

The automotive future: It's the law of the jungle



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Choices expand for vehicle buyers

When it comes to the global automotive industry, it's a jungle out there. And only the strongest, most agile players are likely to survive and thrive in the future.

Throughout the world, the industry is undergoing deep and fundamental change. A number of key factors are driving this change, including hyper-competition; the successful deployment of advanced, electronic business tools such as the Internet and computer modeling and simulation programs; the rapid emergence of new, modern economies and automotive markets such as China and India; significant production overcapacity; and the integration of the car business across the global community.

For the United States, the auto industry is an economic cornerstone. This reality makes the industry's current transformation particularly challenging for the nation. The typical job at an automotive manufacturer contributes more than \$300,000 of value to the economy, which is more than four times the impact generated by the average U.S. job. Additionally, every one of these jobs has an economic multiplier of 10.4. This means that the income from one U.S. job at an automaker supports a total of 9.4 other jobs. Such jobs exist at vehicle-supplier firms or elsewhere in the community.

Industry delivers high value for consumers

The good news is that the industry continues to perform remarkably well in providing value and excitement to consumers. Real prices for cars and trucks have fallen since the mid-1990s, which makes it very difficult to pass cost increases on to the consumer. This fact, coupled with increased consumer earning power, means that vehicle affordability is at an all-time high.

Historically, the auto industry has been cyclical, with high-volume sales years yielding high profitability, followed by low-volume years generating low profitability. Today, across the entire industry value chain, we have high sales volume but low profitability. One basic conclusion is that the industry's long-standing business model is broken and that fundamental restructuring is urgently needed.

Both manufacturers and their suppliers

are making major strides. The industry is much smarter today than it has been in the past. There is widespread application of vehicle-platform and component-set rationalization. Product development is faster and more effective, and manufacturing is much leaner, delivering enhanced flexibility and productivity. Processes are stronger and more disciplined, and most participants throughout the value chain have adopted lean systems. Yet, with global overcapacity, the industry must continue to reduce costs as a matter of survival.

Shifting to a new, 'lean-agile' business model

The old business model is in the process of being scrapped, and a new business model has begun to blossom. Automakers and suppliers are moving away from rigid bureaucracy; slow, paper-driven processes; lots of talk, but much less action; vertical integration; growth exclusively via acquisitions; and linear decision-making. Other elements of the traditional model also are declining: thinking regionally; responding to competition as the major business driver; employees expecting lifetime jobs; using many physical prototypes in the product-development process; relying on command-and-control management styles; and having leaders that often behave like kings.

The new, emerging model is unique in many respects. It is more paperless, with an emphasis on virtual rather than vertical integration. It is anti-bureaucratic, with more listening than talking. Real-time collaboration is fundamentally important, and systems and processes are not just lean, but "lean-agile." The focus is on the team, and trust and empowerment are vital. It is more globally integrated. Alliances often are preferred to acquisitions, and "co-opetition"—in which organizations both cooperate and compete with one another—is desirable and, in fact, encouraged. People now expect to have multiple careers with several different employers. Virtual prototypes are replacing physical prototypes, and new e-tools (like the Internet) are enabling a level of connectivity that previously was inconceivable. Leaders now more closely resemble coaches, rather than kings. The new model is significantly faster, and its adoption is critical to the industry's survival.



Great examples of the industry's new business model are evident today:

- **Ford and General Motors** are jointly developing a six-speed automatic transmission
- **Chrysler, Mitsubishi, and Hyundai** are cooperating to jointly produce a common, four-cylinder engine for applications worldwide
- Through mathematical simulation, GM has reduced by nearly 66% the cost of major body dies, which are used in forming fenders, hoods, and other vehicle components
- A group of tool-and-die companies, through collaboration, has reduced costs by more than 40%.

By using the principles, techniques, and approaches of the emerging business model, many automotive companies have achieved performance improvements of 10%, 20%, 30%—or more.

To succeed, industry players need complete makeover

The new concept of "lean-agile" often is misinterpreted as just a manufacturing strategy. In fact, lean-agile today applies to engineering, investment, manufacturing, and more—indeed to every part of the organization. A lean approach is necessary, but it must be accompanied by the ability to shift and adapt rapidly as circumstances change. Business risks decrease for companies with the most productive plants, the lowest-cost tooling, the most flexible manufacturing systems, the highest-performance product development and, finally, the most agile leadership.

What we are witnessing today can be related to the era of the late-'90s, and the interaction between the old economy and the new economy. We were enthralled with the idea of the new economy, as we embraced its knowledge-based technologies. Also, the old economy was, quite simply, just old. We then began to realize that the old economy was producing what we needed in order to survive: food, housing, cars, and much more. The real value of the new economy became clear, as it is merged with the old one to create a value economy. This shift clearly is happening at breakneck speed in the automotive industry.

The industry is being challenged as never before. Not every company will sur-

vive and prosper in the years ahead, and in fact, massive rationalization is well under way. In some cases, we have seen suppliers literally disappear; some manufacturers have consolidated into groups. Many companies are making a critical decision that, while market share is nice, profits are essential. They are downsizing to allow ever-higher levels of profitability, although it is often very difficult to reduce fixed costs.

Future outlook: A dynamic industry with consumers in charge

For the foreseeable future, the consumer will be in charge of the market. Competition will remain intense, as choices expand for vehicle buyers. Market growth certainly will occur in developing world markets. However, mature markets, which grew slowly in the past, could accelerate once again. We also will see the fast-paced introduction of new technology. It is possible that automakers will change model body designs annually, so what is new and what is old will be easily recognizable. The automotive world of the near future likely will be highly dynamic, where the benchmarks for world-class performance and world-class products will be fast-moving targets.

As consolidation continues, fewer companies and groups of companies will exist. Automotive suppliers will create and deliver many more complete vehicle subsystems and systems. In addition, super-suppliers at both the Tier 1 and Tier 2 levels are likely to take on significantly higher levels of responsibility. Being lean and agile will become increasingly important as success factors. To survive and thrive, you will need to be fast, smart, rich, and global and, of course, a leader in the technology revolution and very good at collaboration.

We expect the future to be very positive for the automotive industry, as it continues to deliver high-value cars and trucks. We believe it will be an exciting industry, but we also know that the definition of excitement can depend on the circumstances. The golfer who makes a hole-in-one is very excited; so is a person being chased by someone with a gun and a knife. We probably will witness both types of excitement for some time to come in this industry. **aei**



"Co-opetition" a route to success



Manufacturing multiplier effect



Modeling and simulation advances



Growth in systems supply