R&D and Intellectual Property

Toyota R&D is dedicated to the development of attractive, affordable, high-quality products for customers worldwide. The intellectual property that R&D generates is a vital management resource that Toyota utilizes and protects to maximize its corporate value.

R&D Guiding Principles

- **Providing clean and safe products and enhancing the quality of life of people everywhere through all our activities.**
- **Pursuing advanced technological development in a wide range of fields, we pledge to provide attractive products and services that respond to the needs of customers worldwide.**

R&D Activities

The overriding goal of Toyota's technology and product development activities is to minimize the negative aspects of driving, such as traffic accidents and the burden that automobiles have on the environment, and maximize the positive aspects, such as driving pleasure, comfort, and convenience. By achieving these sometimes conflicting goals to a high degree, we want to open the door to the automobile society of the future.

To ensure efficient progress in R&D activities, we coordinate and integrate all phases, from basic research to forward-looking technology and product development. With respect to such basic research issues as energy, the environment, information technology, telecommunications, and materials, projects are regularly reviewed and evaluated in consultation with outside experts to achieve efficient R&D cost control.

And with respect to forward-looking, leading-edge technology and product development, we establish cost-performance benchmarks on a project-by-project basis to ensure efficient development investment.

Basic research
Development theme discovery
Research on basic vehicle-related technology
Forward-looking and leading-edge technology development

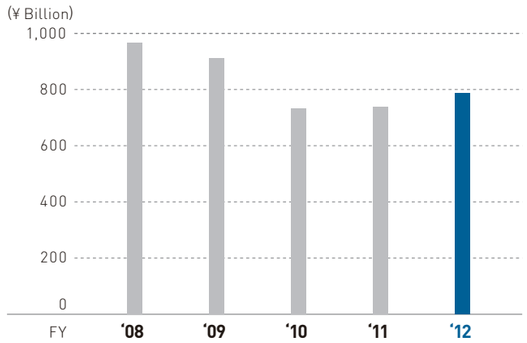
Technological breakthroughs related to components and systems
Development of leading-edge components and systems ahead of competitors

Product development
Primary responsibility for new model development
Development of all-new models and existing-model upgrades

R&D Expenditures

In fiscal 2012, R&D expenses totaled ¥779.8 billion, up 6.8% from the previous fiscal year, representing 4.2% of consolidated net revenues. We worked closely with suppliers to develop components and products more efficiently and took steps to reduce our own R&D expenses. At the same time, we plan to continue making substantial investments in R&D involving forward-looking, leading-edge technologies and the development of products associated with the environment, energy, and safety. These investments are essential to preserving our competitive edge in terms of technologies and products.

R&D Expenses



R&D Organization

Toyota operates a global R&D organization with the primary goal of building automobiles that precisely meet the needs of customers in every region of the world.

In Japan, R&D operations are led by Toyota Central Research & Development Laboratories, Inc., which works closely with Daihatsu Motor Co., Ltd., Hino Motors, Ltd., Toyota Auto Body Co., Ltd., Toyota Motor East Japan, Inc., and many other Toyota Group companies. Overseas, we have a worldwide network of technical centers as well as design and motorsports R&D centers.

Domestic and Overseas R&D Bases

Facility Name	Activities	Location
Japan		
Head Office Toyota Technical Center	Product Planning, Design, Vehicle Engineering and Evaluation	Toyota City, Aichi Prefecture
Higashi-Fuji Technical Center	Advanced Engineering	Mishuku, Susono City, Shizuoka Prefecture
Tokyo Design Research & Laboratory	Research of Advanced Styling Designs	Hachioji City, Tokyo
Shibetsu Proving Ground	Vehicle Testing and Evaluation	Onnebetsu, Shibetsu City, Hokkaido
Toyota Central Research & Development Laboratories, Inc.	Basic Research	Nagakute City, Aichi Prefecture


Head Office Toyota Technical Center


Higashi-Fuji Technical Center


Tokyo Design Research & Laboratory


Shibetsu Proving Ground


Toyota Central Research & Development Laboratories, Inc.

R&D and Intellectual Property

Facility Name	Activities	Location
USA		
Toyota Motor Engineering & Manufacturing North America, Inc.	Product Planning, Vehicle Engineering and Evaluation, Basic Research	Ann Arbor, Michigan Torrance, California Wittman, Arizona
Calty Design Research, Inc.	Design	Newport Beach, California Ann Arbor, Michigan


Toyota Motor Engineering & Manufacturing North America, Inc.


Calty Design Research, Inc.

Europe		
Toyota Motor Europe NV/SA	Vehicle Engineering and Evaluation	Brussels, Belgium Derby, U.K
Toyota Europe Design Development	Design	Nice, France
Toyota Motorsport GmbH (TMG)	Development for Motorsport Vehicles, Advanced Engineering	Germany


Toyota Motor Europe NV/SA


Toyota Europe Design Development


Toyota Motorsport GmbH (TMG)

Asia Pacific		
Toyota Motor Asia Pacific Engineering and Manufacturing Co., Ltd.	Vehicle Engineering and Evaluation	Samutprakarn Province, Thailand
Toyota Technical Center Asia Pacific Australia Pty., Ltd.	Vehicle Engineering and Evaluation	Melbourne, Australia
Toyota Motor Engineering and Manufacturing (China) Co., Ltd.	Basic Research, Technical Research and Vehicle Evaluation	China


Toyota Motor Asia Pacific Engineering and Manufacturing Co., Ltd.


Toyota Technical Center Asia Pacific Australia Pty., Ltd.

Toyota Motor Engineering and Manufacturing (China) Co., Ltd.

▶Additional details available at Click HERE

Intellectual Property Guiding Principle

- **Securing greater corporate flexibility and maximizing corporate value through the appropriate acquisition and utilization of intellectual property.**

Intellectual Property Activities

Toyota's competitiveness springs from the forward-looking R&D stance that is instrumental to core strengths associated with products and technologies. Underlying each new product that emerges from R&D, there are always intellectual properties such as inventions and expertise that we value as important management resources.

Intellectual Property Systems

R&D and intellectual property activities are organizationally linked to enable us to focus on selected development themes and build a strong patent portfolio. We have established an Intellectual Property Committee made up of individuals involved with management, R&D, and intellectual property. This committee acquires and utilizes important intellectual property that contributes to business operations and helps determine policies for management risks associated with intellectual property.

Intellectual Property Strategies

Toyota carefully analyzes patents and the need for patents in each area of research to formulate more effective R&D strategies. We identify R&D projects in which Toyota should acquire patents, and file relevant applications as necessary to help build a strong global patent portfolio. In addition, we want to contribute to sustainable mobility by promoting the spread of technologies with environmental and safety benefits. This is why we take an open stance to patent licensing, and grant licenses when appropriate terms are met. A good example of this policy is the licensing to other companies of patents in the area of hybrid technology, which is one of our core technologies involving environmental energy.