

CSE424

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Pattern finding in automobile market

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Abstract:

We explore the patterns found in the automobile market through sales data from Elite Automart. This research displays automobile market size through analysis and understands what customers want and why B2B organizations buy products from Elite Automart. Our findings show insights into the automobile parts and decoration accessories market size, sales strategy, and future opportunities.

Index Terms - Microsoft Excel, Sales Charts, Sales Forecasting Chart.

History:

Automobile manufacturing was responsible for the development of both transportation and economic progress. In the latter half of the 19th century, Karl Benz and Henry Ford were the ones who came up with the first diesel-powered automobile and assembly line.

Automobiles became more affordable in the early 1900s due to mass production.

The 1908 Ford Model T was introduced as a personal car, and production increased to fulfill the demand. World War I forced the industry to produce military vehicles and enhance technology. After the war, innovations like electric starters and engines improved driving.

In the late 20th century, we saw globalization caused mergers of Car Company, acquisitions, and multinational business growth. Japanese cars were efficient and dependable, whereas threatening American and European dominance.

Hybrid and electric vehicles were developed in the 21st century to become sustainable. Tesla is popularizing electric cars and promoting greener mobility.

Introduction:

1. Hybrid Car: A hybrid car uses two or more power sources like fuel engine along with battery to drive the car. Most hybrid cars have a petrol-powered engine that burns fuel and an electric battery system. Popular hybrid cars like the Toyota Prius, Honda Insight, Ford Fusion Hybrid, Hyundai Ioniq Hybrid, and others.

2. Non Hybrid Car: It works with a traditional classic fuel-injected engine. This type of vehicles runs on gasoline or diesel. No electric engines or battery-powered motors are used in these vehicles. Toyota Corolla, Honda

Civic, Ford F-150, BMW 3 Series, Chevrolet Silverado, and others are non-hybrids.

3. AI Based Car: It is possible for autonomous or self-driving cars to navigate, assess information from the senses, make judgments, and function without the supervision of a human driver thanks to artificial intelligence.

These cars use cameras, sensors for radar, Lidar, GPS, and powerful onboard computers to analyze the environment and make actual-time choices while driving.

Several companies are actively working on AI-based car technology:

- I. Waymo
- II. Tesla
- III. Cruise (owned by General Motors)
- IV. Argo AI (collaborating with Ford and Volkswagen)
- V. NVIDIA (providing AI computing platforms for autonomous vehicles)

Feature of Spare parts of Automobile:

1. Car Engine Spare Parts - Engine block, Cylinder head, Engine, alternator, radiator, air conditioner, suspension, brake pads, spoiler, rim, tire, trim package, body components, Pistons, Valves, Spark plugs, Flywheel.
2. Interior Car Decoration Accessories - Car key Cover, Air freshener, Car cleaning kit, Engine oil, LED lights, Dash Cam, Leather cover, Document holder, windshield wiper etc.

Automobile Market Size Research Objective & Motivation:

To estimate and review the car industry's market size, including categories, locations, and key players, to understand its current state, trends, potential for growth, and significant variables. This research report collects data,

analyses it, and offers opinions on the car market size and trends.

In the event that I wanted to discuss the reasons behind my decision to carry out this research on the car industry, I believe that I have a great deal of information concerning the automobile industry. In the future, it will be helpful for me to be able to set up a business or start a startup, and it will also allow me to explore other marketing strategies.

Auto parts market size in Bangladesh:

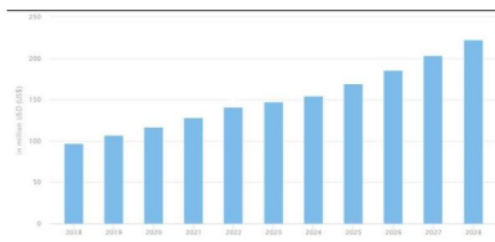
Rising ownership of cars in Bangladesh has doubled the automotive component industry in a decade.

Some of the replacement parts that are imported to meet the growing demand in the car industry include the engine, the alternator, the radiator, the air conditioner, the suspension, the brake pads, the spoiler, the rim, the tire, the trim package, and the body components.

In the previous year, the market for vehicle parts was estimated to be between Tk 1,300 crore and Tk 1,400 crore, with an annual growth rate of 10–12% during the prior decade.

Due to the chaotic nature of the market for vehicle spare parts, there is a lack of data regarding the business. Thailand, China, Indonesia, Taiwan, Dubai, and India are the countries that supply the majority of people who import automobile components, both refurbished and new.

About two hundred businesspeople import automobile spare parts, the majority of them run workshops. Components are traded by more than 2,500 vendors.



Customer Demography in Automobile industry in Bangladesh (Interior Car Decoration Accessories):

Car interiors are commonly decorated with ornaments for numerous reasons:

Car accessories: people customize their cars and make that stand out. People use car interior design to convey their character, sense of style, and hobbies.

Improved Comfort: Seat covers, pillows, and steering wheel covers can improve driving comfort. These products may improve driving comfort by adding padding, ergonomics, or temperature control.

Status and Prestige: Some people adorn their cars with fancy extras to show off. These may feature luxury leather seats, special trim, or custom interior detailing.

Safety and security: Car alarms, GPS trackers, and dash cams provide safety and security. These features prevent car theft and monitor driving behavior, giving peace of mind.

Collected Data, Data Analysis & Result Analysis on Elite Automart

A well-known Online page Elite Automart, who is selling interior car decoration accessories since 2020.

Range of Products:

1. Car Key Cover – Leather key cover, Carbon fiber, leather key ring, Silicone Cover.
2. Document holder.
3. Car Remote battery.
4. Microfiber towel – small, medium & large.
5. Air Compressor.
6. Air freshener – little trees (Brand) – Fiber can, spray, hanging trees.
7. Number Plate Cover.
8. Windshield cleaning tablet.
9. Duster.
10. USB Charger.
11. Wiper Blades.

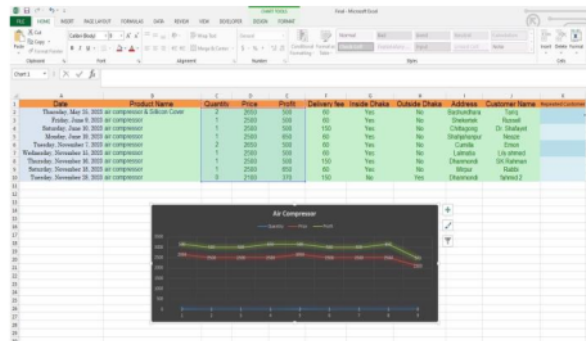
Collection of Sales data from Elite Automart & Data Analysis on Sales data:

Dataset: As I have collected sales data from Elite Automart and analysis that data to understand sales, demand of product, forecasting etc.

We have collected sales data from Elite Automart April 21, 2023 to December 03, 2023.

Date	Product Name	Price	Quantity	Total Price	Address
2023-04-21	Car Key Cover	100	1	100	Dhaka
2023-04-22	Document holder	150	1	150	Dhaka
2023-04-23	Car Remote battery	200	1	200	Dhaka
2023-04-24	Microfiber towel	300	1	300	Dhaka
2023-04-25	Air Compressor	400	1	400	Dhaka
2023-04-26	Air freshener	500	1	500	Dhaka
2023-04-27	Number Plate Cover	600	1	600	Dhaka
2023-04-28	Windshield cleaning tablet	700	1	700	Dhaka
2023-04-29	Duster	800	1	800	Dhaka
2023-04-30	USB Charger	900	1	900	Dhaka
2023-04-31	Wiper Blades	1000	1	1000	Dhaka

If we look the sales forecast April 21, 2023 to December 03, 2023

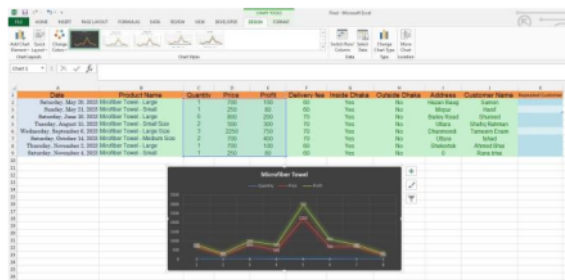


Top Selling Product:

1. Car key Cover:

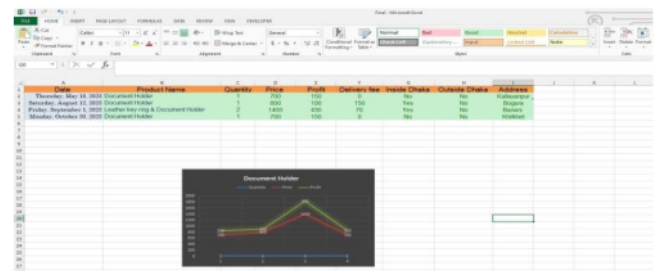


2. Microfiber towel:

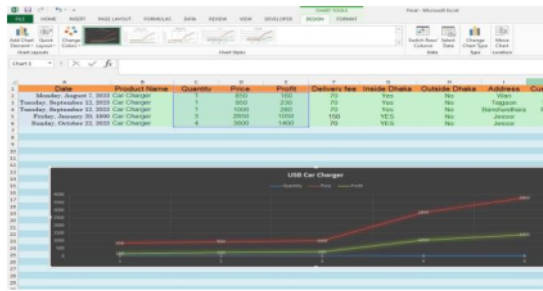


3. Air Compressor:

4. Document Holder:



5. Car Charger:



1.39 million. The success of Thailand's industrialization has prompted interest from policy officials and researchers in emerging economies seeking to expand the automobile sector.

Whereas Bangladesh's middle class is developing quickly and buying more, auto parts demand is still modest compared to India and Thailand. The market is now worth USD 1 billion after growing exponentially. Industry analysts estimate the Auto Parts automobile market at Tk 1500 crore.

With the rising middle and upper class's purchasing power, the auto parts market is growing 12% yearly. The middle class buys majority passenger automobiles and auto parts accessories. Commercial vehicle producers can import auto parts duty-free for four years. New technology and improved human resource management are helping the local car sector reach critical mass.

Auto Parts retail Competitors for Elite Automart:

1. Oilco
2. Japan Parts
3. Car Hub Store
4. Oil house.
5. Car Monkey
6. Parts Station

These are top notch Competitor in the auto parts retail industry market.

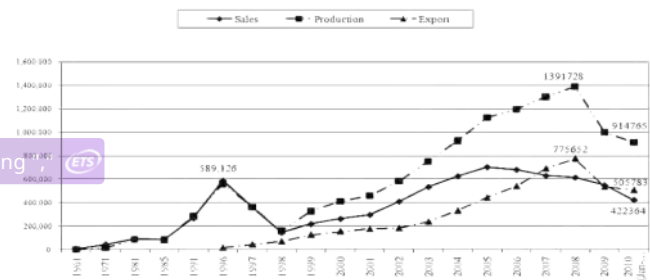
- The market size was between Tk 1,300 crore and Tk 1,400 crore in the previous year.
- The annual growth rate was between 10 and 12 percent.
- Ten years ago, the market size was less than Tk 500 crore.
- At least 200 traders import auto components.

Comparison Auto Parts Industry:

Comparison objective – Basically, in Thailand, there are some renowned auto parts manufacturer company, our country auto parts importer imports parts from Thailand because they get the product cheap price with good quality and affordable. That's why I want to compare Thailand auto parts industry with Bangladesh auto parts market.

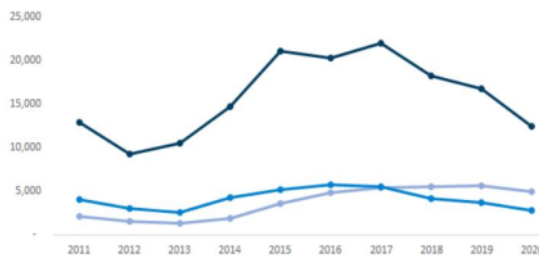
Thailand's automobile sector has joined the worldwide manufacturing network of several vehicle and auto parts manufacturers in less than 50 years of industrial growth. In 2005 and 2008, Thailand produced over one million cars and parts accessories, setting a record of

Figure 1: Thailand Production, Sales, and Exports of Automobile (1961 – 2010 July)



Source: Federation of Thai Industries, The Thai Automotive Industry Association.

Bangladesh Auto Parts Figure:



Comparing Elite automart with other competitors and figuring out the marketing strategy, growth, and customer trend of Elite Automart:

Comparing with Competitors: As there are some competitors in the market, all of them are selling the same kind of products. If I pick up Oilco and Japan parts, which are renowned in the auto parts retail market, their prices are fixed and high. Whereas elite automart products are affordable, and they also directly import them from the manufacturer company. Other competitors depend on local suppliers; if the local supplier increases the product price, then other auto parts shops have to increase their price. Then customers do not get budget-friendly products from them. Whereas Elite Automart plays a significant role, they import the product and sell it according to the customer's budget. Friendly, and there is an option for customers to negotiate, whereas other competitors don't have this option because their price is fixed.

Marketing and Sales Strategy: Elite Automart analyses the marketing trends of auto parts and consumer behaviour through social media marketing, content marketing, and search engine optimization. Whereas they track key performance indicators like Facebook page traffic and customer engagement. And they use some data-driven tools to figure out the KPI results and do marketing.

Therefore, they do B2B and B2C business. Whereas, their sales rate is much better than that of other competitors.

B2B Business: As they import the product from a manufacturer with an affordable price range, Elite Automart works as a supplier for them.

Customer trend: In the auto parts industry, we see different ages of customers, like young and middle-aged. Sometimes customers want to customize parts kits according to their style. So Elite Automart has the option to customize the product according to the customer's taste. Customers prefer the convenience of purchasing auto parts online. They research products, compare prices, and buy from e-commerce platforms or manufacturer websites. Accessibility to a wide range of products and the ease of doorstep delivery are major drivers of this trend. Elite Automart sells their products both online and offline, so customers get that kind of access.

Conclusion:

Auto parts retail is a dynamic industry shaped by evolving consumer preferences, technological advancements, and a growing demand for convenience, quality, and customization. The sector's future success hinges on embracing online platforms, catering to the DIY culture, prioritizing sustainability, delivering reliable products, and leveraging digital influences to meet customer needs effectively. Adaptability, innovation, and a customer-centric approach remain key factors for sustained growth and competitiveness in the auto parts retail landscape.

As we see, now consumers are having electric cars, or in the future, electric car demand will get higher. So figuring out that opportunity, we have to do research on it and make the electric car parts available in the future. And also setup a charging station with better service.

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