

Global Business Development of Hitachi Automotive Systems

Yuzo Kadomukai, Dr. Eng.

Tomiya Itakura

Takayoshi Komai

Jumpei Komatsu

AUTOMOTIVE SYSTEM BUSINESS ENVIRONMENT

THE global vehicle market is expected to maintain strong annual growth of 3.2% by volume over the period between 2012 and 2020 (see Fig. 1).

By region, 0.8% annual growth in mature markets is predicted to be accompanied by annual growth of 5.5% in emerging regions, which are expected to account for 58% of global production by volume in 2020, up from 48% in 2012 and a forecast of 53% in 2015.

By vehicle segments, the proportion of small vehicles is expected to rise from 62% in 2012 to 65% in 2020. By power train, production of electric drive systems such as hybrid electric vehicles (HEVs) or electric vehicles (EVs) is expected to increase by 14.7% annually between 2012 and 2020. Despite this, growth in production of vehicles with conventional petrol or diesel internal combustion engines (ICEs) is also expected to grow strongly, and to still account for 94% of total volume by 2020.

Meanwhile, environmental regulations, safety testing standards, and other regulatory requirements are being strengthened around the world (see Fig. 2). Stronger combustion and exhaust gas regulations are also being adopted for things like carbon dioxide (CO₂), nitrogen oxides (NO_x), and particulates, with standards in emerging regions expected to rise to levels similar to those in mature markets. At the same time, rules on vehicle safety testing are being tightened and extended to include pedestrian safety as well as vehicle collision avoidance.

Amid these developments, Hitachi operates globally to meet the needs of vehicle manufacturers who are grappling with environmental and safety technology while also seeking to expand their businesses in growing emerging regions.

OVERVIEW OF HITACHI AUTOMOTIVE SYSTEMS

In a push to become a major global player in the automotive system business, Hitachi Automotive

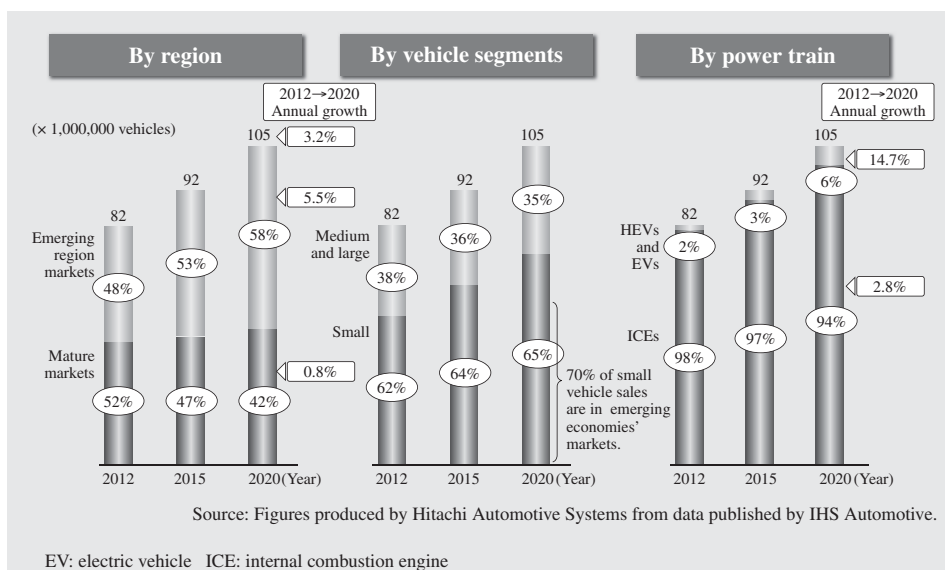


Fig. 1—Forecast Global Vehicle Production 2012–2020.

By market and vehicle type, strong growth in production volumes is anticipated in emerging regions (including Asia and South America) and small vehicles. By power train, while production of electric vehicles is expected to increase significantly, it is forecast that vehicles with ICEs will still account for 94% of production in 2020.

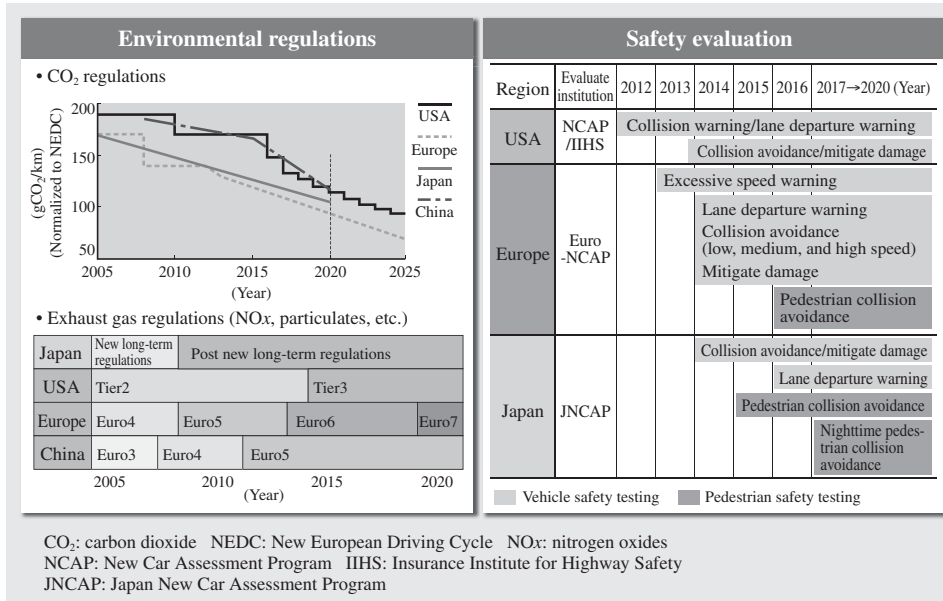


Fig. 2—Changes to Environmental Regulations and Safety Testing Standards. Stronger environmental (combustion and exhaust gas) regulations are being adopted for things like CO₂, NO_x, and particulates. Meanwhile, rules on vehicle safety testing are being tightened and extended to include pedestrian safety as well as vehicle collision avoidance.

Systems, Ltd. is transforming itself into an organization with a global market focus in which business decisions and operations take place closer to the market. Its business operations cover a wide range, including environmental products, such as engine management systems and hybrid systems; safety products, such as stereo cameras, suspensions, and brakes; information products, such as the car navigation systems from Clarion Co., Ltd.; and industrial machinery (see Fig. 3).

Since the global financial crisis that struck in the fall of 2008, Hitachi Automotive Systems, Ltd. has undergone a business restructuring that has included the rationalization of fixed costs as it sought to enhance its Monozukuri manufacturing capabilities and build

an organization based on global earnings management. These efforts have been underpinned by the basic policies of a self-driven, earnings-focused management approach; faster decision making; a shift to a business structure suitable for global markets; and new integrated management of the company that transcends the boundaries within the organization. In addition to the adoption of a regional headquarters structure for overseas operations in FY2011, the company has also accelerated its shift to global operations through initiatives such as expanding its activities in emerging economies, establishing a global sales organization, strengthening research and development, standardizing manufacturing practices globally, implementing operational reforms, and developing staff.

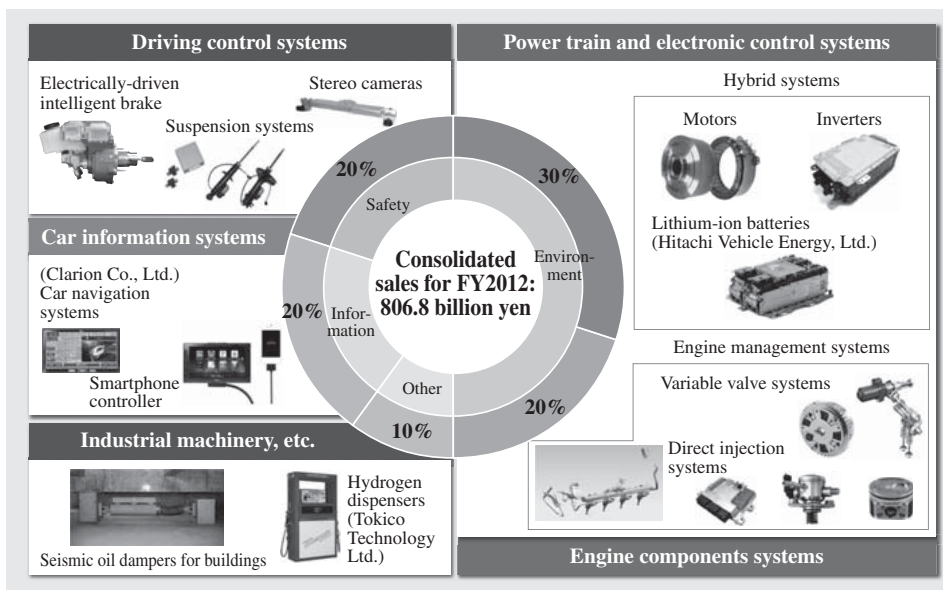


Fig. 3—Overview of Hitachi Automotive Systems, Ltd. FY2012 sales were 806.8 billion yen, of which the environmental sector contributed approximately 50%, safety approximately 20%, information approximately 20%, and industrial machinery approximately 10%.

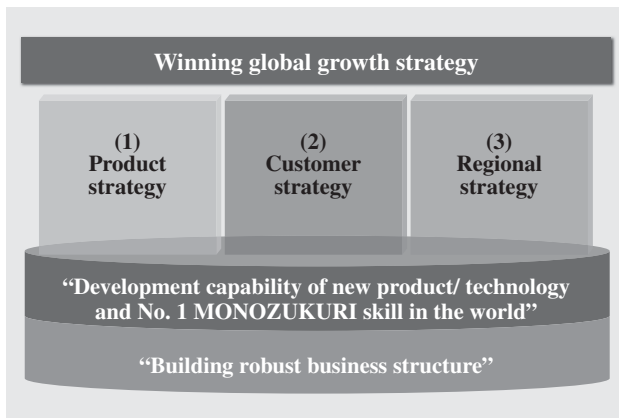


Fig. 4—Global Growth Strategy.

On the basis of three growth strategies focusing on products, customers, and regions, Hitachi is working on building a robust business structure, and on strengthening its manufacturing capabilities and the new product and new technology development capabilities that support these strategies.

IMPLEMENTATION OF GLOBAL GROWTH STRATEGY

The three pillars of Hitachi's global growth strategy are products, customers, and regions. The product strategy is based on offering next-generation environmental and safety systems that contribute to society. The customer strategy involves strengthening Hitachi's ability to support automotive manufacturers as they move toward globally standardized vehicle platforms and power trains. The regional strategy, meanwhile, uses a "local production for local consumption" business model as the basis for growth.

To provide the business infrastructure to support this strategy, Hitachi is seeking to implement policies of "building a robust business structure" and "development capability of new product/technology and No. 1 MONOZUKURI skill in the world" (see Fig. 4).

The development of new products and technologies is the basis of growth. To this end, Hitachi's plans include acceleration of the implementation of projects managed directly from global headquarters; these projects will form the core of future business activities, while also utilizing key Hitachi technologies and involving joint research with universities outside Japan. To boost its ability to develop vehicle systems, Hitachi also intends to improve actual vehicle/machine testing environments by setting up and using resources such as engine test beds and test tracks (see Fig. 5).

The following sections describe the specific actions planned for various aspects of the global growth strategy.



Fig. 5—Winter Performance Testing at Tokachi, Hokkaido, in Japan.

Ongoing vehicle testing is conducted under a variety of environmental conditions at test tracks in Japan and elsewhere under different weather conditions and terrains.

PRODUCT STRATEGY BASED ON NEXT-GENERATION ENVIRONMENTAL AND SAFETY SYSTEMS THAT CONTRIBUTE TO SOCIETY

As advances in environmental and safety technology lead to larger and more complex systems, the importance of "electronic and motorized" technology (meaning the use of electronic control systems and electric motors) is growing. As part of this trend, automotive products suppliers with expertise in this "electronic and motorized" technology are taking on broader development responsibilities.

Hitachi is placing particular emphasis on the development of next-generation systems that contribute to society in the environmental and safety areas. Hitachi is also continuing to increase the proportion of products that incorporate electronics, and is globally standardizing products that have a core role in the system.

In this way, things like safety improvements and the regional optimization of energy management are facilitated through use of information technology for integration with social infrastructure (see Fig. 6).

CUSTOMER STRATEGY BASED ON MEETING NEEDS GLOBALLY

As they expand their operations in emerging regions, automotive manufacturers seek to achieve competitiveness by standardizing global platforms and pursuing economies of scale. In response to this trend, Hitachi Automotive Systems, Ltd. established new regional headquarters in 2011 to provide customers in each region with a single point of contact and establish

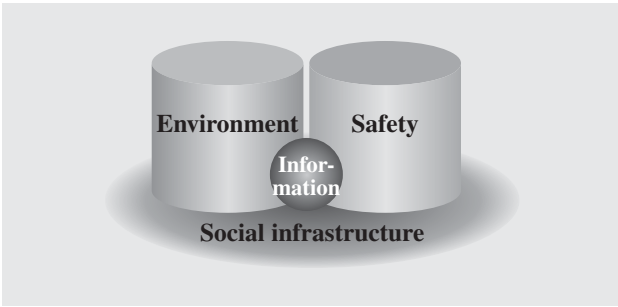


Fig. 6—Hitachi Automotive Systems, Ltd. Businesses. In addition to focusing on development in the environmental and safety sectors, Hitachi is also seeking to use information technology for integration with social infrastructure.

a structure that allows the business to be optimized in terms of customers and regions.

In response to the accelerating globalization of automotive manufacturers, Hitachi moved to full-scale deployment of global account manager (GAM) and global account team (GAT) activities in 2012 to meet customer needs in ways that span regional and national borders. Specifically, GAMs act as leaders for business inquiries that relate to production facilities in different regions or countries. In this case, the GAM sets up a cross-regional GAT to deliver the best technologies, products, and solutions while maintaining a shared awareness of the sales growth strategies and other information relating to the customer, the automotive manufacturer.

A new sales engineering department was also set up in 2011 to boost the company’s capacity for

collecting and analyzing the increasingly complex and diverse needs of customers, and to strengthen its ability to propose solutions based on consideration of both the needs of the customer and the resources of the company.

REGIONAL STRATEGY BASED ON MAKING GREATER USE OF “LOCAL PRODUCTION FOR LOCAL CONSUMPTION”

In response to the globalization of the automotive industry, Hitachi is accelerating its expansion into emerging regions. In addition to operating facilities around the world, it is also expanding the scale of its business operations outside Japan.

As part of this approach, the regional headquarters manage their respective regions with the aims of achieving speedier management through faster and local decision-making, and operating their businesses in ways that are deeply integrated with the local region and well-adapted to its characteristics and other needs.

Specifically, Hitachi has established a global business structure based on a “five key regions operation,” the five regions being Japan, which has a global corporate role, the regional headquarter of US, and the respective headquarters for China, Asia, and Europe (see Fig. 7). This regionally based management structure means that businesses are operated locally, including among other things the increasing assignment of local managers to senior management roles at the regional headquarters.

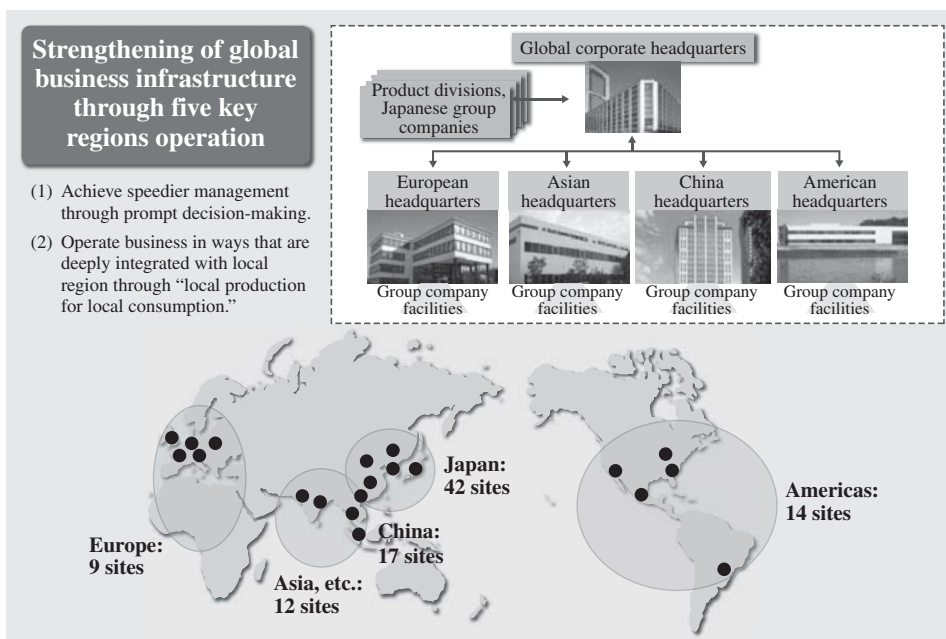


Fig. 7—Five Key Regions Operation and 94 Sites Located throughout the World. Hitachi is working toward “local production for local consumption,” with an organizational structure based on five key regions. These consist of the regional headquarters in the Americas, China, Asia, and Europe, and the global corporate headquarters in Japan.

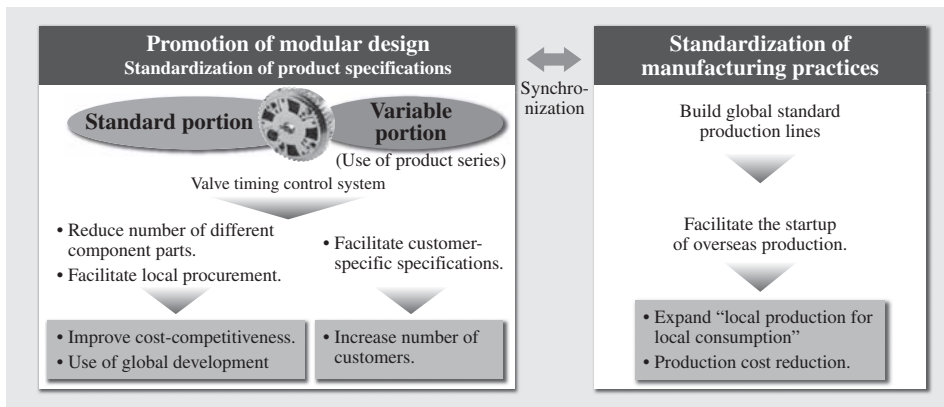


Fig. 8—Global Standardization of Products and Manufacturing Practices.

By combining use of modular design with the standardization of manufacturing practices, Hitachi is seeking to speed up the shift to “local production for local consumption” and cut production costs.

Hitachi Automotive Systems, Ltd. operates 94 sites around the world, with the number of production facilities located in emerging regions increasing from 19 in FY2008 to 23 in FY2011 (with new facilities having been opened in China, the Czech Republic, and India) and 27 in FY2012 (including the establishment of new subsidiaries in China, India, and the United Mexican States). Meanwhile, Hitachi is also considering setting up new operations in countries where it currently has sales staff stationed, including the Federative Republic of Brazil, the Russian Federation, and the Republic of Indonesia.

STRENGTHENING BUSINESS INFRASTRUCTURE FOR GLOBAL GROWTH

Adoption of Global Organizational Structures for Functional Departments

To speed up decision-making and to optimize and manage its global operations, Hitachi Automotive Systems, Ltd. has reorganized its functional departments, which include manufacturing, information systems, material procurement, and quality assurance.

In the case of quality assurance departments, the global corporate division is responsible for governance and formulating overall policy while the departments based at factories in Japan and elsewhere have responsibility for achieving the Key Performance Indicators (KPIs), such as those that deal with daily production activities. As part of this, Hitachi has set up a global quality assurance committee made up of members representing each region. The committee works with the quality assurance departments at the regional operating companies to strengthen global governance.

Hitachi has also introduced a Global Quality and Incident information Control system (G-QUICs) for quality innovation; the system centralizes quality, customer, and other information so that it can be shared at a global level and actions implemented quickly.

Global Standardization of Products

In its manufacturing activities, Hitachi is utilizing modular design and working toward the standardization of production technology to help deliver products in a timely manner that meets customer needs at a competitive price and quality (see Fig. 8).

By increasing the extent to which products follow standardized specifications, modular design helps minimize the number of different component parts and facilitates the use of local procurement and production. In order to standardize production technology, meanwhile, scalable low-cost production lines are being developed that can keep pace with the growth in emerging region markets. Mechanisms are also being put in place to facilitate the establishment of overseas production systems. The objectives of these two measures are to make significant cuts in production costs and to expand the use of “local production for local consumption” at production facilities located in the markets they serve.

Hitachi has also established new production equipment divisions in Japan, the USA, and China so that it can increase the in-house and local production of equipment based on the “Global One Design” approach.

Operational Reforms

Restructuring operations to suit global business practices is essential to achieving optimal production at international facilities that take orders from corporate customers located around the world.

To accomplish this, Hitachi is working on reforms that extend beyond just its global production management and encompass all business processes, including development, design, production engineering, procurement, and sales. One example is how the use of high-speed simulation systems has significantly reduced the time needed to prepare production plans.

To strengthen production management at the global level, Hitachi has also set up the new Global Production Control Center (GPCC). This organization has the job of establishing rules and other mechanisms for optimal global production and getting them adopted at all facilities within the group.

Global Human Resource Development

Along with the expansion of its production facilities around the world, Hitachi also set up the Global MONOZUKURI Center in 2012 to strengthen its capabilities, including global production engineering and equipment maintenance. It has also adopted human resource development initiatives, including expanding its program for bringing key personnel from its overseas operations to Japan for training. This offers long-term postings at Japanese facilities, not only to senior personnel such as local factory managers and executives, but also to mid-level staff from departments such as design, production engineering, procurement, sales, and planning.

Other initiatives currently in progress include global grading and the use of a global personnel database set up by Hitachi for the flexible recruitment of senior staff from across the group.

CREATING NEW VALUE FOR PEOPLE, VEHICLES, AND SOCIETY

This article has described the main measures being adopted in the global operations of Hitachi Automotive Systems, Ltd. Through these measures, Hitachi is meeting customer needs by responding appropriately to the progressive globalization of the automotive industry. Hitachi is also putting effort into enhancing its brand, including promoting its leading edge technologies through activities such as its sponsorship in the IndyCar Series and exhibits at motor shows around the world.

The Hitachi Automotive Systems group intends to work together and exhibit teamwork, and to continue contributing to the realization of a prosperous society through the creation of new value for people, vehicles, and society, with customer satisfaction at the forefront.

ABOUT THE AUTHORS



Yuzo Kadomukai, Dr. Eng.
Strategic Business Management Division, Hitachi Automotive Systems, Ltd. He is currently engaged in strategy planning for the automotive systems business. Dr. Kadomukai is a member of the Society of Automotive Engineers of Japan (JSAE).



Tomiya Itakura
Strategic Business Management Division, Hitachi Automotive Systems, Ltd. He is currently engaged in management strategy for the automotive systems business. Mr. Itakura is a member of the JSAE.



Takayoshi Komai
Business Planning Department, Strategic Business Management Division, Hitachi Automotive Systems, Ltd. He is currently engaged in management planning for the automotive systems business.



Jumpei Komatsu
Business Planning Department, Strategic Business Management Division, Hitachi Automotive Systems, Ltd. He is currently engaged in management planning for the automotive systems business.