2) Data analysis.

1.6.1 Case Study Research Design

A case study is a research strategy used when attempting to understand complex organization problems, in essence allowing one to focus on something which is sufficiently manageable and can be understood in all its complexity (Moor, 1987). A case study is considered to be an intensive and holistic description and analysis of a restricted phenomenon. The case study is particularistic, descriptive, and heuristic and relies to a high degree on inductive argumentation (Merriam, 1998). The particularistic characteristic of the case study means that it focuses on a particular situation, occurrence, phenomenon or person. That the case study is descriptive means that the result of the studied phenomenon is comprehensive and substantial, while the heuristic characteristic implies that it can increase the reader’s comprehension of the phenomena (Merriam, 1998).
Yin (1994) described the four basic types of case study design. A primary distinction in designing case studies is between single-case and multiple-case designs. The selection between single case and multiple case designs depends on the nature of the research questions and objectives and the amount of resources available. The evidence from multiple-case is often considered more compelling, and the overall study therefore regarded as being more robust than a single-case study (Herriot and Firestone, 1983). In a multiple case study, one goal is to build a general explanation that fits each of the individual cases, even though the cases will vary in their details. A fundamental reason for doing cross-case analysis is to deepen understanding and explanation (Miles and Huberman, 1994). Multiple cases not only pin down the specific conditions under which a finding will occur but also help us form the more comprehensive and general categories of how those conditions may be related (Miles and Hubberman, 1994). There is much potential for both greater explanatory power and greater generalizability in a multiple-case study than in a single study (Miles and Huberman, 1994).

Therefore the multiple-case design with cross-case synthesis was chosen instead of a single one to increase external validity and reliability. The replication approach to multiple-case studies is illustrated in figure 1.1. Cooper and Hedges (1994) identified that, if there are large numbers of individual case studies available, the synthesis can incorporate quantitative techniques common to other research synthesis and findings can be reported in aggregating across a series of individual studies. This research encompasses 4 major phases which was conducted from May 2009 to October 2011 (See Figure 1.1).
1.6.2 Case Selection

Any use of multiple case designs should follow a replication not a sampling logic, and an investigator must choose each case carefully. The case should serve in a manner similar to multiple experiments with similar results (a literal replication) or contrasting results (a theoretical replication) predicted explicitly at the outset of the investigation (Yin, 1994). The overall criterion for selecting the cases was that the firm should be a large sized firm because small and medium enterprises (SMEs) present a different kind of business profile to large companies in the context of SCM.
practices with particular aspects that may influence their behavior with suppliers and customers and their performance (e.g. fewer resources, management systems in which there is often no separation between ownership and management, the academic education of the manager, financial ability for adaptation to manufacturing development) (Emiliani, 2000; Park and Krishnan, 2001; Beekman and Robinson, 2004; Richbell et al., 2006).

As Vaaland and Heide (2007) pointed out that SMEs cannot implement an integrated SCM framework as a large firms do. This resulted in that the included cases in the multiple case studies come from large sized firms, which can be classified into two main groups of cases: 1. Automotive and Automotive components industries, 2. Electronic and Electrical industries.

Six companies were selected for the study. Although the companies indicated the willingness to participate in the case study, the task of convincing them to participate was not easy. First a sample of 10 large firms were deliberately selected from the confederation of Indian Industry, that only six of those firms responded favorably, when they proposed to collect data as a case study. The details of selected companies are shown in Table 1.1 A large sized has been defined as a firm having more than 100 employees (Nootebom, 1994, Fong, 1971) but according to European Commission (2005) classification, a large sized firm is a firm with more than 250 employees and less than 250 considered as small and medium sized enterprises.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Case Company</th>
<th>Main Product</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TVS Motor Company Ltd.</td>
<td>Two Wheelers</td>
<td>1900</td>
</tr>
<tr>
<td>2</td>
<td>Automotive Axles Ltd.</td>
<td>Drive Axles</td>
<td>1600</td>
</tr>
<tr>
<td>3</td>
<td>J.K Tyres &amp; Industries Ltd.</td>
<td>Tyres &amp; Tubes</td>
<td>2450</td>
</tr>
<tr>
<td>4</td>
<td>Larsen &amp; Toubro (L&amp;T) Ltd.</td>
<td>Electronic Energy Meters &amp; Protection Systems</td>
<td>450</td>
</tr>
<tr>
<td>5</td>
<td>AT&amp;S India Pvt Ltd.</td>
<td>Printed Circuit Board</td>
<td>850</td>
</tr>
<tr>
<td>6</td>
<td>WcP Peripherals Ltd.</td>
<td>Print heads, Printers, UPS</td>
<td>400</td>
</tr>
</tbody>
</table>
1.6.3 Data Collection and Analysis

Data for case studies can come from many sources of evidence. Yin (1994) identified six primary sources of evidence. The use of each of these might require different skills from the researchers. Not all sources are essential in every case study, but the importance of multiple sources of data to the reliability of the study is well established (Stak, 1995; Yin, 1994). The six sources identified by Yin (1994) are:

- Documentation,
- Archival Records,
- Interviews,
- Direct Observation,
- Participant Observation, and
- Physical Artifacts.

No single source has a complete advantage over the others; rather, they might be complementary and could be used in tandem. Thus a case study should use a many sources as are relevant to the study. For present multiple-case study, the problems and experiences concerning the different practices of SCM, three types of data collection method were chosen; retrieving extant and historical data, direct observation through plant visits and interview.

1.6.3.1 Literature Review

The literature reviewed includes information identifying best practices used in the industry. The findings lead the researcher to surmise that best practices in the supply chain management functions were categories of process, orientation factors, SC integration, flexible, lean and agile SC practices, barriers and competitive advantages in terms of sales growth, market share, cycle-time, customer satisfaction and product quality. Further review of literature highlighted areas for further exploration and lead to interviews of subject in those areas.

To understand the complexity of supply chain management and different practices, researcher obtained samples of the tools and instruments that were utilized in the field and specifically in the firm chosen as the subject of this study. By reviewing this data, valuable information was obtained to execution of SCM that contribute to best in class performance.
1.6.3.2 Observations

An observation is essential for assessing relevant behavior and environmental condition (Yin, 2003). Observation data can be collected in both structured and unstructured formats. To obtain deeper insight into perceptions of SCM and best practices and to ensure triangulation of the data collected, the researcher conducted field observations of key data that surfaced during review of themes and codes from the interview data.

1.6.3.3 Interview

Interview is one of the most important sources of case study information and has multiplicity of application. The interview itself could take one of the several forms. The most common type of interviewing is individual, face-to-face verbal interchange, but it can also take the form of face-to-face group interviewing, mailed or self-administrated questionnaire and telephone survey (Fontana and Frey, 1994). The type of interview used in this study was the questionnaire while face-to-face individual interview was also conducted with different managers and supervisors who are responsible for supply chain activities in each case (e.g. supply chain manager, logistics manager, purchasing and material managers, operation and production managers and marketing and sales managers).

In the area of SCM practices, researchers have used questionnaire surveys to collect information (Arif Khan and Rajesh, 2008; Gilbert et al., 2008; Khurrum et al., 2007; Mattias, Hallgren and Jan, Othager., 2009; Szu-Yuan et al., 2009). Constructing a questionnaire means a thorough breakdown procedure starting with the purpose and ending with a number of questions that are possible for a respondent to answer in a questionnaire (Forza, 2002). The breakdown procedure in the study should be regarded as a translation of the theoretical concepts and ideas presented in the frame of reference into concrete questions. All questions in the questionnaire have their origin in the SCM literature and can therefore be related back to existing literature about different practices of SCM.

To generate good response and sound instrument, a single questionnaire is used to measure multiple theoretical constructs of the study. The final version of the questionnaire consists of 147 questions on eight pages and can be seen in Appendix A.
The questionnaire is divided into three main sections, where, the first deals with general questions about the respondent’s company profile and also which functional area respondents are belongs to. In the second section, the respondents are instructed to choose one specific alternative that presents the status of given SCM practice in their company. This section is main part of questionnaire, which includes of nine kinds of SCM practices. Such as supply chain orientation factors, internal firm integration, supplier firm integration, customer firm integration, supply chain flexibility, supply chain learners, supply chain agility, barriers to effective supply chain management practices and benefits of supply chain management.

The respondents were asked to indicate the degree of their agreement about these practices in a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), except variables related to the benefits of SCM ranged from 1 (strongly decreased) to 7 (strongly increased). It has been reported that an increase in the number of scale points generally improves scale reliability (Churchill and Peter, 1984). It has also been reported, in some studies, that respondents often find it difficult to answer using a nine point scale due to cognitive limitations (Churchill and Peter, 1984; Malhotra, 1996). Thus, in this study we developed a seven point scale. And in the third section, respondents were asked to identify their general comments about SCM. For each case (company) 15 questionnaires were distributed. Those were to be completed by the managers and supervisors who are responsible for different kinds of SCM practices in their own case. Totally 90 questionnaires were collected from all the six cases.

1.7 Data Analysis

Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence to address the initial propositions of a study (Yin, 1994). The analyzing process is the differentiation of the global experience, the seeking of which features or relations that are hidden in the global apprehended entirely (Lantz, 1993). The researcher should in other words abstract the described global entity, by a process of reflection and cognition. The global entity in this multiple case study is described by different sources of empirical data: questionnaire survey, interview, documentary information and direct observation.
As multiple-case study consists of at least two cases, the analysis is likely to be easier and findings likely to be more robust than having only a single case (Yin, 1994). Hence in this multiple-case study, first within case analysis was performed which descriptive data and means of each case is a unit of analysis. Then a cross-case synthesis was performed. If there are large numbers of individual case studies available, the synthesis can incorporate quantitative techniques common to other research syntheses (Cooper and Hedges, 1994) or meta-analyses (Lipsey, 1992). Therefore different data analysis tools such as one sample t-test, two sample t-test and factor analysis have been extensively used to provide useful and relevant information from the data collected on each of the issues considered in this study.

**One sample t-test** is typically used to compare a sample mean (\( \bar{X} \)) to a known expected value of population mean (\( \mu \)) or to determine a confidence interval for a population mean.

Where “\( \mu_0 \)” is equal to population mean, “\( \bar{X} \)” is sample mean, “\( S \)” is the sample standard deviation of the sample and “\( n \)” is the sample size. The degree of freedom used in this test is \( n-1 \). If the calculated \( p \)-value is below than threshold chosen for statistical significance (usually the 0.05) then the null hypothesis is rejected in favor of the alternative hypothesis.

**Independent samples t-test** is analysis tests whether or not the means of two independent samples from a normal distribution are equal or whether they differ by a given value, and creates a confidence interval for the difference of the sample means. The two sample t-test also enables you to test whether or not the means of two samples differ by a specified amount.

The “\( \bar{X}_1 \)” is the mean of sample 1, “\( \bar{X}_2 \)” is the mean of sample 2, “\( S_{X_1X_2} \)” is the grand standard deviation (1 = sample one, 2 = sample two). For significance testing the degrees of freedom for this is \( 2n-2 \), where “\( n \)” is the number of participants in each sample. The evaluation involves comparing the \( p \) value of the significance level (usually the 0.05) and rejecting the null hypothesis when the \( p \) value is less than the significant value.
1.7.1 Reliability and Validity

Although the concepts of reliability and validity are related in social science research, they are related in an asymmetric manner. A test cannot be valid unless it is reliable but it can be reliable without being valid (Potter, 1996). Traditional research argues that the only way to produce valid information is through the application of a rigorous research methodology, that is, one that follows a strict set of objective procedures that separate researches from those researched (Kincheloe and McLaren, 1994).

Reliability refers to the assessment of the degree of internal consistency between multiple measurements of a variable (Hair et al., 1998). The reliability can be increased by providing questions which are clear about what respondents are being asked. The questionnaire should be designed such that the respondents are familiar with the questions and the questions themselves are relevant to the respondents. The most commonly used measure of reliability is internal consistency. Flynn et al. (1990) suggest that the most accepted measure of a measure’s internal consistency is the Cronbach’s alpha. Although, a value of 0.70 was recommended to demonstrate internal consistency (Nunnally, 1978), a value of 0.60 is often used as the practical bound (Malhotra and Grover, 1998). On the basis of coefficient values we deemed all items are reliable (alphas from 0.744 to 0.925). The results of this test are illustrated in Table 1.2.

Table – 1.2 : Reliability Analyses of SCM Practices

<table>
<thead>
<tr>
<th>Construct</th>
<th>Number of questions</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply chain orientation</td>
<td>20</td>
<td>0.794</td>
</tr>
<tr>
<td>Internal firm integration</td>
<td>12</td>
<td>0.900</td>
</tr>
<tr>
<td>Supplier firm integration</td>
<td>20</td>
<td>0.833</td>
</tr>
<tr>
<td>Customer firm integration</td>
<td>20</td>
<td>0.842</td>
</tr>
<tr>
<td>Supply chain flexibility</td>
<td>13</td>
<td>0.810</td>
</tr>
<tr>
<td>Supply chain leanness</td>
<td>9</td>
<td>0.830</td>
</tr>
<tr>
<td>Supply chain agility</td>
<td>14</td>
<td>0.744</td>
</tr>
<tr>
<td>Supply chain barriers</td>
<td>14</td>
<td>0.925</td>
</tr>
<tr>
<td>Supply chain benefits</td>
<td>15</td>
<td>0.912</td>
</tr>
</tbody>
</table>
Validity is the degree to which a study accurately reflects the specific concept that it attempts to measure (Creswel, 2003). The type of validity will be addressed here is construct validity. The sub-dimensions of construct validity include: content validity and convergent validity. Content validity does not have a formal statistical test (Garver and Mentzer, 1999). However, content validity in this research is promoted by the through literature review to reflect the range of meanings included within the concepts. Convergent validity is tested by determining whether item in a scale converge or load together in a single construct (Garver and Mentzer, 1999). Convergent validity is measured examining the individual loadings for each block of indicators. Therefore we conducted Principal Components Analysis (PCA) for data reduction and for determining the main constructs. Varimax rotation was used since it gave the best result in terms of interpretability and Kaiser-Meyer-Olkin (KMO) Normalization test was used to clarify and select variables for factor analysis. The KMO Measures the Sampling Adequacy (MSA) which should be greater than 0.5 for satisfactory factor analysis to proceed (Loehlin, 1998). All statements of each nine factors in PCA were displayed in format of suppress absolute values less than 0.40. All eigenvalues of constructs greater than 1.0 in factor analysis confirm convergent validity (Hair et al., 1998). Convergent validity is achieved when the factor loadings between items and their respective constructs are statistically significant (Anderson and Gerbin, 1982). All results of PCA are presented in Appendix B.

1.8 Limitations of the Study

There are some limitations in case study as a research methodology. Walker (1974) identified some of the main problems of case study research as the degree of involvement of the researcher with the situations under study, confidentiality of the data, the possible political use of the data, issues of anonymity on publication and the need to clarify what data is and what the researcher’s interpretation of data is.

Case studies are not generally designed to bring out a correct or incorrect handling of business matters but to acclimatize the participants to management situations. They do not specifically state problems; not do they suggest solutions. That task is left to participants themselves. It should, however, be remembered that no two business situations are exactly alike. There is always a change in the environmental trends, and this change makes one situation different from the other. A decision,
which may be good in one situation, may be wrong in another. The participants should, therefore, be cautious while dealing with such situation. The personal integrity, sensitivity, and possible prejudices and biases of the investigators need to be taken into consideration as well in case studies. Personal biases can creep into how the research is conducted, alternative research methods used, and the preparation of surveys and questionnaires.

This study, though, has certain limitations. The first limitation of this research lies on the willingness of the companies in giving permission to conduct different parameters of study. Second, although extensive efforts were taken to ensure the validity of the responses from the key informants, there is still room to improve the rigorousness of the study. Supply chain management involves different parties both internally and externally, and managers from different areas within a firm or from different partnering firms (suppliers and customers) may have different perceptions of their supply chain practices. Therefore, dyadic or triadic data collection from different parties in a supply chain may generate more significant results by comparing and contrasting the responses from various practices. The third limitation deals with geographical obligation, where we collected data from some of the automotive and automotive components industries and also electronic and electric industries in India, therefore we should carefully interpret the findings.