



FORECASTING OF GLOBAL AUTOMOTIVE INDUSTRY - KEY TRENDS IN PASSENGER VEHICLES

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ABSTRACT

Transportation is one of the furthestmost indispensable commercial properties in the modern world. An effective method of transportation safeguards the movement of individuals and product distribution could be directed in a safe and well-timed method. To meet this obligation, numerous categories and representations of vehicles were shaped by automotive companies to accomplish the requirements of customers especially in the background of passenger vehicles. Today's the modern global automotive industry encompasses the principal manufacturers, General Motors, Ford, Toyota, Honda, Volkswagen, and Daimler Chrysler, all of which operate in a global competitive marketplace. All automotive industries especially car manufacturers are required to increase their market segment with corporate profit to ensure cost related objectives and success over competitors. It is therefore essential for auto firms to reconsider their product development methodology in order to fulfil the objectives. In future, it is forecasted that the passenger's mobility is going to be increase further, in such a case a study has been conducted to know the production of passenger's vehicle for their mobility. The study is prepared grounded on primary facts and secondary statistics. The primary data has collected through oral interview from stalwarts of automotive industry. The secondary facts is composed from the information of OECD (Organisation for Economic Co-operation and Development) Transport Out Look Report of automotive industry and all existing literature has collected also from internet automotive websites, auto business magazines, e-auto journals etc. findings out the study reveals that there is growing demand for car in future at global level. Finally suggestions have been framed and conclusions have been drawn for the study.

Keywords: global, automotive industry, mobility, auto market, auto manufacturers.

INTRODUCTION

Transportation is one of the furthestmost indispensable commercial properties in the modern world. An effective method of transportation safeguards the movement of individuals and product distribution could be directed in a safe and well-timed method. To meet this obligation, numerous categories and representations of vehicles were shaped by automotive companies to accomplish the requirements of customers especially in the background of passenger vehicles [1, 2]. Automotive Industry "all those corporations and activities elaborate in the production of motor automobiles, comprising most machineries, such as locomotives and forms, but apart from tires, batteries, and petroleum [3-7]. The industry's main products are commuter vehicles and light vans, as well as pickups, vans, and sport usefulness automobiles. Commercial vehicles (i.e., distribution trucks and oversized transport lorries, often called semis), though imperative to the industry, are ancillary". Today's the modern global automotive industry encompasses the principal manufacturers, General Motors, Ford, Toyota, Honda, Volkswagen, and Daimler Chrysler, all of which operate in a global competitive marketplace. It is suggested that the globalization of the automotive industry, has greatly accelerated during the last half of the 1990's due to the construction of important overseas facilities and establishment of mergers between giant multinational automakers. Industry specialists indicate that the origins in the expansion of foreign commerce in the automobile industry date back to the technology transfer of Ford

Motor Company's mass-production model from the U.S. to Western Europe and Japan following both World Wars I and II. The advancements in industrialization led to significant increases in the growth and production of the Japanese and German markets, in particular. The second important trend in industrial globalization was the export of fuel efficient cars from Japan to the U.S. as a result of the oil embargo from 1973 to 1974. Increasing global trade has enabled the growth in world commercial distribution systems, which has also expanded global competition amongst the automobile manufacturers. Japanese automakers in particular, have instituted innovative production methods by modifying the U.S. manufacturing model, as well as adapting and utilizing technology to enhance production and increase product competition. There are a number of trends that can be identified by examining the global automotive market, which can be divided into the following factors.

Global Market Dynamics

The world's largest automobile manufacturers continue to invest into production facilities in emerging markets in order to reduce production costs. These emerging markets include Latin America, China, Malaysia and other markets in Southeast Asia.

U.S. Automakers

"The Big Three" (GM, Ford and Chrysler) have merged with, and in some cases established commercial strategic partnerships with other European and Japanese



automobile manufacturers. Overall, there has been a trend by the world automakers to expand in overseas markets.

Consolidation

Increasing global competition amongst the global manufacturers and positioning within foreign markets has divided the world's automakers into three tiers, the first tier being GM, Ford, Toyota, Honda and Volkswagen, and the two remaining tier manufacturers attempting to consolidate or merge with other lower tier automakers to compete with the first tier companies. The western European automotive industry is considered a leader in the global market with integrated operations consisting of: research, design, development, production and sales. It is comprised of a concentrated and sophisticated global network, which includes joint-ventures, cooperatives, productions and assembly sites. EU automotive industry producers have a combined output that exceeds that of the U.S. and Japan, however no one individual EU country produces more than its U.S. or Japanese competitor. The importance of the automotive industry on the economies of individual EU countries varies country to country. Of the 27 EU member countries, 9 countries produced over 93% of the passenger vehicles produced in the EU in 2012. Between 2007 and 2012 overall production declined - though unevenly. It declined in western EU countries but increased in eastern EU countries. The EU's largest automotive producer is Germany, followed by France, Spain, the United Kingdom, and the Czech Republic. There are over 20 vehicle manufacturers in the EU, with the largest automakers producing multiple brands, such as General Motors, Ford, Daimler (formerly DaimlerChrysler), Volkswagen, Fiat (now home to Chrysler) and Peugeot. There are also independent automakers, such as Porsche, BMW, and Bertone. Like the other markets in the global automobile industry trade, the EU auto industry has experienced significant restructuring and consolidation, which includes mergers, such as Chrysler and Daimler-Benz (and the later purchase of Chrysler by Fiat); GM acquisition of Saab; Ford's acquisition of Jaguar and Volvo's passenger car division; BMW's take over and then sale of Rover; and Volkswagen's acquisition of Bentley, Lamborghini, SEAT and Skoda. There continues to be co-production efforts and supply arrangements among the EU automakers, as well as with foreign partners outside of the European Union. Global auto industries are implementing considerable changes in their production lines, which lead to increased competition and shorter product life cycles. Producing a variety of products with higher quality and less cost could ensure more customer satisfaction. All automotive industries especially car manufacturers are required to increase their market segment with corporate profit to ensure cost related objectives and success over competitors [8-13]. It is therefore essential for auto firms to reconsider their product development methodology in order to fulfil the objectives. In future, it is forecasted that the passenger's mobility is going to be increase further, in

such a case a study has been conducted to know the production of passenger's vehicle for their mobility.

Technology enlargements by the automobile industry, buyer preferences for vehicle presentation and societal forces on vehicle competence will safeguard that there will be a continuous placement of lower-mass vehicle perceptions in new vehicles at global level. This mass-reduction technology deployment occurs with the piece-by-piece introduction of new reduced-mass parts, the use of innovative resources in stronger strategies, and the redesign of vehicle models that analytically enhance the use of materials and design in a more comprehensive manner. There is a need and significant to study about the forecasting of global automotive industry with special reference to passenger vehicles.

The objectives of the present study are to analyse the Forecasting of World Passengers Mobility, Examine the Forecasting of Types of Fuel Share at Global level and Scutinize the Forecasting of Vehicle Production in Key ASEAN. The study covers the limited countries of international to the extent of automotive industries, with special emphasis on knowledge of automotive of only international countries. The study of forecasting of the global automotive industry is prepared based on secondary data and the secondary data was limited to the extent of the few nations' automotive industry only.

PREVIOUS STUDIES

Gerard [14] stated that some early magnesium submissions are seen in roof frames, cross beams, internal modules like the appliance section, steering column, steering wheel, and engine cradle. Friedrich and Schumann [15] stated that Volkswagen engineers suggest that 60 kg magnesium per vehicle is accurate and 100 kg per vehicle of magnesium is imaginable in the 2010-2020 timeframe. Keith [16] said that, relatively new areas being explored for aluminium include all aluminium bodies, bumpers, crash management systems, and anybody construction.

Bandivadekar *et al.* [17] stated that, there is also possible for automobile mass lessening with the extended use of plastics and polymer combinations. These plastic materials are substantially fewer dense than all the automotive metals deliberated overhead, and, up to now, these materials have tended to fill many of the non-structural purposes of vehicles for example in numerous internal constituents. To demonstrate their low density associated to the rest of the vehicles' materials, modern vehicles are about 8% plastic by mass, but 50% plastic by capacity [17]. Schultz and Abraham [18] revealed that, looking at automaker-by-automaker average material composition, there are substantial variances in the use of high-strength steels. Equated to the regular 2009 practice of about 14%, some automakers have superior than 20% AHSS while others have less than 10% AHSS [18]. According to Caceres [19] stated that, laterally with engine cylinders heads and blocks, aluminium is challenging to substitute numerous old-fashioned steel constituents in vehicles, counting regulator shelters, rotation converter



and programme coverings, crankcases, control arms, suspension links, cradles, steering wheels, door frames, dashboards, sheet panels (e.g., roof, door, hood), and beams [19]. U.S. Department of Energy (U.S. DOE) [20] reported that, Automobiles operate a wide assortment of plastic sorts, including polypropylenes, polyesters, and vinyl esters. These possessions are operated in accesses, coverings, inner boards, appliance boards, and hundreds of other portions. Nevertheless principally substituting non-structural vehicle apparatuses, plastics have sustained to make in-roads in plentiful schemes and in amalgamated beam presentations, and a number of trainings have originate possible to succeed mechanical rays and mount constituents [20]. According to Kulecki [21] opined that, other than augmented usage of high-strength steel and aluminium, there are also considerable snowballing trends for the use of magnesium. Magnesium is least dense of the primary automotive metals, at about 30% lower density than aluminium and 75% lower density than steel and is therefore seen as an encouraging prospective subordinate quantity metal auxiliary [21]. According to Simpson [22] stated that the greatest cylinder heads are aluminium, and now engine blocks completed from aluminium in U.S. light duty vehicles approved 50%, outstanding steel in this area for the first time [22]. According to Brooke and Evans [23] dealt that, abundant of the complete automobile structure change in the direction of aluminium has originate with snowballing use of aluminium in appliance container heads and blocks, programme fragments, and helms. Aluminium has gone from about 5% of light duty vehicles in the late 1980s to about 9%, or over 325 lbs per vehicle today [23].

RESEARCH METHODOLOGY

The validity of any research dependent on the systematic method of data collection sources and its analysis. The study is equipped grounded on primary facts and secondary statistics. The primary facts has been collected through oral interview from stalwarts of automotive industry. The secondary facts is composed from the information of OECD (Organisation for Economic Co-operation and Development) Transport Outlook of automotive industry and all existing literature has obtained from internet automotive websites, auto business magazines, and e-auto journals. In exploration of data, to display the occurrence or nonappearance of precise features and to associate and compare facts standards or features midst connected matters with numerous joint features or variables, figures have been equipped and figures are influential communiqué tools—it provides text the concentration of readers, and professionally existent great volumes of composite evidence.

RESULTS AND DISCUSSIONS

Figure-1 depicts about the forecasting of world passengers mobility. From the year 2000 – 2050, it is anticipating that there is increase in demand of travel of passengers at the global level. In the above figure red line and yellow line shows the index of world passenger

mobility activity per kilometer (2000=100). It means that there is steady increase in passenger's mobility in future. Therefore, it can be concluded that there is increase in passenger's mobility in future because of growth in per capita income and population. Hence there will be more demand for passenger's vehicles.

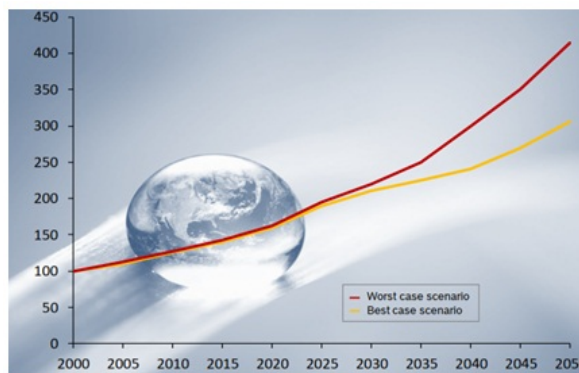


Figure-1. Forecasting of world passengers mobility.

Figure-2 indicates the forecasting of types of fuel share at global level. In the figure from year 2012 to year 2020, there is anticipation in increase in types of fuel i.e. petrol, diesel, alternative and electrified. It means the share of fuel increases at global level due to increase in passenger vehicles technology.

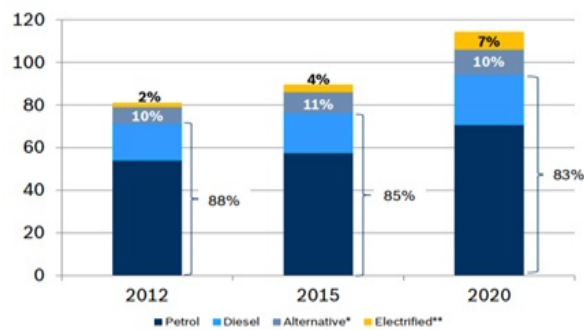


Figure-2. Forecasting of types of fuel share at global level.

Figure-3 represents about the forecasting of passenger vehicle production in key ASEAN, in the figure three ASEAN i.e. Thailand, Indonesia, and Malaysia passenger vehicle production is expected to increase from 4.0 million units in 2012 to 5.6 million units in the year 2020. From the figure, Malaysia is expected to grow from present 0.6 million units to 0.8 million units in the year 2020. Significant growth is expected in Indonesia from 1.0 million in CY 2012 to 1.8 million in CY 2020 and ultimately, Thailand will remain as the main production base with 3.0 million units in CY 2020. Therefore, it can be concluded that, the challenges before ASEAN auto manufacturers is to find a cost effective way of producing and expand into the regional auto market.

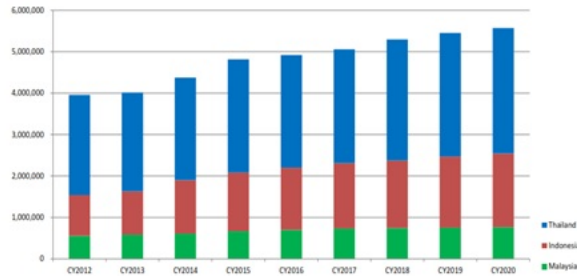


Figure-3. Forecasting of passenger vehicle production in key ASEAN.

Finding out the research study discloses that there is mounting demand of more passenger vehicles at global level, in such a case Original Equipment Manufacturer (OEMs) of automotive in world countries should emphasis on consumer preference vehicles, because currently consumers are looking for more efficient, longer lasting cars, primarily to save costs. Drivers from all over the world have rising expectations of safety and are demanding more comfortable, ergonomically advanced vehicles. Besides, new innovative auto products and technologies are the key to growth further and expand the existing auto market in future.

CONCLUSIONS

Therefore it can be concluded that in the automotive industry, technical necessity, radical understandings and market difference have reserved ultimate vehicle assembly, and by postponement much of auto parts production, close to finish markets. Powerful lead firms and industry associations, large-scale employment and relatively high rates of unionization, and the iconic status of motor vehicles in the minds of consumers (and policy-makers) in many countries increase the political influence of the automotive industry. So even where import tariffs and local content rules are not present or are scheduled to decline under WTO rules, foreign assemblers have chosen to 'voluntarily' restrict exports and set up local production to forecast political reaction. As a result, regional and national auto production structures remain surprisingly strong and clear in comparison to other volume auto producing industries where global sourcing of parts and materials is the norm and worldwide demand for finished goods can be met from a handful of enormous production groups. As a result, political pressures go a long way toward explaining patterns of direct investment in the automotive industry.

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