

U.S. Electric Bicycle Industry

Stagnant Growth and COVID-19 Threats

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Industry Background

Product Characteristics

- ▶ Electric bicycles, or e-bikes, are bicycles equipped with a battery, motor, and sensors to increase a rider's output.
- ▶ These bikes are operated by pedaling and selecting various power levels to communicate with the motor how fast a rider wants to go -- essentially making a bicyclist stronger.

Main Functions

- ▶ Alleviate the shortcomings of the traditional bicycle
- ▶ Provide a "green" alternative to gas-powered vehicles
- ▶ Reduce harmful carbon emissions produced by these vehicles
- ▶ Provide a workout for fitness-minded recreationalists, a joyride for commuters, or a range extension -- adaptability for everyone's needs
- ▶ Low-cost alternative to cars in many urbanized areas

Statistics

Global Market Value
15.42 billion USD

Projected Growth
↗ 7.5% by 2025

Average Profit Margin
36% of retail price

Base Model Retail Price
1,119 USD

High-end Retail Price
8,259 USD

Domestic E-Bike Sales
400,000 (2018)

Reduces CO2 Emissions
E-Bikes: 21-22 g/km
Car: 271 g/km

Identified Issues

Main Industry Players

- ▶ Giant Bicycles
- ▶ Merida
- ▶ Trek Bikes
- ▶ Riese & Muller
- ▶ M1 Sporttechnik
- ▶ Currie Technologies
- ▶ Evelo
- ▶ FIFIELD eBIKES
- ▶ Superpedestrian
- ▶ Vintage Electric
- ▶ Wave Electric Bike
- ▶ Prodecotech Electric Bicycles
- ▶ Propella Electric Bikes
- ▶ Sondors Electric Bikes

Source: Bold Business & Modor, 2019

Steep Barriers to Entry

- ▶ Electric bicycles are expensive to manufacture and are complex, incorporating a vast number of parts from various manufacturers around the world.
- ▶ For retailers, challenges arrive with warranty issues, overseas suppliers, out-of-stock or out-of-production parts, small brands or startups that go out of business, and high overhead costs.

Complications

- ▶ The e-bike industry needs three entities: the manufacturer, the brick-and-mortar retailer, and the customer – creating a lot of room for “breaks in the chain.”
- ▶ Retailer non-competes with manufacturers, limiting those looking to start an e-bike business.
- ▶ Stigma surrounding e-bikes in the United States is negative.

Lawmakers & Policies

- ▶ A major issue facing consumers is the hesitancy of lawmakers to welcome e-bikes into their cities and promote infrastructure development projects to accommodate an influx in bike traffic.
- ▶ Nationwide limits have been applied to the speed capabilities of motor-assisted bikes, and a classification system has been imposed to combat this but it remains a major issue.

Potential Solution #1

Domestic Manufacturing Network

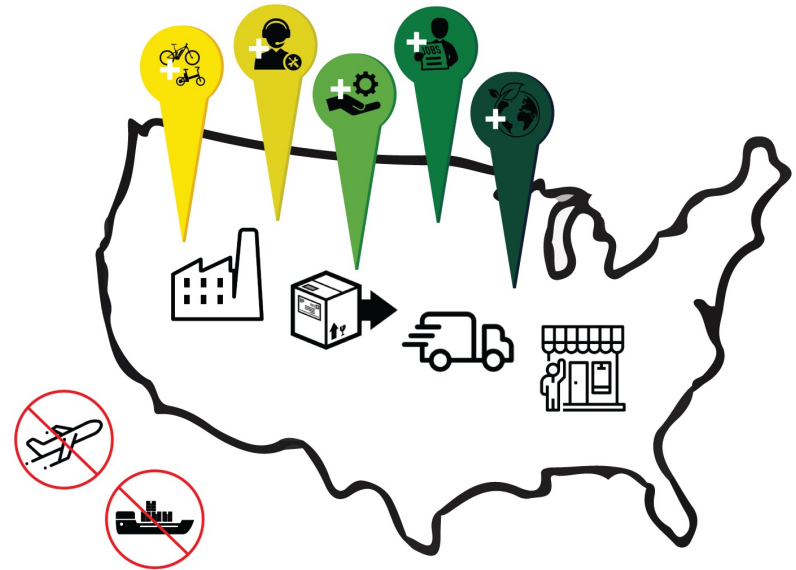
- ▶ Repercussions from the COVID-19 pandemic, electric bicycle retailers are looking to elsewhere to fill their stores
- ▶ Potential solution: Coordinating a network of US-based manufacturers

Pros

- Reduce shipping wait times
- Increase success with service appointments
- Reduce harmful emissions from shipping into the environment
- Create a wide range of jobs for the indefinite future

Cons

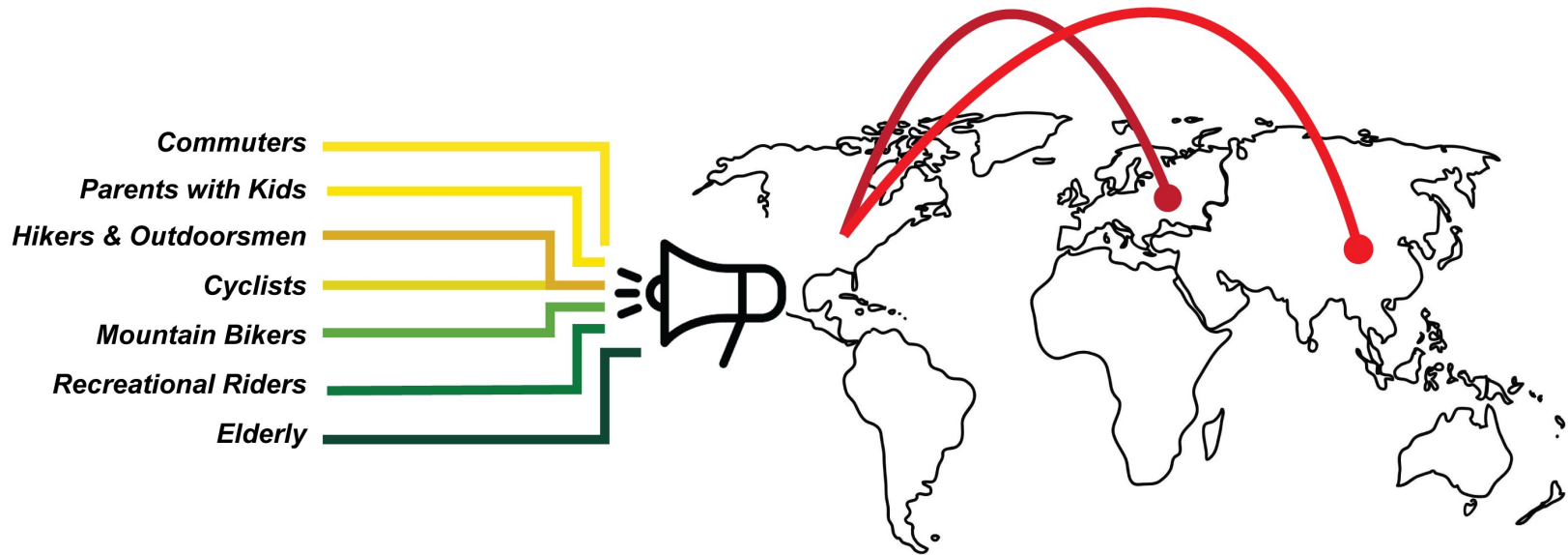
- Potential to increase costs in the short-term due to domestic labor laws



Potential Solution #2

Nationwide Marketing Campaigns

- ▶ Implement marketing strategies that combat the perception that e-bikes are for non-athletic bike riders
- ▶ Integrating characteristics from successful markets
- ▶ Strategies: utilizing social media platforms, social influencers, increasing advertisement reach for local, small-business e-bike stores, sponsoring professional athletes or competitions, boosting commercial and print advertisements in urbanized areas and with "go-green" organizations



Electric Bicycles in the United States: Addressing the Industry's Slowed Growth

Background

The primary function of the electric bicycle industry is to alleviate the shortcomings of the traditional bicycle: range dependent on the stamina of the rider, inability to climb high-grade hills, cargo, load capacity, and ease of use. Electric bicycles (e-bikes) make any terrain surmountable and are aimed at encouraging commuters and errand-runners to travel by bike. E-bikes are bicycles equipped with a battery, motor, and sensors to increase a rider's output, varying in selectable power levels. Essentially, they make a cyclist stronger. With more than 50 percent of all trips by car totaling less than 10 miles and the capability of an average e-bike battery being 40 to 50 miles, the e-bike is a very capable alternative (NPD Group, 2018). With customizable assistance from a small motor, a trip via e-bike can be effortless and sweat-free or a workout.

The industry is divided into three segments; riders looking for long-distance riding range, those looking to alleviate the challenge of a commute or a challenging route, and those interested for recreational reasons. With domestic sales reaching over a quarter of a million in 2016, the e-bike market in the United States is still in its "early adopter" stage (Modor, 2019). With cities aiming to become more bike-friendly and environmental concerns growing, the possibility of commuting via bike is catching on with young adults. Another target market in the United States is senior citizens looking to extend their active years or keep their independence by transporting themselves. A future target market that would greatly increase e-bike popularity is fitness-minded riders, who currently make up the largest demographic of bicycle riders in the US but strongly oppose e-bikes because they see them as an easy alternative. Most recently,

the spring months of 2020 have seen a large boom in sales in the wake of the global coronavirus pandemic, making e-bikes more prevalent than ever before.

In 2019, the global market was valued at \$15.42 billion, and it is expected to increase by 7.5% in the next five years (Modor, 2019). The market is highly fragmented, with big-name companies responsible for a respectable quantity of sales in the U.S. market: Giant Bicycles, closely followed by Merida, Trek Bikes, Riese & Muller, and M1 Sporttechnik (Modor, 2019). These companies are attracting consumers as e-bikes supersede the traditional bicycle's utility and follow trends of demand for green transportation, outdoor recreational activities, and low-cost alternatives to gas-powered vehicles.

Identified Issues

Although business is booming for electric bicycle retailers amid the COVID-19 pandemic, making them an attractive business venture, there are steep barriers to entry for both manufacturers and retailers. Electric bicycles are expensive to manufacture and are complex, incorporating a vast number of parts from various manufacturers around the world. A bike frame may be designed in the U.S., built in Taiwan, painted in the Netherlands, and outfitted in the Philippines. For retailers, challenges arise with warranty issues, overseas suppliers, out-of-stock or out-of-production parts, small brands or startups that go out of business, and high overhead costs. The e-bike industry needs three entities: the manufacturer, the brick-and-mortar retailer, and the customer. The customer wants to test out e-bike models and brands, just like car shoppers need to feel a sense of security in their expensive purchase. The base model retail price is USD 1,119 (Aventon Pace 350, Aventon.com), and high-end e-bikes start at USD 8,259

(Riese & Muller Superdelite, R-m.de). Customers also need a service shop to help with repairs. If somewhere along the chain there is a problem, the whole system fails.

Another issue before opening is that the retailer non-competes with manufacturers, limiting those looking to start an e-bike business.

A major issue facing consumers is the hesitancy of lawmakers to welcome e-bikes into their cities and promote infrastructure development projects to accommodate an influx in bike traffic. Nationwide limits have been applied to the speed capabilities of motor-assisted bikes, yet some states like New York still recognize them as motorcycles and require them to ride in automobile lanes. To combat this, a classification system of e-bikes has been created for the U.S., dividing them into three classes: Class 1 which have a top speed of 20 miles per hour, Class 2 which have a top speed of 20 mph and may include a throttle, and Class 3 which have a top speed of 28 mph and may include a throttle. E-bikes of any class, even the slower, more restricted models are slow to catch on with lawmakers and other officials.

Competitive pricing in the industry opposes large-scale domestic e-bike production, limiting it to its current small batches of high-end models, or cheap online-only retailers who make them from limited batches of cheap parts; both of which have their faults. Socially, the narrative surrounding bikes in the U.S. limits them to fitness equipment for recreational activity and not a useful vehicle or an alternative to a car. This is a misconception that must be corrected. In addition to the large jump in price from standard bicycles, e-bikes are expensive to service as they require a mechanic with electrical training and can be damaged easily by riding over sharp objects or getting in an accident with a car. Warranties for components are limited and startup brands can

run out of business within their first few years, creating an inability to get replacement parts to service the bicycles. Expensive e-bikes from well-established brands can guarantee that this will not be an issue, but e-bikes from a lower price struggle to do so. Another characteristic to consider is safety. Visibility of e-bike riders versus traditional bicycle riders is increased for cars with integrated front and rear lights that come standard with most models. However, the increased speed of e-bikes is potentially hazardous.

Potential Solutions

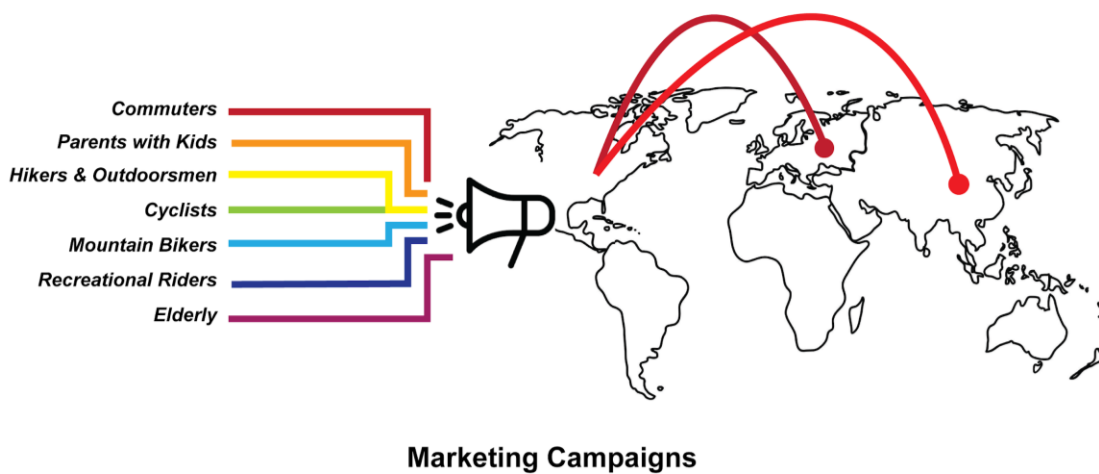
As a repercussion from the COVID-19 pandemic, electric bicycle retailers are looking to domestic suppliers for e-bikes to fill their stores as exports from Asia are delayed significantly and are more expensive due to increasingly strict regulations and revised tariff laws. A potential solution to this problem is coordinating a network of US-based manufacturers to produce the components needed for the bicycles, including model variations and upgrades for both new and pre-existing companies. This could increase costs in the short-term due to domestic labor laws but could reduce shipping wait times, increase success with service appointments, reduce harmful emissions from shipping into the environment, and create a wide range of jobs for the indefinite future.



Domestic Manufacturing

A solution for the electric bicycle industry's conflict with societal perception is to implement widespread marketing campaigns. Integrating characteristics from successful

European and Asian markets and using them to adeptly market to the same demographics in the U.S. could pave a path for a massive industry we are just seeing the beginning of. With the range from youth to elderly, all are included in those who could benefit from electric bicycles. Hopefully, with the booming industry and even more opportunity for growth, lawmakers and venture capitalists will back this green transportation alternative.



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