Chapter 1 – Introduction

1.1 Background

Faced with challenge from the global experts in heavy truck manufacturing, the Indian Commercial Vehicle manufacturers have taken up the initiative to pitch in competitive platforms with the help of strategic tie ups and knowledge partnerships.

This industry contributes towards the development of economy and forms the pulse of an economy. Since there is a significant literature gap for scholarly studies conducted in this industry from the marketing perspective, it would be meaningful to study the Indian transport industry and the role of the manufacturers, the nature of demand, value expectations and perceptions of the transport operators, drivers.

Growth in Gross Domestic Product fuels demand for trucks

It has been generally observed throughout the world that the development of the commercial vehicle market has a direct correlation to the economic well-being of a country. It has been observed that higher the GDP of a certain country is closely related

![GDP and Growth of Truck Penetration](image)

**Figure 1**: GDP and Growth of Truck Penetration (Source: A.T. Kearney database.)
to truck penetration in that given country’s economy. The density of trucks/ millions of the population keeps growing as the GDP/capita increases; also, the market stage too (see Figure 1) keeps on increasing and gets matured by every increase in the GDP/capita. India as can be observed in Figure 1, is at a low end of the spectrum and needs to rapidly develop its economy and needs to maintain a steady and healthy growth rate for a sustained period. There needs to be a major thrust at Governmental level to improve the underdeveloped infrastructure of India. It is pertinent to note here that as GDP drives truck sales volume, it is logical business sense that transport operators would always prefer trucks whose operational aspects are more efficient. Thus, in long haulage applications it is generally a better proposition to buy bigger trucks which could carry more freight for relatively lesser fuel and other operational costs and ensure a lower operating cost in terms of ‘per – tonne – kilometre’.

As (Thukral, 2005) points out, multi – axle trucks are a sensible option for transport operators involved in long haulage applications. Table 1 makes it evident that multi – axle trucks are operationally much reasonable and preferable option. In fact, as number of axles increase, the productivity figures improve. For a hypothetical situation where annually,
the trucks run 96000 km, it was found that operating cost per tonne km (tkm) of 3 axle truck was only around 79 percent of that of 2 axle truck; while in case of a 6 axle truck, it was only around 60 percent of that of a 2 axle truck. We will see more deliberations in this regard in the subsequent chapters.

1.2 Theoretical Construct

Two important perspectives of looking into the truck industry are its global and Indian Market Structure and Behavioural Considerations in terms of the Indian scenario, which have been discussed in the following sub – sections.

1.2.1 Market Structure

The general structure of some developed markets and developing markets of BRICS countries (emphasising Indian scenario) have been discussed in section 1.2.1.1 and 1.2.1.2.

1.2.1.1 Developed Markets like EU, North America

In the international arena the truck market is dominated by Daimler Trucks (which owns the Mercedes Benz, Freightliner, Western Star and Mitsubishi Fuso), Volvo (which owns the Renault and Mack brands), VW Group (which owns the Scania and MAN), Paccar Group (which owns Peterbilt, DAF) Navistar and Hino. Daimler Trucks (Mercedes) leads the European heavy truck market, closely followed by Scania, Volvo, DAF and MAN.  

Figure 2: Brand Wise Truck Market Share in Europe
(Source: Scania Annual Report 2016, pp. 42)
The recent surge in infrastructural development in post-recession Eastern Europe has boosted the demand for high capacity truck (beyond 16 tonnes).

**Competitive Business Models**

As discussed in (KPMG, IFA, 2007) report, there are certain distinct business models that could be observed amongst the leading commercial vehicle manufacturers of the world. These can be the Full-line manufacturers with global market presence (like, Daimler AG; erstwhile Daimler Chrysler); specialists with multi – regional market presence (like, Scania) and generalists with multiregional market presence (like, MAN).

As discussed in the (KPMG, IFA, 2007) report, there are certain distinct business models that could be observed amongst the leading commercial vehicle manufacturers of the world, figure 3 demonstrates the same in terms of the two axes mentioned therein.

In terms of profitability, the two latter business models have been found to be more effective in general. It could be seen that specialized manufacturers in the medium and heavy truck segment generally earn higher operating profits than full-line manufacturers. This shows that synergy effects between the transporter and the truck business, especially

![Figure 3: Geographical Coverage & Product Assortment of Major Truck Makers (KPMG, IFA, 2007)](image)
the heavy truck business, are low so that no significant economies of scale effects can be realized through offering of the full-line range of platforms. A strong global alignment of production and sales may be more important for maintaining long-term competitiveness and sustainability instead of extending the product program to become a full line supplier. However, a pre-requrement for the profitability of specialists is that they can realize economies of scale effects on aggregate and component level (e.g., especially in terms of engines, gears, and axles). This can be provided either through a further production shift to specialized supplier companies or on a cooperative case-by-case basis with other manufacturers. SCANIA has been trying to do that by tying up with Higer in China, Cummins of USA. As part of VW Group, it is even seeking industrial collaboration with MAN. It is worth noting here that post-merger two organizations under the Volkswagen Group have emerged as a strong competitor of Volvo AB and Daimler AG, however Daimler AG remains the largest worldwide truck maker due its presence in North America, where neither MAN nor SCANIA are present in the heavy truck market.

1.2.1.2. A Developing Market – India

India is presently the fifth largest\(^1\) (behind USA, China, Japan and Germany) producer of multi axle commercial vehicles and tractor trailers in the world, driven by the post-liberalization enhanced Industrial activities and improvement in road network infrastructure the heavy–truck industry is supposed to continue its growth as transporters look for faster turnaround time and higher payloads. In this market the heavy truck operators (i.e. the long haulage route transporters) are highly fragmented and unorganized; of course, there are some large organized transportation service providers (VRL, Transafe, TCI, Coastal etc.) who provide a complete logistical solution, but they do not represent an average Indian transporter.

But that said it must also be mentioned that the Indian heavy truck industry has been experiencing some interesting developments, the very nature of the ubiquitous Indian heavy truck and the transporter is changing; the Indian heavy truck market is following the global pattern of changing its characteristics through various stages where bigger

\(^1\) OICA (Organisation Internationale des Constructeurs d'Automobiles / International Organization of Motor Vehicle Manufacturers) production Statistics
and heavier multi–axle trucks with better turnaround time become more popular over the development stages. The following Table 2 demonstrates this. Since this table had been discussed in 2006, further improvements have taken place to strengthen the transition of India into Stage II. Particularly in terms of regulatory norms, purchase decisions, proportion and popularity of multi-axle trucks, entry of foreign manufacturers etc. the Indian Heavy truck market is demonstrating transition into Stage II and there is a growing popularity of multi–axle trucks in the market (Sharpe, 2015).

Table 2: Various stages of Commercial Vehicle Market characteristics as observed globally *

<table>
<thead>
<tr>
<th>Stage I e.g. India (as on 2006)</th>
<th>Stage II e.g. China</th>
<th>Stage III e.g. Brazil</th>
<th>Stage IV e.g. Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market</strong></td>
<td><strong>Market</strong></td>
<td><strong>Market</strong></td>
<td><strong>Market</strong></td>
</tr>
<tr>
<td>• Poor infrastructure (Roads)</td>
<td>• Poor infrastructure dev.</td>
<td>• Customized vehicles Requirement</td>
<td>• High level of regulation</td>
</tr>
<tr>
<td>• Rampant Overloading</td>
<td>• Reduced overloading</td>
<td>• Growth in product plus offerings</td>
<td>• Domination by 3PL provider</td>
</tr>
<tr>
<td><strong>Customers</strong></td>
<td><strong>Customers</strong></td>
<td><strong>Customers</strong></td>
<td><strong>Customers</strong></td>
</tr>
<tr>
<td>• Fragmented &amp; Uninformed</td>
<td>• Increased awareness</td>
<td>• Increasing sophistication</td>
<td>• Highly sophisticated</td>
</tr>
<tr>
<td>• Purchase decision by price</td>
<td>• Purchase decision more by life cycle cost</td>
<td>• Emergence of consolidation</td>
<td>• Purchase decision purely by life cycle cost and profit</td>
</tr>
<tr>
<td><strong>Products</strong></td>
<td><strong>Products</strong></td>
<td><strong>Products</strong></td>
<td><strong>Products</strong></td>
</tr>
<tr>
<td>• Dominance by MCVs (65%)</td>
<td>• MCVs (35%) to HCVs Shift</td>
<td>• MCVs diminishes (10%)</td>
<td>• Sophisticated technology</td>
</tr>
<tr>
<td>• Tonnage range - Few models</td>
<td>• Explosive increase in LCVs</td>
<td>• Technology convergence of low end &amp; premium products</td>
<td>• Shrinking product life cycle</td>
</tr>
<tr>
<td>• Rugged, low tech, standardized vehicles</td>
<td>• Emergence of special applications vehicles</td>
<td>• Largest share of haulage (60%) by HCVs, mainly TTs</td>
<td>• High Utilization</td>
</tr>
<tr>
<td>• Emission norms: Euro I &amp; II</td>
<td>• Premium CVs grow (20%)</td>
<td>• Proliferation in LCVs</td>
<td>• High level of electronics</td>
</tr>
<tr>
<td><strong>Manufacturers</strong></td>
<td><strong>Manufacturers</strong></td>
<td><strong>Manufacturers</strong></td>
<td><strong>Manufacturers</strong></td>
</tr>
<tr>
<td>• Few strong local Manufacturers</td>
<td>• Entry of foreign OEMs</td>
<td>• Dominance of foreign OEMs</td>
<td>• Consolidation of players</td>
</tr>
</tbody>
</table>

* Source: Tata Motors ppt in 2006 SAE Commercial Vehicle Engineering Exhibition and Congress
Although the European and American markets have taken over thirty-five years to mature to stage 4, the countries with growing economies (like India and China) are making up on their late start, they are moving up with accelerated pace\(^2\).

**Influence of Global Competition in the Emerging Market – India**

Although local manufacturers in the significantly growing markets of Russia, India, China continue to hold a strong market position through tariff and non-tariff import barriers, many of them are not technologically competitive in global levels, they could only sustain themselves through striking strategic tie-ups (MAN and Sino truck, Navistar and Mahindra etc.) with the established global heavy commercial manufacturers or going for proactive acquisition of technologically endowed heavy commercial vehicle manufacturers, like Tata Motors acquiring Daewoo commercial vehicles and partnering with Cummins, Ashok Leyland tying up with Iveco, Hino and Nissan, Eicher Motors partnering Volvo AB etc.

**Demand and Opportunities in the Indian Heavy Commercial Vehicle Sector**

The Indian commercial vehicle market has been stuck in the Stage I (refer to Table 2), especially during pre-liberalization era road freight transportation was characterized by poor infrastructure and rampant overloading by fragmented and uninformed customers (truck operators) for whom purchase decision was primarily driven by price. As a result, the products that thrived in this market were rugged, low tech and inefficient.

But the scenario has been changing steadily, especially post liberalization. Although India cannot claim to be in stage II in terms of the market but signs of moving into Stage II are obvious, it is in fact at the threshold of moving into stage II. Road infrastructure though not world class has improved a lot since pre-liberalization era, increased awareness among transporters and post GST regulatory norms have led to reduced overloading. Purchases are now being made more on the basis of cost of ownership (life cycle cost) instead of the initial purchase cost of the vehicle. As a result of this changed attitude market share of multi-axle trucks have increased substantially.

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\(^2\) AT Kearney Database
Further, with the introduction of GST long waiting period for document verification and authentication in inter-state check posts have become immaterial. The Government of India have also prioritized the RFID based toll collection in toll collection booths (FASTag). These initiatives make the turnaround time of trucks relevant and more meaningful as the inordinate delays in interstate check-posts or time wastage at toll booths could be effectively worked around. So, we can observe that although till 2003 the maximum torque was around 80 kgm, power to weight ratio was around 7.5 hp/ ton with maximum horsepower below 250 hp, the fuel consumption was 2 ltrs/ 100km / hp and vehicles clocked an average speed of 45 kmph. These figures have improved significantly in recent times.

The Right Initiative: Major thrust on Indian road infrastructure Development

Some of the significant achievements in this direction are:

- India has the second largest road network in the World with approximately 3.3 MM Kms, of which National highways cover over 1,00,000 Kms
- Roads account for approximately more than 70% of the freight traffic in India
- Approximately 5846 Kms of the Golden Quadrilateral completed.
- Road traffic is growing at a considerable pace the traffic on roads is growing at a rate of 7 to 10 per cent per annum.
- The government has taken initiatives to improve and strengthen the network of National Highways, State Highways and roads in major districts and rural areas
- Various state governments, such as Maharashtra, Tamil Nadu and Rajasthan proactively developing state highways

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3 Presentation by AP Arya, President Tata Motors at 2006 SAE Commercial Vehicle Engineering Congress and Exhibition – Focus India at Illinois, USA.
4 NHAI/CRIS/EIA
Multi Axle Trucks

Generally, the cost per kilometre for every tonne of freight carried by the railways is Rs. 1.32 and for a single axle truck it is Rs. 1.75, whereas for a multi axle truck the cost is Rs.1.40.5

So, a favourable cost/km/tonne ratio helps multi axle vehicle owners to sustain in a business driven by extremely competitive freight rates while securing profit margins. Although in terms of mileage a single axle truck fares better (3-3.5 kmpl) than a 3 – axle truck (2-2.5 kmpl) but the cost/tonne carried falls due to the higher load carrying of a 3 – axle vehicle which can carry nearly 3½ times the weight of a single axle vehicle10. With such a favourable cost/km/tonne ratio multi axle truck owners can quote competitive freight rates while keeping profit margins intact in an extremely competitive business environment.

![Figure 4: Predominant Tonnage Categories](Sharpe, 2015)

and positively affecting overall business. Naturally, a growing number of truckers are opting for multi axle vehicles to enhance their profit margins and to capture a greater chunk of cargo for their business. The Indian Multi Axle Vehicle market is a very promising one with huge growth potential. The construction and mining industry are growing fast due to the need for infrastructural development throughout the Indian economy in its endeavour to compete and outgrow its developing counterparts in Asia.

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5 Presentation by President, Tata Motors at SAE Commercial Engineering Congress and Exhibition – Illinois, USA
Also, for similar reasons the Development of manufacturing capabilities is of high priority.

As (Sharpe, 2015) points out, as on 2015 the Indian trucks market had seen a substantial demand in with GVW of 16T, 25T and 31T, in fact of the total number of trucks sold, 23% were in 25T GVW and 15% were in the 31T GVW category. The 16T GVW, was relatively lower at 10% of the total trucks sold (Sharpe, 2015). Typically, the multi-axle trucks can be rigid as well as tractor trailer units, however in India rigid trucks are much more popular in the 25T, 31T, 37T categories (see Figure 4). In fact, as on financial year 2017-18 the 25T multi – axle trucks, which were the most popular category until recently has taken a back seat and 31T and 37T trucks have turned into hot favourites (in fact the 37T segment is the fastest growing segment in India as on 2017-18). The segment of mass exceeding 25T has recorded a growth of 47 percent over the previous years with Tata Motors and Ashok Leyland dominating this segment. (Bajad, 2018)

1.2.2 Behavioural Consideration

The behavioural nature of the Indian Transporter needs to be studied, to understand what they expect of their products and the way they use their trucks, their perception about the leading truck brands in the country and what are the reasons or various factors that make them loyal customers for a brand. In other words, it needs to be deliberated upon that, whether there are a set of preferences that drive a customer to buy a brand over another and how do the profile of the transporter or personal attributes and preferences influence the purchase and operating behaviour. The value that the transporters look forward to in terms of quality (value received) and price (paid for the value) is important and has been worked upon in the subsequent chapters.

The aspects of differentiation among brands is pertinent (given that the top two manufacturers make up nearly 85% of the MHCV truck market) and may be studied from the perspective of a market for differentiated products (Shy, Quality as vertical product differentiation, 1998), to be more specific from the fixed variety approach in terms of simple model for differentiated products [section 7.1], as well as the address (location) approach in terms of linear city model [section 7.3] as provided in (Shy, Quality as vertical product differentiation, 1998).
1.3 Scope of Study

This study covers multi–axle heavy trucks, engaged in civilian, on-road long haulage activities of non-over dimension cargo (non-ODC) across India. Transporters and drivers were interviewed to capture their attitudinal and perceptual characteristics in terms of buying and operating heavy trucks. Also, reliable secondary data has been used to analyse economic indicators and vehicle operating cost structure.

1.4 Importance of Study

Like in all industrializing countries, the freight transportation sector is very important in India. As the road freight transportation is the predominant mode vis-à-vis railways (AITD; CIRT, 2000), the medium and heavy commercial vehicles haul the bulk of long distance freight over the network of national highways, north – south & east – west corridors and the golden quadrilateral through inter-zonal and intra-zonal routes. They are the main drivers of development in terms of industrial activity for manufacturing basic goods, capital goods, intermediate goods, consumer goods, consumer durables and consumer non-durables.

A study to find a linkage between infrastructural development and (industrial activity required to sustain the infrastructural development) in India and sales volume of medium and heavy commercial vehicles (MHCVs) in India could throw some light on its impact on the growth of multi-axle trucks in the Indian context. The truck transporters are in a trade that effectively acts as the arterial system for an economy and literally carries around the finished and intermediate goods to further boost the cycle of economic activities.

Faced with competition from Global giants like Volvo Group, Daimler commercial vehicles, Volkswagen Group want their share in the growing Indian Commercial Vehicle market, the Indian Commercial Vehicle manufacturers have also taken up the initiative to pitch in competitive platforms with the help of strategic tie ups and knowledge partnerships (TATA – Cummins – Daewoo), (Ashok Leyland – Iveco – Hino), (Mahindra

\(^6\) Asian Institute of Transport Development (AITD), Central Institute of Road Transport (CIRT)
– Navistar), there are also some comparatively new players who have introduced innovative manufacturing approach e.g. Asia Motor Works (AMW).

1.5 Uniqueness of Study

An academic research of multi-axle trucks as a product, from the marketing perspective, to the best of our knowledge, has not been executed as per the extensive literature review (details provided in Chapter 2) carried out. Although studies have been conducted on trucks or multi–axle heavy trucks in terms of supply chain management, description of the overall trucking industry, operational aspects etc. but an exhaustive study to understand the effect of government policies, infrastructural developments and transporter’s attitude on business performance of the transporters; the truck owners buying preferences and attitude; value expectations of the transporter from the manufacturers have not been dealt with in any academic research. Also, the effect of factory – made truck cabins on the perceived levels of tiredness and stress of truck drivers have been incorporated into this present research work.

1.6 Research Gap

In reference to the above paragraph, it may be further emphasised that studying of growth in truck sales in the back drop of index for industrial productivity is a new approach which has not been dealt with before. Additionally, the effect of attitudinal aspects of the transporters and governmental policy aspects on business development of transporters have not been explored yet.

It is also important to note that although secondary data source was used to compare the financial vehicle operating costs of two axle and multi-axle trucks, the data sets were customized, and variables were selected to provide a comprehensive comparison of multi-axle and non-multi-axle trucks. These were neither part of the original report\(^7\) published by the agency involved\(^8\) nor were brought up in any scholarly work reviewed exhaustively.

\(^7\) Total Transport System Study Vol: 1 & 2
\(^8\) RITES India
It may be also noted that effects of brand on purchase of multi-axle trucks among transporters have not been dealt in scholarly research in India, neither is there any model that clearly puts out the customer attitude and perceptions in making purchase of a particular brand of truck.

Finally, the value expectation of the transporters (prospective/present customers) and the value proposition of the foremost manufacturers have not been exhaustively studied in context to the Indian trucking industry. In the present study value has been discussed in terms of price and quality.

**1.7 Problem Definition**

As mentioned earlier, to the best of our knowledge, the multi – axle trucks have not been studied as a product in India and thus the effect of certain economic indicators and infrastructural development on the production of heavy trucks needs to be analysed. The preference and attitude of the transporters as customers have not been studied neither the brand related aspects studied in the back ground of making purchases for multi-axle trucks. Also, the customer (the transporter) expectations in terms of value from the manufacturers is also not known.

**1.8 Objectives**

To address the above-mentioned problems, the following research objectives are:

1. To quantify the impact of road and infrastructural development on the growth of Multi Axle Trucks in India.
2. To capture the inherent advantages of Multi Axle Trucks (over two axle vehicles) in long haulage applications
3. To quantify the impact brand image has on purchase decision of Multi Axle Trucks.
4. To understand the differences in the Business models of various Multi Axle Truck Manufacturers in India.
1.9 Key Definitions & Abbreviations

**Multi Axle Trucks** – Freight haulage trucks with or without factory – built cabins which have three or more axles to distribute load across the axles to reduce load per axle.

**Heavy trucks or HCV** – Trucks with a gross vehicle weight (GVW) of more than 16 tonnes

**MHCV Trucks** – Medium and Heavy commercial vehicles represent vehicles between the gross vehicle weight (GVW) range of 7.5 tonnes to 16 tonnes and 16 tonnes and more respectively.

**Index of Industrial Productivity (IIP)** – It deals with growth of eight core industries like electricity, steel, refinery products, crude oil, coal, cement, natural gas and fertilisers.

**Time Series Analysis/Forecasting** – A statistical analysis used to study a series of data points across a time line and extract meaningful characteristics of the data. The time series data can also be used to develop a model to predict future values based on previous observations.

**ARIMA Model** – Auto Regressive Integrated Moving Average model is used particularly in time series analysis-based forecasting. The present model which is an ARIMA (0, 1, 0) model may also be represented as I (1) model.

**t-Test** – A statistical procedure for comparing two sample means, to see if they sufficiently differ from each other.

**ANOVA** – A statistical procedure for comparing more than two sample means, to see if they sufficiently differ from each other.

**Correlation (Bivariate)** – Discusses the relationship between two variables and the direction of increase/decrease in the value of a variable in relation to the increase/decrease in the value of another variable. The values for correlation are always between -1 to +1.
**Regression Analysis** – Tries to form a regression equation which demonstrates the effect of independent variable(s) on the dependent variable along with the direction of influence of each independent variable on the dependent variables.

**Logistic Regression** – It is a statistical method for analysing data where one or more independent variables determine an outcome with only two possibilities.

**RWPS** – Rank Weighted Purchase Score, is a weighted score value of certain Key Buying factors that transporters consider while buying a truck. Discussed in detail in Chapter 5.

**WAVS** – Weighted Average Value Score, derived through considering the Key Buying Factors (in terms of the importance of a key buying factor and the rating for that factor in a particular brand owned by the transporter. Discussed in detail in Chapter 6.

**B2B** – Business to Business interactions where, the buyer acquires the product to modify it further and sell it or the purchasing business uses the product that is purchased to utilize it for some commercial purpose.

**B2C** – Business to Consumer interactions where, the buyer acquires the product to use it for his/her own purpose.

**Brand** - A brand is “a name, term, sign, symbol, or design, or a combination of them, intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors.”

**Branding** – The various activities that are undertaken to ensure setting up an unique name and image of a product in the mind of the consumer through various activities involving a consistent characteristic that portray a differentiated presence leading to customer loyalty.

**Keller’s CBBE model** – Customer Based Brand Equity Model proposed by Keller, it is also known as the Keller Model, is designed to capture and frame the stages/intensity of association with a particular brand for individual end customers.

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9 The American Marketing Association
Kuhn’s CBBE Model – It is a Customer Based Brand Equity Model proposed by Kuhn to address the issues of stages/intensity of association with a particular brand for a business buyer or a commercial entity making purchases to use it for a particular commercial purpose.

Trucker’s CBBE Model – A model proposed by the researcher which is a modified representation of the Kuhn’s CBBE model for more focussed approach on the Truck buyer.

Business Model – It is “a representation of a firm’s underlying core logic and strategic choices for creating and capturing value within a value network” (Schafer, Smith, & Linder, 2005)

Value Delivery – Providing the customers with what they expect of a product in terms of various product characteristics at a given price point.

Value Perception – The expectation of a customer about a given product in terms of various product characteristics at a given price point.

Value Perception Matrix – The perception of value in terms of ‘quality’ and ‘price’ the buyer derives from a particular manufacturer’s product and the degree of satisfaction or dis-satisfaction it leads to for the buyer.

Modified Hotelling Vertical Differentiation Model – A model that diagrammatically represents the virtual distance a particular set of buyers have to travel to reach out to two different value providers in terms of ‘Price’.

1.10 Layout of thesis

Chapter 1

This chapter starts with an introduction, providing an overall view of the trucking industry and discuss about growth in GDP and heavy truck production. It also highlights the study on the trucking industry which is the more prevalent mode of freight transportation within the country. Since, hardly any academic research has been conducted on multi-axle trucks as a product (while capturing the transporter’s perception and attitude) in India; the chapter also points out the uniqueness of this research work.
The research gaps are clearly pointed out and research objectives are formed based on the same. After defining the scope of the study some key definitions and terminologies have been briefly explained.

Chapter 2
Based on the objectives, extensive literature review has been carried out which points out gap in the literature. Considering the literature gap and research objectives, the hypotheses have been set which would be further analysed and worked upon in chapters 4, 5, 6 and 7.

Chapter 3
This chapter discusses the research methodology, wherein the nature of the research – which is empirical and conceptual has been discoursed in detail. It also discourses upon the exploratory, analytical and conclusive design of the research. Also, the sample size and sampling methods are deliberated upon along with the nature of data and the geographical coverage of the samples. The chapter also does mention the data analysis tools used in the study in order to conduct the required analysis for each hypothesis.

Chapter 4
The chapter tries to express two aspects that affect truck operators, on one hand it demonstrates the relationship between the sale of heavy trucks and road, infrastructural and industrial development and on the other hand also shows how business performance of truck owners get affected by government policies and personal perceptions. The paper in quest of these two objectives also establishes a time series model (ARIMA Model) and three regression equations that clearly explain the relationship between the relevant dependent and independent variables.

Chapter 5
The chapter studies the financial viability of multi axle trucks across various terrains, load categories and compares the vehicle operating cost (VOC) of two – axle, three – axle and four/five axle trucks in India. Additionally, the average driving time, NVH levels inside the cabin of a truck, level of tiredness felt by the truck driver and level of stress felt by the truck drivers are also studied.
Chapter 6

The chapter tries to identify the key aspects of purchasing a heavy truck in India and the role of brand image for a potential truck buyer. It considers the two largest brands of Indian Heavy truck industry viz. Tata and Ashok Leyland and develops a logistic regression through a series of rank weighted purchase scores derived from some key buying factors to determine the purchase decision of a particular brand of heavy truck. It also proposes an adapted version of Keller’s CBBE model in B2B context – ‘Trucker’s CBBE Model’.

Chapter 7

This chapter was triggered by the study of business models of various truck manufacturers in terms of geographical coverage of the truck manufacturers and the scope of product portfolio as provided in Figure 3, chapter 1 (Section 1.2.1.1). In this present study the concept of business model has been deliberated upon from the value delivery mechanism perspective. The term ‘Value’ has been considered from the perspective of ‘Quality’ and ‘Price’. The ‘Value’ perception of the Indian transporters and the value offerings of the top three truck manufacturers in India have been considered in this chapter.

Chapter 8

The concluding chapter discusses the significant contributions made by the present research work and the limitations of this work. It also summarizes the concluding aspects of the various chapters and puts forward certain recommendations. The chapter also puts up certain related work areas (which are beyond the scope of this present research work) that may be further deliberated upon in future.