

Disruption in Detroit: Ford, Silicon Valley, and Beyond - (A Case Study of Ford Motor Company)

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Abstract—The purpose of the paper is to study the key factors behind the disruption of ford motor company and relevant recommendations)

Keywords—Ford, disruption, software, security;

INTRODUCTION

The purpose of this case study is to evaluate a fresh set of challenges and opportunity posed by rapid innovations and possible disruptions in the marketplace and how Ford should respond to challenges. These set of challenges arise from both traditional automakers as well as several new competitors across the globe and are knocking on the surface with sophisticated capabilities like electric batteries, self-driven car, better software integrations/entertainment, car ownership, and usage etc. Furthermore, the rapid evolution of customer preferences in different market segments and geographies across the globe have gone up globally in terms of mobility, performance, reliability, the safety of cars. There are multiple driving factors for consumers to make various decisions for example- consumer age, gender, residential location, geography, economic factor, past purchase experience etc. Our solution will be focused on efforts and desired results in the areas of powertrain, software, autonomous vehicles, car ownership, and use, small car challenge.

FORD HISTORY OF INNOVATION:

Innovation is all about bringing inventions out of the workshop and getting them ready for the market and add values to the consumers. Induction of Model -T during 1908 was one of the early innovation of Ford. During 1913, by refining the assembly line, quality vehicles were affordable to the masses. Similarly, induction of V8 engine, Thunderbird, Ford Taurus, Lincoln etc. happened between 1930- 2000. Across the world are repositioning themselves with the concept of “Learn, de-learn, re-learn” so that they can take the challenge of the future and valuable to their organization responsible for maintaining their company’s competitive edge

EXISTING CHALLENGES AND FORD RESPONSE:

These are the existing challenges with respect to:
Powertrain: The powertrain is going through incredible disruption. Electrical vehicles (competitors like Tesla and BYD) are creating tough competition for a traditional gas power combustion engine. In this aspect, Tesla has achieved remarkable success at the higher end. On the other hand, Chinese BYD was not only able to accomplish success in

electrical batteries but was also able to build and sell the electrical car at half of the price of many western models.

Ford started to offer a wide range of offerings with an improved combustion engine, better fuel economy, improved performance, and other cost efficiencies. Also, Ford has introduced an electric Ford focus, Hybrid electric fusion and fusion energy plug-in hybrid, all of which is all build on the company’s global platform for mid-sized vehicles. According to Investors Daily Report (2015), Ford leadership has indicated that by 2020, electric vehicles (EV) would comprise around 40% product portfolio. Therefore, it appears that Ford may shift its strategy toward electric vehicles and other potential options.

Software: Software’s have become an integral part of automobiles. They offer a wide range of potentials to provide not only the entertainment and connectivity for customers but also automotive diagnostic, connectivity, sensors, analytical functions and other key features that can add significant values to the customers. These software’s can further work as services for the consumers. For example, when it’s time for maintenance, they’d talk to auto repair apps, pick the best mechanic based on their quotes, check calendars, and book the appointments etc. Induction of Apple, a pioneering software giant in the automotive market will influence various market segments because of its pre-existing large market share, especially with younger generations.

As far as Ford’s strategy is concern, it is leaned more on partnerships and engaged various technology partners like Microsoft, SYNC, Pivotal and very recently Amazon to design and develop advanced connectivity, infotainment system etc. for their consumers.

Autonomous vehicles: Ford has been vigilant towards the autonomous vehicles and its approach is to provide multiple options to consumers by allowing a partnership with other companies to supplement in-house technology. Features like automatic parking, lane-keeping alert, blind spot monitoring, rearview camera, adaptive cruise control etc. could give the feel of autonomous technologies and simplify the driving experience with safety and limited liability.

On the other hand, Ford is also pursuing intensive research and development effort for the development of autonomous vehicles. At the same time, ford is also collaborating with technology partner Velodyne (LiDAR) for the next generation programs

Car ownership and use: Change in the consumers' preferences in terms of mobility pattern and other associated factors have changed the dynamics of automotive companies. Companies like, Uber, Lyft, Zipcar have threatened the existence of the traditional business model. It could potentially force carmakers to Business-to-Business sellers rather than business to consumer sellers.

Ford has been engaged with multiple partners across and globe and conducting more than 30 global mobility experiments to understand the changing consumer preferences. Several other pilot programs like GoPark, GoDrive, and ZoomCar etc. are underway to evaluate the consumer preferences and changing expectations.

The Small Car Challenge: Given the history of Ford Model T which was successful and affordable for the masses, Ford has not been quite successful in the small car segment which is becoming the battleground for the automakers. Japanese and Korean automakers such as Toyota and Hyundai have gained significant market share in the compact model car with incremental innovation and aggressive pricing. In order to capture this vast new market, automakers like Ford must be able to supply subcompact models that are affordable to new middle-class entrants in markets such as Asia, Africa, and South America, yet acceptable in terms of quality, safety, styling, and profitability.

Here is the summary of analysis in the form of SWOT metrics.

Strength: Ford's vision of the future to invest, while being creative and innovative with the help of a strong legacy, building partnership, and leadership commitment is remarkable. Given the background, Ford, a famous brand name, not only has strong cash flow but also has deep industry expertise, sophisticated systems for vehicle design and production, factories and dealerships around the world, and multi-generational customers. Product offering with multiple powertrain options and successful partnerships with Technologies Company like Microsoft, Amazon etc.

Weakness: Turning the thing around particularly with such a larger footprint across the globe is not an easy task, it requires lot of commitment and resilience and this will remain one of the key challenges for the automaker especially in the era of disruption Therefore they can't quickly respond to the smaller organization like Tesla, Faraday etc. Regardless of Ford's history as an innovator, currently Ford doesn't have any visible products which can typically compete with Tesla EV, Toyota, BYD etc.

Opportunity: Technically there is the scope of opportunity in all areas of disruption for ford. In the short run, demand for Electric and Hybrid cars are expected to go up, hence the market is expected to be competitive especially with the induction of electric cars from Tesla, BYD etc. In addition to that, there is an opportunity for Ford also. If Ford shifts relatively quickly to the production of electric vehicles with affordable pricing range, that would be the game changer.

Opportunity in Investment and Collaboration on artificial intelligence, software, robotics research, big data technology will ensure that it can compete with the potential competitor and grab the market share.

Threat: As far as threats are a concern, Ford not only has competition from a traditional automaker like Toyota, Nissan, and GM, but also from EV Maker Company like Tesla, BYD, and Faraday. On the other hand, there are competitions from technology giant like Google, Apple etc. In addition to that Ford also faces the threat from transportation provider companies like Uber, Zipcar, and GoDrive etc.

PERSPECTIVES

- 1. Company has tried to take on too much, too fast and should stick to what has been a reliable driver of profit for Ford:** In this particular approach ford could continue to work on improving efficiencies and services in its product portfolio, at the same time incremental approach in other areas like electric batteries, compact car. This option can help ford to increase earnings and generate cash flow which can be used for future investment and challenges. But the downside, ford would be ignoring significant opportunities and leave itself open to competitive threats.
- 2. Ford has in fact not done enough, and should focus more heavily on Ford's role in industry disruption:** Ford could concentrate on building electric and hybrid vehicles which is affordable for consumers and focus on being the leading supplier for the electric and fuel economy vehicles while avoiding the risk of liability associated with autonomous vehicles and software.
- 3. Adopting a flexible, broad-based path for industry disruption is best and the company should continue on this course:** In this particular approach, ford could continue to do well for next few years with the help of company internal strength and strategic partnership. On the downside, other competitors are moving fast in technology strategy and innovations which will eventually leave the ford behind.

CONCLUSION AND RECOMMENDATIONS

Based on above data points we can come to the conclusion that, rather than spread its innovation efforts across all five areas, ford could focus on two to three areas that would be realistic for the ford. This can be further considered as long/short-term goals.

In the short term(5-10 years), demand for electric and hybrid cars are expected to go up so Ford should focus on development and marketing of an electric and hybrid vehicle that would be affordable - an economy electric car for the mass market. To implement this strategy, it is recommended that Ford seeks a partnership with Tesla, Chinese BYD Motors. Tesla has considerable strengths and assets related to both electric vehicle manufacture and battery manufacturer but it lacks in manufacturing capacity and distribution – two

areas where Ford excels. On the other hand, BYD lacks autonomy.

The other area where Ford should concentrate its disruptive innovation efforts is in the rapidly changing area of car ownership and sharing. It is recommended that Ford become a major player and supplier in global car-sharing and ride-sharing and in doing so, work to replace the model of personal car ownership.

Ford must also be able to supply subcompact models that are affordable to new middle-class entrants in large markets such as Asia, Africa, and South America, yet acceptable in terms of quality, safety, styling, and profitability. It is further recommended that Ford should work on to improve design

and technology, better supply chain processes, and cost efficiencies to reduce the overall cost of manufacturing.

In the long term (10-20 years), a driverless car would be the dynamic face for the auto industry and consumer experience is going to change for good, hence it is recommended that Ford should take a step ahead in technology investment and work with the technology partners to secure the future of the company.

REFERENCES

- [1] Christensen. The innovator's dilemma: Harvard business school.
- [2] www.Ford.com (innovation history)
- [3] Tesla's not as disruptive as you might think (2015). HBR.