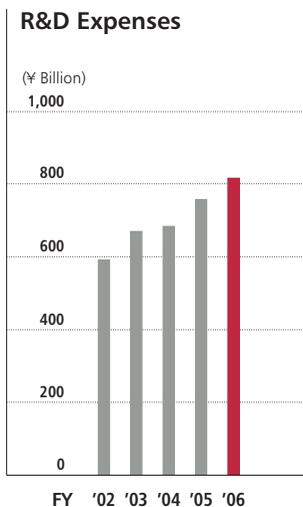


## R&D and Intellectual Property

Based on guiding principles that call on us to “dedicate ourselves to providing clean and safe products and to enhancing the quality of life everywhere through all our activities” and “create and develop advanced technologies and provide outstanding products and services that fulfill the needs of customers worldwide,” we actively pursue R&D in order to offer high-quality, low-cost products with enhanced appeal that accurately reflect increasingly diverse and advanced demand. Viewing intellectual property created by R&D as a key management resource, Toyota uses it to contribute to its business activities.

### R&D Policy



Every year, Toyota actively advances R&D based on the belief that technological capabilities are the source of automobile manufacturers’ forward-looking enhancement of competitiveness. In fiscal 2006, Toyota’s R&D expenses increased 7.6% year on year, to ¥812.6 billion, which represents 3.9% of consolidated net revenues. Toyota’s high R&D expenses in recent years have resulted from stepped-up prior investment in R&D for the introduction of new-model vehicles, environmental technology, safety technology, and other initiatives.

At Toyota, we are convinced that continuous investment in research is needed to maintain the competitive superiority of products and technologies in a worldwide automobile industry that will likely see intensified technology competition. Against that backdrop, the Company realizes efficient, advanced R&D activities that underpin the creation of high-quality, appealing products through close integration and coordination among three R&D phases—basic research, forward-looking technology development, and product development. Toyota controls research expenses appropriately by undertaking regular evaluations and reviews, in light of consultations with external parties, of such long-term basic research themes as energy, the environment, information technology and telecommunications, and materials. The Company also pursues efficient investment in forward-looking technology development and product development through the establishment of clear investment standards for each project.

<b>Basic Research Phase:</b>	<b>Development theme discovery</b> Research on basic vehicle-related technology
<b>Forward-Looking Technology Development Phase:</b>	<b>Technological breakthroughs related to components and systems</b> Development of leading-edge components and systems ahead of competitors
<b>Product Development Phase:</b>	<b>Primary responsibility for development of new-model vehicles</b> Development of new-model vehicles and upgrading of existing vehicles

### R&D Organization

In Japan, Toyota Central Research & Development Laboratories, Inc., mainly conducts Toyota’s R&D activities. Also, Toyota Group companies, including Daihatsu Motor Co., Ltd., Hino Motors, Ltd., Toyota Auto Body Co., Ltd., and Kanto Auto Works, Ltd., advance product development in close collaboration with Toyota’s R&D. Further, Toyota is constructing a global development organization. We have established technical centers in North America, Europe, Asia, and Oceania in order to build cars that cater accurately to customer needs in respective regions. In addition to those centers, we have also created design and motorsports R&D bases in respective regions.

## R&D Activities

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The overriding goal of Toyota's technology and product development is to create advanced vehicles that enrich the lives of people by minimizing the negative aspects of cars, such as environmental burden and traffic accidents, while maximizing the positive aspects, such as driving pleasure and comfort.

In the development of safety technology, Toyota continues energetic development of active safety and passive safety technologies. For example, we were the first to commercialize a pre-crash safety system with a driver monitoring function that recognizes which direction the driver is facing. Further, we added active steering functions to our existing VDIM (Vehicle Dynamics Integrated Management) system and commercialized a new VDIM system that enhances the active safety performance and dynamic performance of vehicles. In addition, aiming to realize outstanding passenger protection, we launched the world's first SRS two-chamber airbag, which features an innovative shape and is based on the omni-support concept.

In the development of environmental technology, we continue to take wide-ranging measures aimed at reducing the burden vehicles place on the environment throughout their life cycles. The Company has commercialized a hybrid system specifically for use in newly developed FR passenger cars. And, we have developed the world's first pre-paint vehicle surface treatment agent that reduces the creation of substances of environmental concern. Also, Toyota is moving forward with the development of fuel cell vehicles—strong contenders to become the ultimate eco cars. Fitted with new in-house-developed, high-pressure hydrogen tanks, the latest Toyota FCHV became the first fuel cell vehicle in Japan to receive vehicle-type approval, and we have begun limited leasing of the vehicles.

## Intellectual Property

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A consistent willingness to continue taking on R&D challenges ahead of competitors to heighten product appeal and technological capabilities has been the source of Toyota's competitiveness. Because expertise and inventions always underpin products created through such R&D initiatives, intellectual property is one of Toyota's key management resources. In the past several years, our steady efforts to protect the achievements of vigorous development activities centered on the environmental and safety fields have led to an increase in the number of patents that we hold.

Using intellectual property as a management resource, we consider such factors as securing degrees of freedom in operational activities, contributing to business activities that enhance competitiveness, and promoting the spread of beneficial technologies that contribute to Sustainable Mobility\*. Based on that approach, we basically have an open licensing policy and offer intellectual property under appropriate conditions.

\* "Sustainable Mobility" is defined by WBCSD (World Business Council for Sustainable Development) as "the ability to meet the needs of society to move freely, gain access, communicate, trade, and establish relationships without sacrificing other essential human or ecological values today or in the future."

### R&D Facilities



Toyota Technical Center  
(Toyota City, Aichi Prefecture, Japan)



TEMA (Ann Arbor, Michigan, U.S.A.)



TME-RDM (Zaventem, Belgium)

Note: Please see the R&D Organization section on page 132 for full names.