### Operations Strategy at BYD of China, Electrifying the World’s Automotive Market[[1]](#footnote-1)

### Teaching Note:

### CASE DESCRIPTION

The primary subject matter of this case concerns the move towards utilizing electricity to power automobiles and the potential of a Chinese company to become the world's largest automaker, as well as the strategic fit of its innovation with the current external environment. It asks the students to analyze the situation facing BYD and to develop an Operations and Supply Chain strategy. Secondary issues examined include issues of managing growth and environmental sustainability.

With the emerging importance of alternative fueled vehicles, this case should be interesting to students. The case is useful in showing how the global automobile industry is quickly changing and the need for speed and innovation is essential for survival. With the rise of the Chinese automobile market, companies like BYD represent additional challenges to the American car manufacturers. The case asks students to do a number of things including assessing the future of electric cars and providing a strategic analysis of the Chinese producer BYD. These concepts are interrelated in that BYD has staked its future in the auto business on batteries.

It would be helpful to require students to do some additional research into the automobile industry; however the case can stand alone without this additional research. Students should be encouraged to think about the future of the automobile industry and the means by which vehicles will be powered. Current trends indicate that further change is likely for this industry. Students should consider the strategic direction of BYD and its operations and supply chain strategy along with the automobile industry as a whole. Assumptions should be challenged including one that the United States will lead the automobile industry, electric cars will continue to be cost prohibitive, or that gasoline powered vehicles will always be needed. An objective of the case is for students to see the importance of innovation and creativity in creating a competitive advantage, and distinctive competence for operations.

### ANALYSIS

The case asks students to answer four discussion questions. Instructors using the case should feel free to add any additional questions they feel are important for their course. While the discussion questions listed at the end of the case are ones considered important by the authors of the case, they are in no way meant to represent the only way to approach the analysis of the case.

### Question 1: Do you think electric cars are a viable alternative to gasoline-powered vehicles? What is the future of the electric car? Explain your answers.

Electric vehicles may become a viable alternative to gasoline-powered vehicles in the not so distant future, however, major changes will need to occur in order for this to happen.

There are a number of problems facing the electric car including the current limited driving distance on a single charge and therefore a frequent need to recharge. While the vehicles may be introduced for urban drivers where the limited driving range is not a problem, as a replacement for all gasoline powered vehicles, major structural changes will have to be made. It seems reasonable to assume that hybrid vehicles will be a viable market in that they can run short distances without using the gasoline engine and then shift to gasoline power when on a long drive. Toyota, Chevy and others have continued to emphasize hybrid vehicles over electric cars due to difficulties with long driving requirements in many markets.

To completely remove the combustion engine from automobiles it will be necessary to build an infrastructure of recharging stations or battery replacement stations throughout the country. This will take time and a lot of capital. Improvement in battery technology will also be needed to make this a viable situation. One could make a reasoned argument that electric vehicles will eventually replace gas powered cars, but it will take breakthroughs in battery technology, infrastructure changes, and possibly a more secure source of the raw materials used to produce ion lithium batteries. The power position of the current energy companies cannot be ignored in the future shift away from gasoline as a power source for automobiles. As the new president of Toyota, Akio Toyoda stated in a recent Fortune interview, “*We are talking about a once-in-a-century transformation of the market. I believe the auto industry is now trying to face the challenges of presenting a solution to this one-in-a- century change. And what is clear to me that what is going to happen will not just simply be an extension of the past.”* (Fortune July 6, 2009)[[2]](#footnote-2). The global auto industry is clearly going to be experiencing significant changes in the coming years. Whether electric autos will dominate that future is presently unclear, however, an argument could be made for a variety of alternative vehicles emerging to at least slowly replace gasoline powered automobiles.

### Question 2: What are the internal strengths and weaknesses of BYD along with external, opportunities and threats (SWOT Analysis)?

The Chinese company, BYD has a number of strengths, a few weaknesses, a number of opportunities, and a number of threats. As a relative newcomer to the automobile industry the company will have to leverage its strengths in innovation to capitalize on its opportunities, along with overcoming the weakness and threats.

### Strengths:

A spirit of innovation and a creative management style that pays attention to detail

Competence in battery production that can be applied to automobiles

Located in the fastest growing automobile market in China

No “legacy costs” found with established competitors Positioned as a “green business” in a growing market

Financial backing of Berkshire Hathaway

Substantial government support of the company and industry

### Weaknesses:

Relatively small firm in an industry that operates with large economies of scale

Weak brand recognition outside of China

Little experience in automobile manufacturing

Strategy success dependent on acceptance of electric vehicles

**Opportunities:**

Market growth in China and expansion to other Asian countries

Expansion to other markets outside of Asia

Possible supplier of automobile batteries to other auto manufacturers Partnerships with other automotive battery manufacturers

Partnerships with more seasoned auto manufacturers

**Threats:**

Battery technology advances do not materialize

Competitive strengths are copied by competitors, both foreign and domestic

Global economic slowdown retards new car sales

Rising labor costs in China reduce some competitive advantages

Political instability in China affects the company

**Question 3: Given a business strategy of being the word leader in manufacturing electric cars with innovative technology, what operations and supply chain strategy do you think BYD should pursue? Identify what operations and supply chain should do to help BYD compete including a mission, objectives, distinctive competence and key decisions.**

**Mission:** The mission of operations and supply chain should be to support the high growth and innovative business strategy. It can be simply stated as: Operations and supply chain should excel at producing new products and providing adequate capacity to support sales of high quality products and lowest cost compared to the competition.

Note: this is not the only way to state the mission. The important point is that it must be linked to the high growth and innovative business strategy (e.g., good at NPD and providing adequate capacity).

**Distinctive Competence:** The distinctive competence right now is to produce superior batteries at significantly lower cost. It should be maintained by proprietary technology going forward which is not easily copied by the competition.

**Objectives:**

*Cost:*Product cost should be lowest in the industry and reduced each year.

*Quality:*Quality should be insured to minimize product failures, recalls and warranties.

*Delivery:*Sufficient capacity should be provided to fill orders at a 95% level.

*Flexibility:*Flexibility to change product mix and volume should be high because of the difficulty in forecasting future sales.

Note: Objectives should be consistent with the mission and business strategy.

**Key Decisions and Policies:**

### *Process:* The process should be geared toward high volume production and fast scale-up for new products. Innovative process technology should be stressed.

### *Quality:* Quality should use an ISO9000 certified process for BYD and its suppliers. This would insure that the product could be made to specification and would minimize failures.

### *Capacity:* Capacity should be built in advance of production to prevent stockouts. Even a bit of excess capacity is acceptable rather than shortages. Plants should be located in China and foreign markets as international sales are developed.

### *Inventory:* Finished goods inventory should be managed to provide a 95% service level. WIP inventories should be minimized by lean operations to reduce throughput time.

### *Supply Chain:* A short supply chain should be used to minimize inventory and provide flexibility in supply. Partnerships with suppliers should be encouraged to provide a long-term orientation. Distributors will be key in selling the product.

### Note: key decisions and policies are just an illustration of what is possible. The important point is that the decisions should support the objectives, mission, and distinctive competence.

### Question 4: What recommendations would you make going forward for the business as a whole to overcome its weaknesses and threats and then capitalize on its strengths and opportunities?

There are a number of recommendations that can be given for BYD to continue its success, and one day become the world’s largest auto manufacturer. BYD will need to establish its brand identity. Outside of China the brand has little to no recognition. BYD will need to begin to build a brand identity that is associated with the image it hopes to project to the world – a new car company with a new idea. BYD needs to create the image of being a leader in alternative vehicles which are environmentally friendly, affordable, and stylish. While the Chinese have improved the quality of many of their products, Chinese brands still do not carry a quality image.

Strategic alliances with automobile companies may also be helpful in not only creating a better quality image, but also in providing some of the strengths BYD currently lacks. BYD has done well on its own in battery production and the company should continue its efforts at battery innovation and product development.

The current strategy is not a bad one but BYD faces the problem of much larger competitors copying its innovation. BYD may want to consider a strategic alliance with a more established automobile manufacturer, one that shares its spirit of innovation and possesses strong brand acceptance and has an established dealer network. To protect its battery technology, BYD needs to build patented batteries or process technologies that are difficult to copy.

Finally, since BYD is betting the company on the success of electric automobiles, and since electric cars require batteries made of lithium ion, BYD will want to make sure that it has a reliable supply of the necessary raw material. If electric cars do become more popular, demand for lithium will rise and potential supply issues may arise. This may require partnerships with companies that supply lithium.

Given the limited range of EVs, BYD should consider exploiting markets other than the U.S. market until the range improves. Even in the U.S. households with two cars, one EV as a town car for commuting and limited driving could be a viable market, with the second car gasoline or hybrid powered for longer distances. In markets outside the U.S. where driving distances are not very long EVs may have a more satisfactory range, e.g., Japan, and Europe. The global hybrid market will continue to be a very robust market for BD vehicles in all countries, until EVs develop a longer range and highway recharge or replacement stations are built. BYD should therefore continue building a mix of hybrid and EVs in the foreseeable future.

BYD has an impressive track record. With the financial backing of Warren Buffet, the innovative and entrepreneurial spirit of its founder (Wang) and the growing need for alternative vehicles, BYD is positioned quite well for continued success. To move from its current market position to the world’s largest electric car company will require continued attention to detail, continued innovation, and perhaps, partnering with more established firms.

# Note to Instructors: Prior to teaching this case, useful information can be found at the BYD website. [www.byd.com](http://www.byd.com). Also, you can Google “BYD” to find more current information about the company. Google “EV or electric cars” to find out about the current state of the industry. Google “lithium iron phosphate batteries” to find out about patents and the advantages of these batteries.

1. ## This case was prepared by Charles A. Rarick, Kasia Firlej, and Arifin Angriawan of Purdue University Calumet and was published in the *Journal of International Academy of Case Studies*, Vol 17, 1, 19-29, 2011. It has been revised by Roger G. Schroeder, 2016 and is reprinted with permission.

   [↑](#footnote-ref-1)
2. Source: A. Taylor. *Toyota’s New Man at the Wheel*. Fortune, July 6, 2009. 84-85. [↑](#footnote-ref-2)