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China's Next Revolution  
*Transforming The  
Global Auto Industry*



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## EXECUTIVE SUMMARY

*Henry Ford's introduction of the moving assembly line in 1908 changed the world: making automotive transportation affordable for the masses, accelerating the industrial revolution, and shaping the distribution of economic wealth. While the world has witnessed great technological advances over the past century, the automobile industry still resembles that which was pioneered over a century ago. Simply stated, the crisis faced by today's automotive industry has a lot to do with the application of a "one size fits all" 20th-century industrial paradigm to a 21st century global environment. This paper describes how the rapidly expanding China market has become the catalyst driving the transformation of the business model and technological underpinnings of the global auto industry.*

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## BACKGROUND

Is Henry Ford turning over in his grave because of what is happening to his legacy, the American car industry? While an unprecedented restructuring is currently underway within the global auto industry, we believe Mr. Ford would probably be most disturbed by the fact that the “mass production” business model has only changed incrementally in over 100 years since he introduced it to the automotive industry. Ford’s introduction of the moving assembly line in 1908 changed the world: making automotive transportation affordable for the masses, accelerating the industrial revolution, and shaping the distribution of economic wealth.

While it is true that there have been significant technological advances as well as paradigm shifts in the way to organize automotive supply chains and assembly operations, one cannot deny the fact that the car today is still propelled by an internal combustion engine, and is assembled in a factory environment that would not seem very different to Mr. Ford. While the world has witnessed great technological advances over the past century, the automobile industry still resembles that which was pioneered over a century ago. Simply stated, the crisis faced by today’s automotive industry has a lot to do with the application of a “one size fits all” 20th-century industrial paradigm to a 21st century global environment.

It is a lesson of history that all great

dynasties must eventually be replaced. This lesson also applies to business models: they are only relevant for a finite period of time and must then be transformed or replaced. Ford’s “Mass Production” paradigm was the transformational shift of the 20th century—helping to spark an era of mobility and economic development previously unrivaled in history. It is a testament to its power that it has only been incrementally updated in this time frame. The most notable recent adaptation is the “Toyota Production System” and its principles of lean manufacturing. However, many forces are driving the transformation of the global automotive business model.

The first article of this series entitled *The Coming Structural Realignment of China’s Automotive Sector* described China’s emergence as the largest car market in the world, and the potential changes to the structure of Chinese domestic industry. The second paper entitled *The Path to Globalization of China’s Automotive Industry* explained the challenges faced by Chinese Original Equipment Manufacturers (OEMs) in their efforts to expand internationally. This paper describes how the rapidly expanding China market has become the catalyst driving the transformation of the business model and technological underpinnings of the automotive industry.

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## ACCELERATING THE INEVITABLE TRANSFORMATION

As noted in the first article in this series, we are living in historic times. The global economic crisis presents the world with a compelling case for change, and it is in times of crisis when truly transformational changes often occur. It is important to note that the economic crisis is simply a triggering event that freezes debate on whether change is needed and opens up opportunities for collaboration among governments, industry competitors as well as between government and industry. Several macroeconomic and sociopolitical challenges are directly linked with the automotive industry: the redistribution of global economic power, energy dependence, global trade balance and environmental concerns. The sheer size and influence of the Asian economies—especially China—will trigger the inevitable

and overdue transformation of the automotive business model.

If you follow the trajectory of the past several years, you find that the strength in the global auto industry has been shifting eastward to places like India and China. Most of the recent growth in the world's auto industry has been in the Asia-Pacific region, and more than half of that growth over the next decade is forecasted to come from China. The growing influence that China wields is not just its ability to influence standards and direction, but also its ability to create opportunities through partnerships for organizations that are financially weakened. As a result of the developments in their home markets, automotive companies and their suppliers must strive to deepen their participation in the China market if they hope to remain viable. It only stands to reason that companies that have weakened positions in their domestic market would benefit by redistributing some of their focus to the growth markets and in particular China.

For the first half of 2009, China has surpassed the US in automotive sales, posting sales of 6.1 million units versus 4.8 million vehicles sold in the U.S. market. In fact, since 2003 China's vehicle market has more than doubled in size from 4.56 million units to 9.67 million units (in 2008). The astonishing growth in car demand is a direct result of many factors that are fueling China's economy. This includes the significant investment made in the development of the infrastructure to support transportation. The China government views the automotive industry as a "pillar" of its economy since it brings technology, jobs and investment to the economy. As such, several agencies of the China government play an active role in sponsoring initiatives to further stimulate automotive development and growth. While it may not be apparent to the rest of the world, these initiatives are accelerating not just China's economic development—they are also accelerating the inevitable transformation of the automotive business model.

# LEVERAGING THE ECONOMIC CRISIS TO ACHIEVE POLICY OBJECTIVES

This year, in order to face the financial crisis, many national governments have enacted stimulus plans designed to create jobs and stabilize the economy. In the case of China, the stimulus plan has several intentions:

- Stimulate the economy with a particular focus on backbone industries
- Push a huge amount of capital through the banking system (US\$588 billion total with 45% of stimulus targeted at infrastructure development)
- Drive domestic consumption to reduce dependence on exports

The China government launched the Automotive Industry Revitalization Plan in March, 2009. The plan included several features designed to stimulate the development of the automotive sector, including:

- Eight development goals for the industry from 2009 to 2011, designed to ensure domestic growth of automobile production and sales
- Reduce half of sales tax for 1.6 liter or smaller cars

- Remove restrictions on auto purchases
- Boost auto sales in countryside
- Subsidize new minibus or light truck sales for rural residents

As a direct result, sales of vehicles engines with 1.6L or lower engines have grown by 56.5 percent year-over-year. Chinese consumers—especially first time car buyers—are in fact helping to boost domestic demand and are taking advantage of the tax and other incentives currently available. The policy also encourages consumers to shop for more fuel-efficient cars, which supports China's efforts to reduce fuel consumption. Targeting stimulus actions towards purchase of vehicles with lower engine displacement has the secondary effect of creating demand for smaller, lower-priced vehicles—and this tilts the playing field toward local Chinese brands.

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## FOCUSING THE DEVELOPMENT OF NEW PROPULSION TECHNOLOGY

As the size of the auto market inexorably expands, China will play an increasingly key role in the development of new automotive technologies. To some people who observe the industry, this seems counterintuitive. Most industry watchers believe that development leadership is purely a function of product innovation, and China is not a place where you will find leading-edge innovation, especially for automobiles. The China automotive market is still very young, and in many cases the domestic producers of vehicles that are sold in China are also fairly early in their development stage. But that is the view from the supply side. The area where China has the opportunity to lead is on the demand side.

China's emergence as the leading automotive market in terms of sales has several implications. While most attention has been paid to relative sales performance of the foreign and domestic companies, what is arguably of more long-term significance is the impact of China's market expansion on energy consumption and environment. Ten years ago, Beijing, Xi'an, Shenyang, Shanghai and Guangzhou were already listed among the Top 10 cities with the worst air pollution. The massive growth of the automotive market only adds to the problem. Additionally, China imports two-thirds of its oil, and its ever-increasing thirst has had a dramatic impact on global

energy prices. No doubt, China has a clear and compelling need to reinvent the propulsion technology of the automobile. For alternative propulsion technologies such as clean diesel, hybrid and electric vehicles you will find that China does not lead the technological development.

To address this, China's stimulus measures are targeting initiatives to increase energy efficiency and reduce greenhouse gas emissions by reducing energy intensity, increasing the share of renewable energy used, implementing tough auto emissions standards, and adding investments for clean energy. China's Minister of Science and Technology, Mr. Wan Gang—a former automotive development engineer for Audi—has recently unveiled a plan to support the development of what China calls “New Energy Vehicles” (NEVs). The Ministry of Science and Technology, working with the Ministry of Finance and the National Development and Reform Commission, is sponsoring an ambitious plan to promote the use of NEVs initially targeting 13 pilot cities, which include Beijing, Shanghai, Chongqing, Changchun, Dalian, Hangzhou, Jinan, Wuhan, Shenzhen, Hefei, Changsha, Kunming, and Nanchang. The plan includes support for the development of energy-saving technology for use in government fleets, including buses, postal, and sanitation vehicles. The plan targets the deployment of 60,000 energy saving vehicles in China by 2012.

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While Chinese car companies today do not lead the development of propulsion technology, they simply don't need to at this time. Consider that about 45% of China's \$588 billion USD stimulus plan is to be invested in projects related to developing China's infrastructure. Replacing internal combustion engines with other technologies—such as hybrid electric, full electric, hydrogen powered vehicles or clean diesel - requires collaboration between business and government to develop the infrastructure in tandem with development of the technology. The economics of the product itself and ultimate market acceptance is very much dependent on the availability of the infrastructure to recharge or replenish the fuel. It's not realistic to expect a company to reinvent the technological underpinnings of the automobile unless there is a concurrent development and investment in the infrastructure to support that new technology vehicle. This is especially true in today's weakened global economy.

As the largest automotive market, and because the China government has the capacity and willingness to invest in the infrastructure for alternative propulsion, the technology

will eventually come to the market. When it does, the Chinese car companies will begin to close the gap relative to the industry leaders. What makes the development of alternative propulsion technology particularly challenging is not simply the vehicle itself—but the need for invention of the infrastructure for delivering renewable sources of electricity and installation of battery charging/replacement stations. As the largest car market, and the place with the largest need for alternative energy solutions, we can expect to see China place a heavy emphasis on development of the electric vehicle (EV) infrastructure. The country that leads the development of this infrastructure will undoubtedly lead in attracting the investment in development of the technologies that plug in to that infrastructure.

Consumer acceptance of new energy vehicles is yet another challenge. While the infrastructure investments already described will help tip the scales in favor of new energy vehicles, consumers must also be convinced that the price and performance of the new energy vehicle can in fact meet their expectations. As a national priority, we can expect the China government to help by offering

incentives for the retail consumer to purchase new energy vehicles. Chinese consumers have less experience with gasoline-powered cars, and are already accustomed to short distance, low-speed commuting—conditions very favorable for electric cars.

The China government's willingness to invest in the infrastructure to support alternative propulsion technology will ultimately help drive demand side market acceptance. This is where China has the opportunity to take the lead, and that will drive supply side investment in new technology. For the development of NEVs, the infrastructure must come first—and this will drive supply-side innovation. It takes a combination of business and government working together to make such a transformational change possible—and nowhere in the world is there a closer link between business and government than in China. Unlike the recent US government intervention that is occurring with no preconceived notion of the “end game”—China's policy makers have for many years been crafting the development plans for the auto industry. These plans are surely not perfect—but such plans come in handy when navigating a crisis.

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## RESHAPING THE AUTOMOTIVE BUSINESS MODEL

An unprecedented restructuring of the global automotive industry is underway. Several OEMs and suppliers have filed for Chapter 11 bankruptcy protection, and are in the process of restructuring and selling assets in order to regain a profitable footing. However, it would be misleading to lay the blame for the failure of these businesses on the global economic crisis. As described by this author in *General Motors: The Fall of An American Icon*, “the recent global economic crisis has accelerated the need for restructuring through bankruptcy”. The failure of automotive companies is the consequence of not transforming the 20th-century industrial paradigm to a 21st century global environment. It was never a question of whether the dominant auto giants of the 20th century auto industry would fail, but when they would fail. The global financial crisis merely exposed the fatal flaws that were already present in the industry.

The painful reality of globalization is that it is not a straightforward process. In order to become global, most automotive OEMs have attempted to export a business model optimized for their home market to their international locations. Migrating development capacities to markets that lack the competency to perform the work misses the entire point of globalization. Worse, the blind pursuit of cost efficiency has

resulted in many OEMs and first-tier suppliers outsourcing critical competencies that are necessary for differentiating the company’s products. Pursuing cheap parts or cheap labor is ultimately self-defeating when doing so robs an organization of its core competencies. Similarly, exporting a business model designed for the home market to foreign markets only serves to limit the ability of the organization to embrace the capabilities of the foreign market.

Automotive manufacturers in concert with their key stakeholders must redefine their business models for the new reality of 21st century competition. Going global is not a simple transplant of the current business model to a foreign location. It implies a transformation of the entire automotive value chain to leverage the opportunities made possible by globalized capabilities. It involves redesigning business processes across the value chain in order to deliver to the customer a brand with a relevant Unique Selling Proposition (USP). This will require that 21st century global auto companies fundamentally rethink their entire value chain from the consumer back through sales and service, production, supply and R&D. Key stakeholder groups, including the national governments with an interest in the global competitiveness of their domestic auto industry, must contribute to this development.

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## CHINA'S REVOLUTIONARY ROLE: THE CATALYST FOR TRANSFORMATION

While many may question whether China can take a leadership role in the transformation of the global auto industry, one cannot deny the influence that China has had on recent developments. The sheer size and growth of the China market has forced most companies to reprioritize their capital plans and resource allocation. The reallocation of production and supply resources to China has fundamentally changed the cost structure of the industry—which changes the entire competitive pricing game. China's increasing thirst for energy has created much price volatility in the energy and resource sector, which has a direct impact on consumer buying behavior. China's government policies and centrally planned economy have supported the creation of the infrastructure needed to stimulate both the supply and demand side of the auto business.

A catalyst is defined as “a person or thing that precipitates an event”. This is an appropriate characterization of China's role in the transformation of the global auto industry. In a globalized world, we will likely find that the transformation of the automotive business model may not be linked to any one company or country. Instead, successful 21st century companies will be the ones that can quickly adapt to the reality of globalization. One of the best non-automotive examples is Apple Corporation, a company that has

carefully deployed a business model that yields innovative products while leveraging the best and most cost effective capabilities from home and abroad. While many auto companies could argue that they are global, this fundamental Apple-style rethink of the entire value chain has really not occurred in the automotive context.

The emergence of China as the largest automobile market in the world is a significant event only in the sense that it causes the entire world to take notice of just how fast this economy is developing—and to also understand precisely how China is transforming the global auto industry. Rather than trying in vain to turn the clock back to the way things used to be, it would be wise to learn how to use these transformational forces to define a business model to leverage the capabilities which globalization makes possible.

### **Please Note:**

This is the third and final installment in a series about the developments occurring in the Chinese automotive industry.

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