

MIS Final Exam: General Motors

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Abstract:

The paper will use General Motors for the case study of whether the company's current competitive strategy is successful. GM is an American automotive company that designs, manufactures, and sells vehicles, parts, and services globally. This project will discuss GM's background and history, major products and services, key technology, and IT. It will also provide a SWOT and Porter's Five Competitive Forces Analysis. This paper will examine the company's current IS and corporate strategy and present the strategy's effectiveness in achieving the goals and objectives set out by GM, which will be shown through the use of worldwide EV sales and the surge in GM's EV sales. This paper will also explain how GM's competitive strategy has helped the company stay ahead in the ever changing automotive industry, as electric and autonomous vehicles have become increasingly popular. This paper will show how GM's vision of "zero crashes, zero emissions, and zero congestion" represents the company's focus on safety with the use of advanced technology; the switch to electric vehicles to focus on their environmental impact; and their efforts reduce traffic congestion by developing new transportation solutions, such as ride-sharing and autonomous vehicles. This concludes that GM's current competitive strategy positions it well for continued success in the future.

TABLE OF CONTENTS

- I. Introduction
- II. Major Products and Services
- III. Key Technology or IT
- IV. SWOT Analysis
- V. Porter's Five Competitive Forces Analysis
- VI. Corporate Strategy
- VII. I.S. Strategy
- VIII. Conclusion and Suggestion
- IX. Works Cited

I. Introduction

General Motors, formerly General Motors Corporation, is an American company that held the title of the world's largest manufacturer of motor vehicles for most of the 20th and early 21st centuries. Founded in 1908 and headquartered in Detroit, Michigan, the company has grown, and now designs, manufactures, and sells vehicles, parts, and services in over 100 countries. GM operates through several business divisions, including GM North America, GM International, GM Financial, and Cruise. GM North America is responsible for designing, manufacturing, and selling vehicles in the United States, Canada, and Mexico, under several brands, including Chevrolet, GMC, Buick, and Cadillac. GM International is responsible for the company's operations in Asia, South America, and the Middle East. The division offers vehicles under brands like Chevrolet, Holden, Baojun, and Wuling. GM Financial is a subsidiary that provides financing, leasing, and insurance services to customers and dealerships. The company operates in North America, South America, and Asia. Cruise is a subsidiary that focuses on developing autonomous vehicles and technology. Cruise has partnerships with other companies in the autonomous vehicle space and is working on creating a ride-hailing service using fully autonomous vehicles. In addition to its core operations, GM is committed to sustainability and working to reduce its environmental footprint. The company is developing electric and autonomous vehicles, reducing waste and carbon emissions in its manufacturing processes, and investing in renewable energy and sustainable materials. The history of General Motors has been one of ups and downs. In 1908, General Motors was founded by William C. Durant. Chevrolet was founded in 1911 and became a GM brand in 1917. During the 1920s-1930s, GM became the world's largest automaker and introduced many industry innovations, including the first V-8 engine and the first automatic transmission. In the 1940s, GM shifted production to support the Allied effort during World War II. In the 1950s, GM expanded globally and introduced iconic models like the Chevrolet Corvette and the Cadillac Eldorado. In the 1960s, GM faced increased competition from foreign automakers and struggled to adapt to changing consumer demands. In the 1970s, GM faced financial difficulties due to a combination of factors, including the oil crisis, increased competition, and labor disputes. During the 1980s-1990s, GM underwent restructuring and introduced new models, including the Chevrolet Camaro, Pontiac Firebird, and Buick Regal. In the 2000s, GM faced financial difficulties again and filed for bankruptcy in 2009. It emerged from bankruptcy as a smaller, more focused company. During 2010-2020, GM introduced electric and autonomous vehicle technologies and invested in ride-sharing services.

II. Major Products and Services

GM produces a wide range of vehicles under various brands, including Chevrolet, Buick, GMC, and Cadillac; whether you are looking for a family SUV, a sporty coupe, or a luxury sedan, GM has a vehicle designed to meet customer needs. GM produces several car models ranging from sedans to hatchbacks to coupes. The Chevrolet Malibu and Impala are popular mid-size sedans that offer a comfortable ride, spacious interiors, and advanced safety features. The Chevrolet Spark is an affordable subcompact car ideal for city driving. The Chevrolet Camaro is a sporty coupe designed for high-performance driving, with a range of engine options and sport-tuned suspensions. GM's truck lineup includes several models that cater to different needs, from hauling heavy loads to off-road driving. The Chevrolet Silverado is a full-size pickup truck available in several configurations, including regular cab, double cab, and crew cab,

while also offering a range of powerful engines and advanced towing capabilities. The GMC Sierra is a luxury pickup truck, offering a comfortable ride, advanced features, and a spacious cabin. The Chevrolet Colorado and GMC Canyon are mid-size pickup trucks ideal for off-road driving and hauling. GM also produces several SUV and crossover models that cater to different needs, from family transportation to off-road adventures. The Chevrolet Traverse and GMC Acadia are mid-size SUVs that offer spacious interiors, advanced safety features, and optional all-wheel drive. The Chevrolet Tahoe and GMC Yukon are full-size SUVs designed for families and boast advanced features, such as a heads-up display and rear-seat entertainment systems. And the Chevrolet Equinox and GMC Terrain are compact SUVs created for urban driving and offer fuel-efficient engines and spacious interiors. GM's luxury vehicles are sold under the Cadillac brand and come equipped with advanced features, premium materials, and cutting-edge technology. They offer luxurious compact cars, mid-size sedans, and SUVs with elegant interiors, powerful engines, and advanced infotainment systems. GM also produces and sells vehicle parts and accessories, including engines, transmissions, batteries, and tires. In addition to material items, GM offers financial services, which include vehicle financing, leasing, and insurance. GM also equips OnStar services in select vehicles, which provides owners with safety, security, and convenience features, including automatic crash response, roadside assistance, and remote vehicle access.

III. Key Technology or IT

Over the years, GM has incorporated various technologies to improve its business and operations. In particular, GM has invested heavily in electric and autonomous vehicles, for example, the recent release of the Chevy Bolt EV and the Cruise Origin autonomous vehicle. GM's new Ultium battery technology is a new generation of lithium-ion batteries designed to power the company's EVs in multiple vehicle types. Built on flexible battery architecture, Ultium is a game-changer with outstanding performance, power, and range. The Ultium battery provides up to 400 miles on a single charge, can charge up to 80% in as little as 30 minutes using DC fast charging, and lowers the cost for all parties involved as the battery uses fewer cells. GM's autonomous driving technology is being developed by its subsidiary, Cruise, which is focused on creating self-driving vehicles for ride-sharing and delivery services. The technology is based on a combination of sensors, cameras, and software that enable the vehicle to perceive its environment and make driving decisions without human input. According to GM, Cruise's autonomous vehicles use a combination of Lidar, radar, and cameras to create a 360-degree view of the vehicle's surroundings. The data from these sensors is then processed by machine learning algorithms that enable the vehicle to recognize and respond to a wide range of objects and scenarios, including pedestrians, cyclists, other vehicles, and road conditions. GM and Cruise are continuing to conduct extensive testing and validation of their autonomous driving technology to ensure that it is reliable and can operate safely in a wide range of conditions, in addition to working with regulators and policymakers to establish standards and guidelines for autonomous vehicles. GM's vehicles also come equipped with OnStar technology allowing owners to remote start, remote lock/unlock their vehicles, and check vehicle diagnostics. Additionally, GM is developing new connected car technologies, such as 5G connectivity, partnering with AT&T to provide faster, more reliable connectivity for its vehicles, which will enable new features such as enhanced navigation, entertainment, and safety capabilities. To reduce costs and meet consumer

needs, GM has instituted 3D printing in its production process, installing 17 Stratasys FDM 3D printers at its facility in Michigan to produce a variety of high-performance, lightweight parts for its vehicles. This 3D printing allows for faster, more flexible, and cost-effective production of parts, reducing the overall weight of vehicles, which in turn can improve fuel efficiency and performance.

IV. SWOT Analysis

GM has strong brand recognition and reputation globally, especially in North America. They offer a diverse product portfolio with a focus on electric and autonomous vehicles, as they strive to meet consumer demands. GM's manufacturing capabilities are efficient as they have a global network of production plants, which gives them a healthy financial position with a large cash reserve and positive operating cash flow. However, GM depends on its markets in North America for its revenue, as its success is limited in European and Chinese markets. GM also has a reputation for producing large, fuel-inefficient vehicles, but they are working to create electric fleets. Regardless, GM has growth potential in emerging markets such as India and Africa. And with the increased demand for electric and autonomous vehicles globally, GM has the opportunity to explore new ventures. They also have the option to develop partnerships and collaborations with technology companies in the EV and autonomous driving space. For instance, in January 2021, GM announced a strategic partnership with Microsoft to accelerate the commercialization of self-driving cars. The collaboration uses Microsoft's cloud computing and autonomous vehicle technology to develop GM's Cruise autonomous vehicle fleet. But they will be threatened with competition in the automotive industry from traditional and new all-electric entries. Government regulations related to emissions and safety standards also pose a threat as they may increase the cost of production and limit design flexibility. The increasing prices of raw materials and other inputs such as energy, labor, and transportation also stand in the way. If GM does not pass the increased costs to customers, it could result in lower profit margins or even losses. But if they do, the buyers may look to other dealers.

V. Porter's Five Competitive Forces Analysis

GM faces stiff rivalry from highly competitive BYD, Toyota, Volkswagen, Ford, Honda, BMW, Hyundai, Nissan, and Tesla, not to mention the new entrants, who are eager for market share. (Estimated plug-in electric vehicle sales worldwide in 2022, by automaker) And while their long-established, strong brand and wide range of products give them a competitive advantage, it subjects them to intense competition. Entry into the automotive industry is challenging for new players as it requires significant capital investments in manufacturing, research and development, and marketing. However, with new technologies, such as electric and autonomous vehicles, there has been increased interest and investment in the industry, particularly by tech companies. Even though the threat of substitutes in the automotive industry is moderate, advancements in technology and changes in consumer preferences could increase the risk of substitutes for GM products. For example, the rise of ride-sharing and car-sharing services, and the development of autonomous vehicles, could change how people think about car ownership and transportation, with many car ownership as an unnecessary expense. In addition, the trend towards more eco-friendly and sustainable products could also increase the threat of substitutes for traditional gasoline-powered vehicles. However, they are releasing their own line

of EVs to stay competitive, but other companies are doing the same. The bargaining power of buyers is high in the automotive industry because consumers have a wide range of options to choose from and can easily switch to a competitor's product. Furthermore, the internet has made it easier for buyers to research and compare different brands and models, which has increased their bargaining power. The bargaining power of suppliers is moderate; GM sources its raw materials and parts from a large number of suppliers, which reduces its bargaining power. However, the automotive industry is highly dependent on certain raw materials, such as steel and aluminum, which could increase the bargaining power of these suppliers.

VI. Corporate Strategy

General Motors' corporate strategy focuses on customer experience, innovation, global growth, and sustainability. By prioritizing customer experience and providing positive experiences, GM is more likely to have repeat customers, which can lead to increased revenue and long-term loyalty. Additionally, satisfied customers are more likely to recommend the company to others, which can lead to new business opportunities. GM also invests heavily in innovation. GM is focusing on developing advanced technologies and creating new mobility solutions, which include investing in electric and autonomous vehicle technologies following their vision of "...a world of zero emissions, zero crashes and zero congestion." (GM Ventures) GM's global growth strategy wants to take advantage of the unique opportunities provided by the massive surge in EV technology and favorable legislation that will help diversify its business in regions such as South America, Europe, and Asia. Finally, GM's comprehensive sustainability strategy aims to reduce the environmental impact of its operations and products while also promoting diversity and inclusion, and creating social and economic value for its stakeholders. The strategy includes initiatives such as electrification of its vehicle lineup, emissions reduction, use of sustainable materials, promoting diversity and inclusion, and community engagement.

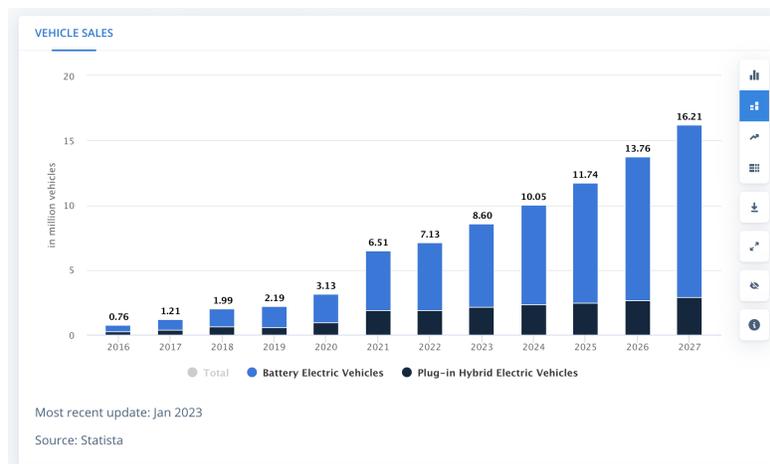
VII. I.S. Strategy

General Motors has a comprehensive information system strategy focusing on technology to optimize business operations, improve customer experience, and drive innovation. With heavy competition, GM relies on big data and predictive analytics to identify trends, enhance production, and better understand the consumer market. For example, there has been over an 860% increase in EV sales from 2016 to 2022, and forecasts show no signs of stopping. (Statista) Therefore, to meet customer needs they must direct their attention to EVs by continually investing in new and emerging technologies to stay competitive. Cybersecurity has also become a priority for GM as they want to keep customers safe and their data private so they can bring their connected life into the vehicle without any risks because, "Our [GM's] cybersecurity program serves as a primary pillar to enable GM's vision of a future with Zero Crashes, Zero Emissions, and Zero Congestion," (General Motors, How a strong Cybersecurity Posture Enables GM's Future") Another element in GM's information system strategy is OnStar, and although it was only intended to provide customers with safety, security, and peace of mind services, it has allowed GM to obtain vehicle data and provide customers with better insights into vehicle performance, as it collects "...billions of pieces of data from our GM vehicles." (Network World) By leveraging the potential of digital hardware, GM was able to use vehicle data to proactively identify potential problems before they occur and provide customers with preemptive alerts.

VIII. Conclusion and Suggestion

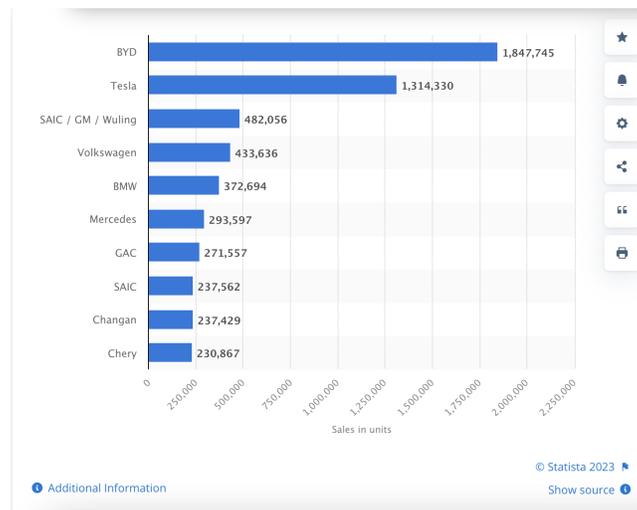
The project has provided a detailed discussion of General Motors, which includes its background and history, major products and services, key technology and IT, and corporate and IS strategy. It has also provided a SWOT and Porter's Five Forces Analysis. GM has successfully evolved with the rapid increase in technology. GM demonstrates a strong commitment to innovation, sustainability, and customer experience. The company's focus on electric and autonomous vehicles: in addition to its efforts to reduce environmental impacts in all aspects of its operations, exemplifies the company's visionary thinking that will help them stay competitive in the future. Nonetheless, external factors such as economic conditions, technology advancements, and regulation changes could all impact GM's future. However, if they stay firm in their actions, they can position themselves for long-term success in a rapidly evolving business landscape.

Figure 1:



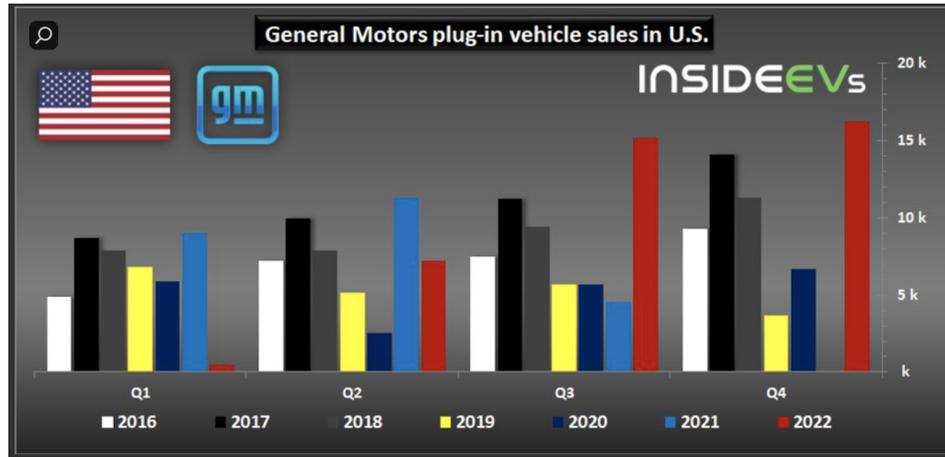
Source: *Electric vehicles - worldwide: Statista market forecast*. Statista. (n.d.). Retrieved April 13, 2023, from <https://www.statista.com/outlook/mmo/electric-vehicles/worldwide#unit-sales>

Figure 2:



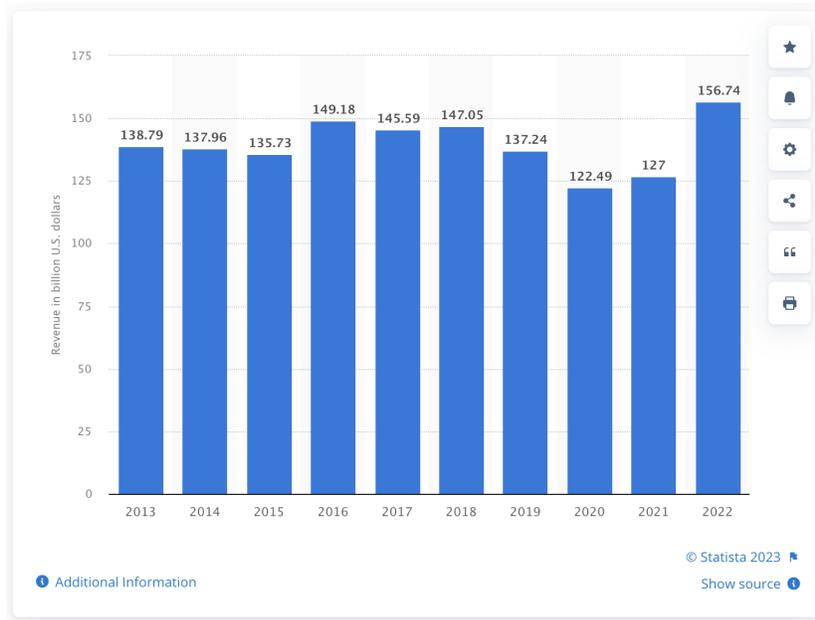
Source: Carlier, M. (2023, February 27). *Worldwide PEV sales by Brand 2022*. Statista. Retrieved April 13, 2023, from <https://www.statista.com/statistics/977407/global-sales-of-plugin-electric-vehicles-by-brand/>

Figure 3:



Source: Kane, M. (2023, January 6). *US: General Motors plug-in car sales hit a new record in Q4 2022*. InsideEVs. Retrieved April 13, 2023, from <https://insideevs.com/news/629611/us-gm-plugin-car-sales-2022q4/>

Figure 4:



Source: Carlier, M. (2023, March 17). *General Motors - revenue in 2022*. Statista. Retrieved April 15, 2023, from <https://www.statista.com/statistics/225349/revenue-of-general-motors/>

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