

**TOYOTA**

TOYOTA MOTOR CORPORATION

# Annual Report

# 2019

## Annual Report 2019

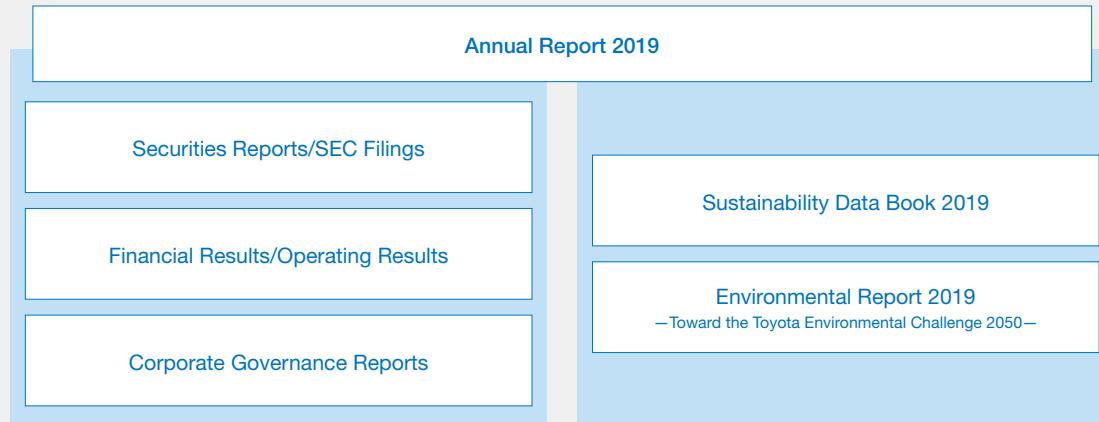
Fiscal year ended March 31, 2019

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The Annual Report 2019 is intended to communicate to stakeholders Toyota's long-term strategies for enhancing its corporate value and the ways that it is contributing to the sustainable development of society. More detailed information on Toyota's ESG-related initiatives is published in the *Sustainability Data Book 2019*.

(Published December 2019)

## Toyota's Reports and Publications

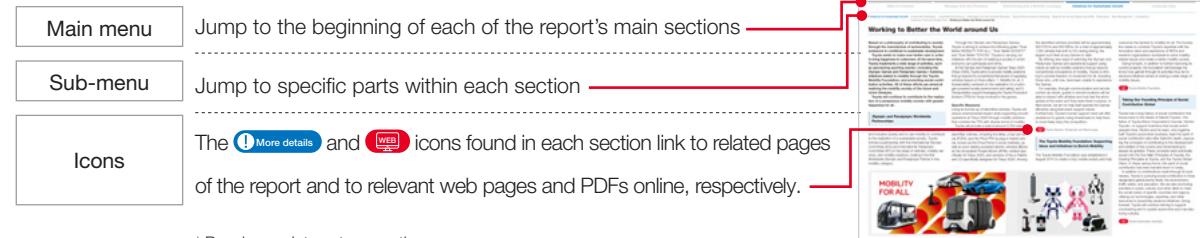


\* Toyota also publishes information on business and sustainability initiatives not included in the above reports and publications via its official website.  
 Investors <https://global.toyota/en/ir/>  
 Sustainability <https://global.toyota/en/sustainability/>

**Period Covered:** Fiscal 2019 (April 2018 to March 2019) Some of the initiatives in fiscal 2020 (April to November) are also included  
**Scope of Report:** Toyota Motor Corporation (TMC)'s own initiatives and examples of those of its domestic and overseas consolidated affiliates, and so on.

## About the PDF

This file is an interactive PDF and can be navigated by clicking on the following elements.



\* Requires an Internet connection.

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## Message from the President

# Reforming Our Company to Become a “Mobility Company”

Toyota's growth to date is within the established business model of the automotive industry. In light of technological innovations in “CASE,”\* the very concept of the automobile is on the verge of major change. Given this situation, we must transform our business model into one that is in line with the CASE era.

## Transforming the Business Model for the CASE Era

As we make changes to our business model, it is crucial that we go back to the basics, that is, our roots, to re-examine the role Toyota should play and consider how we should proceed, for example, in the advancement in electrification. Given that people can only contribute to the environment when eco-friendly technologies are widely used, we realized that we need to embrace fresh ideas and new ways of thinking.

Therefore, rather than focus solely on passenger cars and individual customers, we can spread these technologies via commercial vehicles and vehicles for government offices and fleet customers. Rather than conduct development on our own—without friends and partners—we can partner and collaborate with others who share our aspirations. Rather than keep our patents to ourselves, we can open them up and create more new friends. Rather than sell only cars, we can provide various services in which vehicles are incorporated into a system and focus more broadly and openly on contributing to the improvement of society.

In other words, we recognized that the path to a new business model could only be reached by transforming our ways of thinking.

From now, information will link all items and services that support people's daily lives. Considering this, we will strive to adopt a broad, community-level and society-level perspective that includes cars, which in essence is the concept of the “connected city.”

In May 2019, we reached an agreement with Panasonic Corporation toward the establishment of a new joint venture to advance “town development” with the shared goal of creating new lifestyle value for communities as a whole. Building on the housing businesses of both companies, we are dedicated to the challenge of providing new kinds of lifestyles by bringing together the strengths of Toyota, with its vehicle and connected businesses, and Panasonic, with its home appliance, battery, and IoT businesses.



\* CASE refers to the new areas of “Connected,” “Autonomous/Automated,” “Shared,” and “Electric.”

## Message from the President



### Toward a Future Centered on People

From the perspective of the connected city, it is clear that Toyota will not be able to survive the coming era on our own, nor just by focusing solely on cars. We need “friends” with whom we can pool our strengths to mutually strengthen our competitiveness. At the same time, alongside the development of CASE technologies, automation is gradually advancing across society.

In this era of “making friends,” namely building alliances, and this era of automation, I believe that insights into how we can battle for survival in this era can be found in the Toyota Production System (TPS), Toyota’s very bedrock.

Toyota’s roots extend back to the automatic loom invented by Sakichi Toyoda. The greatest feature of this loom was that it would automatically stop if a single thread broke. I see in this the origin of not only Toyota’s dedication to preventing the production of defective products, but also our belief that we should not make people into mere machine overseers. At Toyota, we call this approach “intelligent automation,” or “automation centered on people.”

Kiichiro Toyoda, who launched automobile production, added the idea of making only what is needed, when it is needed, and in the amount needed to the idea of automation with people. This approach, which we call “Just-in-Time,” amounts to the ultimate in sincerely anticipating and fulfilling customer needs, staying just a bit ahead of their expectations.

These two concepts—automation with people and Just-in-Time—are the pillars of the TPS. What both have in common is that people are at the center.

I believe that the more automation advances, the more the ability of the people using it will be put to the test. Machines cannot improve unless people do, too. Developing people with skills that can equal machines and senses that surpass sensors is a fundamental part of Toyota’s approach.

In addition, the crucial factor in making friends is people. In other words, effective partnerships and alliances are not necessarily formed by the logic of capital or numbers. Only through connections formed between people who share aspirations, understanding, and trust can we create the future together.

## Message from the President



### Unwavering Commitment to the Development of Our People

Toyota believes that “*monozukuri* (manufacturing) is about developing people.” This philosophy has always served as the basis of how we develop our people. As we enter this once-in-a-century period of profound transformation, I believe we should renew once again our focus on the effective development of our people.

This autumn, in a message to employees, I spoke about two key strengths that will be indispensable to surviving in the coming era.

The first strength is a “competitiveness unique to Toyota,” which is TPS and our ability to refine costs while relentlessly pursuing the ideal balance between quality and cost. The leaders of Toyota including Kiichiro Toyoda worked earnestly to build ever-better cars with the desire to serve our society, our customers, and someone other than ourselves. A constant *Kaizen* (continuous improvement) mindset is the spirit of TPS itself, and represents the values that Toyota has long treasured. Regaining these values is what I see as corporate culture reform, reform that will obliterate the “concept of non-crisis,” I believe.

The second strength, “compassion,” is the ability to understand and respect the positions and thinking of others and to get them on board. At the meeting, I spoke about the Five Main Principles of Toyoda and called for a return to the spirit of Toyota’s founding. This is because I believe that these main principles exemplify the compassion and strength of character necessary to survive the coming era.

People who possess these two strengths—competitiveness unique to Toyota and compassion—are best developed in front-line operations. To equip ourselves for the transformational period in which we find ourselves, we will therefore return to “prioritizing real-world” experiences at the *genba* (on the front lines), and putting our fullest efforts into developing the people who will build the future.

I hope you will look forward to the future of Toyota, and I ask for your continued confidence and support.

December 2019

Akio Toyoda

President, Member of the Board of Directors

Toyota Motor Corporation

# Recent Initiatives

**Technological innovations known as CASE\* are on the verge of changing the very concept of the automobile. In response, Toyota aims to completely redesign itself from a primarily manufacturing-based company into a mobility company that provides a full spectrum of services related to mobility. In this time of change, we are working to further hone our real-world competitiveness as a car-making company while seeking partners who share our aspirations to advance innovative new initiatives.**

\* CASE: Connected, Autonomous/Automated, Shared, and Electric.

Overall Businesses		Complete Redesign Declaration																		
		Jun.	Nov.	May	Jul.	Sep.														
		<ul style="list-style-type: none"> <li>Reached a basic agreement with DENSO to consolidate their electronic component operations at DENSO</li> <li>Reached a basic agreement with Toyota Tsusho to consider the transfer of all sales and marketing operations in African markets to Toyota Tsusho</li> </ul>	<ul style="list-style-type: none"> <li>Reached an agreement to transfer the van business to Toyota Auto Body</li> </ul>	<ul style="list-style-type: none"> <li>Reached an agreement with Panasonic to establish a joint venture related to the town development business</li> </ul>	<ul style="list-style-type: none"> <li>Decided to bring forward to May 2020 a plan to make all vehicle models available through all sales outlets in Japan</li> </ul>	<ul style="list-style-type: none"> <li>Reached an agreement with Subaru on a new business and capital alliance</li> </ul>														
Car Making		<ul style="list-style-type: none"> <li>Launched the new Century model in Japan</li> <li>Launched the new connected vehicle Crown and Corolla hatchback models with onboard data communication modules as a standard feature in Japan</li> </ul>	<ul style="list-style-type: none"> <li>Launched the new model Lexus UX</li> </ul>	<ul style="list-style-type: none"> <li>Launched a new Hiace series for overseas markets in the Philippines</li> </ul>	<ul style="list-style-type: none"> <li>Launched the new RAV4 model in Japan</li> <li>World premiere of the new Highlander model in the United States</li> <li>Began operations at part of the Toyota Technical Center Shimoyama</li> </ul>	<ul style="list-style-type: none"> <li>Launched the new Supra model in Japan</li> </ul>	<ul style="list-style-type: none"> <li>Launched the new Corolla sedan and wagon models in Japan</li> </ul>													
2018		Jan.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.
Electrification		<ul style="list-style-type: none"> <li>Unveiled a plan to expand production facilities for fuel cell stacks and high-pressure hydrogen tanks</li> </ul>	<ul style="list-style-type: none"> <li>Announced participation in a cargo transportation project using fuel cell technologies in the United States</li> </ul>	<ul style="list-style-type: none"> <li>Established the Toyota ZEV Factory</li> </ul>	<ul style="list-style-type: none"> <li>Reached an agreement with Panasonic to establish an automotive prismatic battery business joint venture</li> </ul>	<ul style="list-style-type: none"> <li>Reached an agreement with JAXA on consideration of international space exploration leveraging fuel cell mobility</li> </ul>	<ul style="list-style-type: none"> <li>Began the grant of royalty-free licenses to vehicle electrification technologies</li> <li>World premiere of the C-HR and IZOA BEVs in China</li> </ul>	<ul style="list-style-type: none"> <li>Held a media briefing titled "Aiming to Popularize BEVs"</li> </ul>												
Automated Driving and AI		<ul style="list-style-type: none"> <li>Established TRI-AD</li> </ul>	<ul style="list-style-type: none"> <li>Expanded collaboration with Uber to automated vehicles</li> </ul>		<ul style="list-style-type: none"> <li>Announced the TRI-P4, a new automated driving test vehicle</li> </ul>		<ul style="list-style-type: none"> <li>Announced investment in Uber ATG with DENSO and SoftBank Vision Fund</li> </ul>													
Connected/MaaS	Jan. 2018	<ul style="list-style-type: none"> <li>Announced the e-Palette Concept</li> </ul>	<ul style="list-style-type: none"> <li>Established TOYOTA Connected Europe</li> </ul>	<ul style="list-style-type: none"> <li>Reached agreement with SoftBank to establish the joint venture MONET Technologies</li> </ul>	<ul style="list-style-type: none"> <li>Began providing Total-care Service for Grab</li> </ul>	<ul style="list-style-type: none"> <li>Announced the establishment of KINTO, a new company offering subscription services</li> </ul>	<ul style="list-style-type: none"> <li>Expanded collaboration in the MaaS domain with Didi Chuxing</li> </ul>	<ul style="list-style-type: none"> <li>Launched the nationwide rollout of Toyota Share car-sharing service and Chokunori! Toyota rent-a-car service in Japan</li> </ul>												

# Organization

## Automotive Business

Making Ever-better Cars: Continuing to Hone Competitiveness in the Real World of Car Making

**Moritaka Yoshida**

Executive Vice President



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Reinforcing Competitiveness and Being the "Best in Town" Around the World

**Didier Leroy**

Executive Vice President  
Member of the Board of Directors



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Speeding the Popularization of Electrified Vehicles for Our Home Planet

**Shigeki Terashi**

Executive Vice President,  
Member of the Board of Directors



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**Gill A. Pratt**

Fellow



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**Shigeki Tomoyama**

Executive Vice President



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Developing People in a Once-in-a-Century Transformational Period

**Mitsuru Kawai**

Executive Vice President



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## Message from the CFO

Message from the CFO

**Koji Kobayashi**

Executive Vice President,  
Member of the Board of Directors



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## Head Office

Sustainability Management Dept.  
Toyota System Supply

Toyota ZEV Factory

Frontier Research Center

TPS Group

Business Development Group

External & Public Affairs Group

General Administration & Human Resources Group

Information Systems Group

Accounting Group

Sales Financial Business Group

Purchasing Group

Customer First Promotion Group

Production Planning Group

## Business Units

### Region-based

**Business Planning & Operation**  
Business Planning Div., Sales & Operation Planning Div.,  
KD Business Planning Div., Sales & Marketing Support Div.

North America Region

Europe Region

Japan Sales Business Group

China & Asia Region

East Asia, Oceania & Middle East Region

Latin America & Caribbean Region

Africa Support Div.

### Product-based

Advanced R&D and Engineering Company

Development of cutting-edge and advanced technologies and mobility planning and development

Vehicle Development Center

Forward-looking platform planning and development

Toyota Compact Car Company

Compact car planning, development, and production (Vitz/Yaris, Aqua, Sienta, etc.)

Mid-size Vehicle Company

Passenger vehicle planning, development, and production (Corolla, Prius, RAV4, Crown, etc.)

CV Company

Commercial vehicle planning, development, and production (Hiace, Coaster, Land Cruiser, Alphard, etc.)

Lexus International Co.

Lexus vehicle planning, development, production, and marketing

Powertrain Company

Powertrain planning, development, and production (engines, transmissions, etc.)

Connected Company

Planning, development, and provision of connected devices and services

GAZOO Racing Company

Sport vehicle planning, development, and production through motor sports

Emerging-market Compact Car Company

Compact car product and business planning, development and production for emerging markets

As of July 1, 2019

# Making Ever-better Cars: Continuing to Hone Competitiveness in the Real World of Car Making

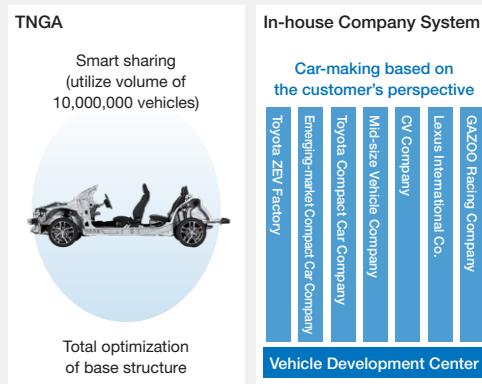


Further enhancing the competitiveness of our car making to transform into a mobility company.

**Moritaka Yoshida**  
Executive Vice President

The auto industry is in the midst of a once-in-a-century period of profound transformation, a period that requires change on our part. For precisely that reason, however, we have to be mindful of what must not change—namely, we must continue to hone our competitiveness in the real world of car making. This alone will allow us to generate the resources needed to weather the changes to come and shift

## Making Ever-better Cars: Structure



management resources to make even more appealing cars for the coming era.

Toyota's car making is distinguished by its volume—producing and selling more than 10,000,000 units per year globally—and its full lineup, ranging from compact to full-size cars and commercial vehicles, eco-cars, and GR sports cars. We are leveraging these distinctions through two key initiatives. The first is Toyota New Global Architecture (TNGA), aimed at greatly enhancing the potential of cars and utilizing the advantages of scale to implement smart sharing. The second is the in-house company system, through which we are creating distinctive cars based on the customer's perspective. Through these initiatives, Toyota is thoroughly applying its core strengths, the Toyota Production System (TPS) and its approach to cost reduction, to further hone efforts to make ever-better cars that are even more affordable. With the step beyond that—a complete business model change to a mobility company—as our unwavering goal, we are advancing a wide range of innovations.

## Our Progress So Far

It has been four years since the introduction of TNGA and three years since the launch of the in-house company system. The number of models and units produced based on these systems is growing. Beginning

with the fourth-generation Prius in 2015, we have steadily expanded the range of models based on TNGA, including the mid-size C-HR, full-size Crown and Lexus, the Supra sports car, and the compact Yaris. In 2019, we have announced six such models, bringing the total as of November 2019 to 19. These new models now account for approximately 40% of our global vehicle sales. In particular, Toyota produces and sells more than 1,000,000 Corollas per year and recently introduced a Japan-only size, different from the global model, to accommodate the nation's roads. In addition, our RAV4—the world's best-selling SUV boasting powertrains and drive systems suited to region-specific conditions, has been reintroduced to Japan with affordable pricing. Thanks in part to these efforts, the RAV4 has done well among younger consumers, who are seen as less interested in cars, with customers aged 39 and below accounting for 45% of all sales.

We have also seen clear gains in competitiveness under TNGA in the areas of vehicle development and production. Development man-hours have been reduced approximately 25% thanks to improved evaluation efficiency through grouping development and component standardization. Capital expenditures related to model switchover is also down an average of about 25% per line, as we are now able to efficiently produce multiple models using the same facilities due to advances in equipment and fixture standardization. Furthermore, we have reduced

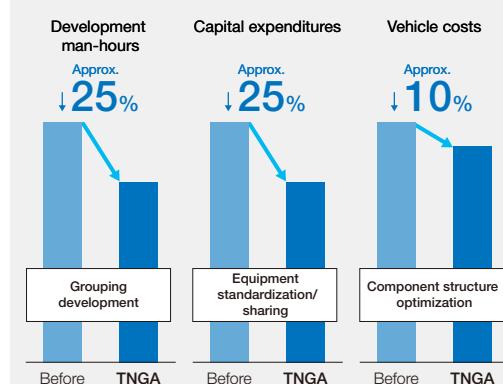
vehicle costs approximately 10% by standardizing components and reducing the number of component types as well as by revising component structures and simplifying production processes through manufacturing improvement in cooperation with suppliers. However, due in part to enhancements to environmental performance and safety features, we have not yet been able to bring prices as low as customers would like. We will continue working to make cars with such features even more affordable.

## Initiatives for a Once-in-a-century Period of Transformation

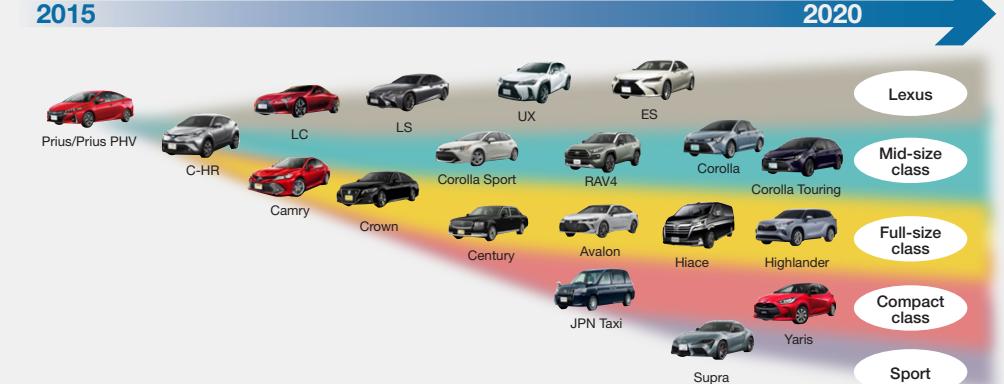
The environment surrounding car making has changed rapidly in recent years, from the tightening of environmental regulations to the entry of new players from other industries and the diversification of mobility businesses. Such changes are expected to continue increasing in scope and speed, and delivering the cars that customers want via conventional methods is already growing difficult. We are currently advancing three initiatives to address these changes and continue to surpass customer expectations.

The first initiative is to enhance the in-house company system. In July 2019, we established the Vehicle Development Center and expanded the Toyota ZEV Factory. At the Vehicle Development Center, we aim to further accelerate development

## Reinforced Competitiveness through TNGA



## Models Introduced under the TNGA/In-house Company System



# Making Ever-better Cars: Continuing to Hone Competitiveness in the Real World of Car Making

and reinforce product appeal by fully integrating everything from advanced planning and advanced development to mass production development in a lean manner. At the same time, we are nurturing skilled human resources able to advance the total optimization of cars as well as development from the customer's perspective. At the Toyota ZEV Factory, by consolidating all of Toyota's functions related to zero-emission vehicles (ZEVs), we will be able to advance the integrated planning, development, and manufacturing of next-generation ZEV products. The existing vehicle-based companies will also further leverage the specific features of their respective cars, competing with one another to further differentiate their products from the customer's perspective and hone their efforts to make ever-better cars.

The second initiative is the evolution of the TNGA. In addition to global changes, such as the shift from sedans to SUVs, region-specific customer preferences are in constant flux. Rather than rigidly pushing complete global standardization, we are making adjustments by model and region to meet customer needs while advancing smart sharing and cost refinement. Alongside flexible development, we will implement flexible production of differently shaped models to further ensure a framework that is resilient to changes in demand.

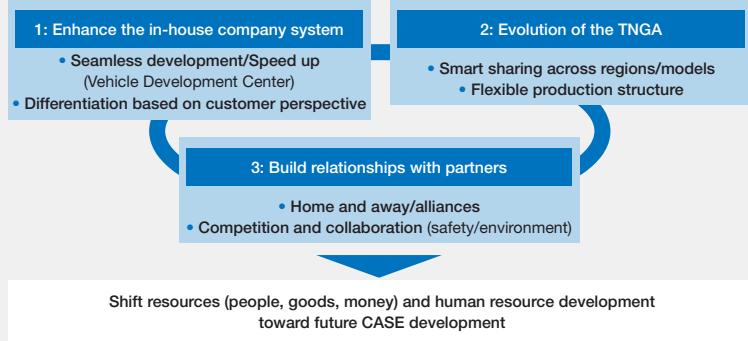
The third initiative is to build relationships with partners as we move away from a policy of internal self-sufficiency in preparation for the CASE era.\* Specifically, we are applying a "home and away" perspective as we rebuild our businesses based on

careful evaluations of the strengths and weaknesses of each Toyota Group company while advancing alliances with other companies to enhance competitiveness and speed. We are working with Daihatsu Motor Co., Ltd., to reinforce coordination in car making, focusing mainly on compact cars in Japan and emerging nations. In addition, we are advancing collaboration in the areas of development and production with Suzuki Motor Corporation, which boasts a strong market share in India, leveraging the strengths of both our companies, as well as collaboration with Subaru Corporation in the area of All-wheel Drive (AWD) technologies, to make cars even more fun to drive, and battery electric vehicle (BEV) development. Through such efforts, we are promoting collaborative car making that leverages our respective strengths to meet evolving needs. At the same time, in the areas of safety and eco-friendly technologies, which can best contribute to society if they are in widespread use, we are not only accelerating technological development within Toyota to lead the way but also going beyond competition to actively promote collaboration across the industry.

Going forward, we will continue to push forward ambitiously, constantly seeking improvement based on the TPS and cost reduction as we work to transform into a mobility company. Through such initiatives, by the end of 2021 we plan to introduce 14 new models, raising the portion of global vehicle sales accounted for by such models to approximately 60%.

\* CASE: Connected, Autonomous/Automated, Shared, and Electric.

## Future Initiatives—Further Enhancing Competitiveness



## Long Sellers in the Game for More than 50 Years



## Preventing Accidents Caused by Pedal Misapplication by Elderly Drivers

In recent years, tragic accidents caused by elderly drivers have frequently appeared in the news in Japan. In particular, drivers 75 years or older are responsible for a large portion of accidents caused by accidentally pressing the accelerator instead of the brake in parking lots and elsewhere.\* This has attracted significant attention as a social issue.

Toward its ultimate goal of eliminating traffic accident causalities, Toyota has developed safety technologies grounded in the pursuit of real-world safety. New vehicle models are now equipped with Toyota Safety Sense, which is expected to help prevent and mitigate such accidents as running into pedestrians and rear-end collisions, as well as Intelligent Clearance Sonar (ICS—parking support braking that scans for stationary objects), which is expected to prevent and mitigate the severity of low-speed collisions, such as those in parking lots.

Furthermore, in light of the growing issue of accidents caused by elderly drivers, in 2018, in addition to systems offered in new cars, we introduced a pedal misapplication prevention system that can be retrofitted in cars that customers already own. We plan to expand the number of models for which retrofit systems are available to 12 by the end of 2019, focusing on common models that are popular with elderly customers.

Along with initiatives to enhance the safety of cars themselves, we are implementing awareness-raising activities focused on people. A notable example is the approximately 10,000 seminars we provide each year for customers to help them understand ICS systems. We also believe that improving the traffic environment, including related rules and infrastructure, is essential to the realization of a safe mobility society.

Going forward, we will lead the way in developing safe cars to help our customers safely drive longer and with greater confidence, promoting the widespread use of advanced technologies while working with a spirit of competition and collaboration with the auto industry as a whole and a wider range of partners to create a society free of traffic accidents.

\* Source: ITARDA INFORMATION No. 124 - Traffic Accident Analysis Report, issued in February 2018, Institute for Traffic Accident Research and Data Analysis (ITARDA)

# Reinforcing Competitiveness and Being the “Best in Town” around the World



Enhancing competitiveness and aiming for the top spot in the *hearts* of our customers with an entrepreneurial spirit.

**Didier Leroy**  
Executive Vice President,  
Member of the Board of Directors

Facing a once-in-a-century industry turning point, Toyota is accelerating initiatives to transform into a mobility company. Reinforcing competitiveness, we are pursuing development initiatives globally.

Initiatives under way include mobility services that look beyond the bounds of our conventional car sales business. Such services let more customers use Toyota vehicles while facilitating the efforts of diverse stakeholders to foster a hydrogen-powered society.

In addition, we continue to reinforce our brand to attract customers. These efforts comprise three pillars. The first is the “Start Your Impossible” global corporate campaign, launched in 2017. This campaign reflects Toyota’s aim of becoming a mobility company providing mobility for all and aligns with Toyota’s spirit as a worldwide partner of the Olympic and the Paralympic Games.

The second pillar is eco-cars, an area in which we are leveraging our strengths. Focusing on eco-cars and the Plant Zero CO<sub>2</sub> Emission Challenge, we are transforming the way we make cars while working to protect our home planet—the Earth. The third pillar is

motor sports through GAZOO Racing. Involvement in motor sports facilitates the further enhancement of ever-better cars and helps foster a love of cars among more people.

Customer tastes and technologies are evolving faster than ever. It is imperative that Toyota muster its entrepreneurial spirit to enhance its competitiveness worldwide. The foundation of such efforts will be the Toyota Way as applied to sales, namely, the “best in town” approach and *Genchi Genbutsu* (onsite, hands-on experience).

Being the “best in town” means starting from the assumption that markets are different in each country and region and then listening, learning, and taking appropriate action on the ground. *Genchi Genbutsu* entails visiting target markets to gain a true understanding and taking action.

By promoting Toyota Way sales worldwide and advancing sales activities designed to secure constant improvement, I am confident that we can become the top mobility company in the hearts of customers.

## Transformation Begins in Japan: Confronting Global Challenges Head On

As Toyota works to transform into a mobility company, it is rolling out new initiatives first in Japan.

Based on the J-ReBORN Plan, launched in 2016, Toyota and its domestic sales companies aim to revitalize Japan as a whole as well as on a regional basis. To this end, Toyota is shifting its focus from sales channels to sales regions. We are looking to revise our structure and work styles accordingly. By doing so, we aim to meet the needs of customers in each region and reinforce cooperation with the government and with other companies. Ultimately we will transform our business model by providing new mobility services.

These efforts kicked off in Tokyo, where changes in mobility services are already the most advanced. In April 2019, we merged four directly managed dealers in the region to establish Toyota Mobility Tokyo.

Under the new company, the Tokyo region has taken the lead in commencing sales of all models at all sales outlets. Originally, we were aiming for a gradual transition to the new approach at all of our 6,000 nationwide sales outlets over the 2022–2025 period, but we now expect to complete the shift by May 2020.

In terms of new mobility services, we have successfully trialed KINTO, a monthly set-price subscription service for individual customers, in Tokyo and are now rolling it out across Japan.

Our business is based on the personal relationships of trust with customers built by our nationwide network of 6,000 sales outlets and 110,000 employees. We will work on reinforcing existing businesses. At the same time we will expand lifestyle service businesses. These businesses help our customers and regions solve day-to-day issues.

For example, fuel cell vehicles, plug in hybrid electric vehicles, and hybrid vehicles could be used to augment the power supply in areas without power due to typhoons, flooding, or other natural disasters. We are also working on raising awareness so that customers are able to put such vehicles to use in times of emergency.

In the existing automotive business, we have already streamlined logistics by integrating genuine Toyota parts distributors with auto supply companies. To strengthen our customers’ car sales business, we have implemented comprehensive sales initiatives encompassing the entire value chain, including sales, maintenance, and the handling of used vehicles. Going forward, focusing on vehicle usage, we will advance the development of services for corporate customers, the KINTO beloved car subscription service, and car sharing for individuals to build a platform that will meet customer needs. Evolving quickly and reinforcing our earnings structure, we will invest in lifestyle service businesses and advance activities aimed at being the “best in town.”

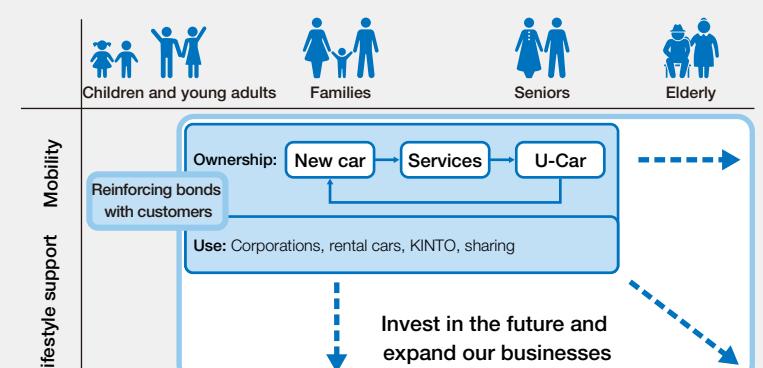
Our business expansion plans begin with developing mobility-related services. By taking on the mobility issues faced by customers in regions across Japan, we believe we can develop lifestyle service businesses. These include store-based services that continue to serve customers long after they give up their driver’s licenses due to age.

By providing personal, heartfelt services that address issues faced by its long-time customers, Toyota aims to be their lifelong close and trusted partner.



Supplying power

## Business Transformation in Japan



## Reinforcing Competitiveness and Being the “Best in Town” around the World

### Fuel Cells: An Efficient Solution to Air Pollution from Commercial Heavy-duty Trucks



In the United States, most road freight is transported by large diesel trucks, which emit nitrogen oxide, particulate matter, and other air pollutants. As a result, communities in areas near freeways, container ports, warehouse districts and other places with heavy truck traffic face serious air quality issues. The ports of Long Beach and Los Angeles, in California, boast the highest volume of container handling in the country. More than 17,000 such freight trucks, each with a large environmental footprint, operate at these ports, and that figure is projected to rise to 32,000 by 2030.

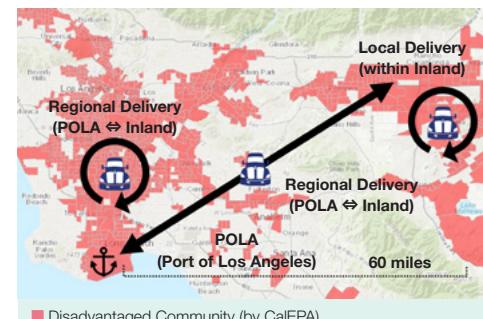
In light of these circumstances, Toyota is working with a wide range of partners to contribute to communities by utilizing fuel cell technologies, which emit no CO<sub>2</sub> or other air pollutants.

At the Port of Los Angeles and Port of Long Beach, Toyota has been conducting a pilot test of commercial heavy-duty trucks equipped with fuel cell systems since 2017, continually making improvements. For example, in 2018, we upgraded some of the trucks used in the project based on know-how gleaned from the approximately 16,000 km driven so far.

Since autumn 2018, Toyota has been participating alongside U.S. truck manufacturer Kenworth and energy company Shell in a new “Shore to Store” project being implemented by the Port of Los Angeles aimed at achieving zero-emission freight transport. This initiative seeks to first reduce emissions in heavily impacted areas by introducing new cargo trucks mainly in the port areas. Later on, we aim to expand beyond port areas to build emissions-free logistics operations covering a broader area. These initiatives are expected to

cut annual greenhouse gas emissions by 465 tons and annual emissions of nitrogen oxide, particulate matter, and other air pollutants by 0.72 tons. Under the project, the fuel cell system of Toyota’s Mirai is being adapted for use with Kenworth T680 trucks to achieve an estimated range of more than 300 miles (approximately 480 km), twice the average daily driving distance of such trucks. We plan to deploy 10 of these trucks to haul freight from the Port of Los Angeles, with the first going into operation by the end of 2019.

By adapting its fuel cell technologies to freight trucks, which require a significant amount of hydrogen for their daily operation, Toyota is helping to spread the use of eco-vehicles while contributing to local communities, creating solutions from the perspective of protecting the Earth, our home planet.



Area covered by demonstration phase of the “Shore to Store” project  
Source: CalEPA

### The World’s First Fuel Cell Vehicle Taxi Service



In France, which is working to build hydrogen power infrastructure, Toyota Motor Europe has formed the joint venture HysetCo with the major gas company Air Liquide and other partners. HysetCo is developing

HYPE, the world’s first fuel cell vehicle (FCEV) taxi service. Beginning with 25 Mirai FCEVs delivered in July 2017, HysetCo has gradually increased the HYPE fleet and plans to have more than 200 vehicles providing services by the end of 2019. They will have 600 FCEV taxis on the streets of Paris by the end of 2020. Air Liquide is supporting the project by building hydrogen stations. Spurred by the establishment of the joint venture, the company plans to build enough stations to meet the needs of 600 Mirai FCEVs.

This project will supply environmentally sustainable mobility using Toyota’s Fuel cell technology and provide Toyota with experience in developing mobility services. The Mirai taxis, featuring a blue sky patterned exterior, will help achieve Paris’s goals of zero emissions from taxis by 2024 while improving air quality.

### Genchi Genbutsu: Improvement in Close Cooperation with Dealers



Thailand is home to one of Toyota’s longest-standing customer bases; the Company’s first sales location there opened in 1957. However, in recent years, Toyota had struggled in the pickup segment. In light of this, we decided to go back to the basics, thinking from the customer’s perspective and launching initiatives in close cooperation with dealers. As part of these initiatives, the core management of Toyota Motor Thailand began by visiting all 155 dealers across the country. Based on what they learned from dealers, they quickly made decisions and took action to address front-line issues.

Furthermore, we identified specific requests from each region, studied past initiatives carried out by competitors, and implemented a range of improvements.

One initiative was to have dealers and events display the type of modified trucks used in grass-roots racing popular with young people. Mod shops had been reluctant to work on Toyota trucks, seeing them as difficult to modify. However, through steadfast negotiation, we were able to make the display a reality.

We also coordinated with rear body production companies to offer one-stop financing options at sales outlets for both the trucks themselves and the rear body structures, making the purchasing process easier. These new options have been well received by customers.

In addition to horizontally expanding successful initiatives, we are providing insurance plans with flexible rates for vehicles equipped with connected devices. These rates are adjusted depending on vehicle usage.

Through such initiatives to apply *Genchi Genbutsu* and increase satisfaction, we increased our customer appeal and reclaimed the market share we had lost.

# Taking Ever-better Cars Further through Motor Sports : GAZOO Racing

Through motor sports, Toyota aims to bring excitement

and joy to customers, fans, and communities around the world.

Above all, developing our people and our cars in order to make and  
deliver ever-better cars is  
the unwavering core of Toyota motor sports.



## The Flagship Sports Car of the Toyota Brand

At the 2019 North American International Auto Show, Toyota premiered its GR Supra, which President Akio Toyoda described as an "old friend" back from a 17-year hiatus. Toyoda, who had become the pupil of the late master driver Hiromu Naruse in 2002, brought a used Supra to Nürburgring in Germany in 2006. The frustration of watching competitors test their prototypes there in the years that Supra production was stopped became yet another force driving the creation of ever-better cars.

The GR Supra is the first global model of TOYOTA GAZOO Racing's GR sports car series. As the fifth generation of the Supra, first introduced in 1978, the GR Supra, like each generation before it, features an inline six-cylinder engine and front-engine, rear-wheel-drive powertrain. This time around, extensive attention has also been paid to the three fundamental elements of wheelbase, tread, and center of gravity to achieve handling performance befitting a pure sports car. TOYOTA GAZOO Racing's accumulated expertise and know-how have been funneled into the new GR Supra to create a car that people the world over will find truly fun to drive and that will provide an experience that transcends the enjoyment of driving.

In 2018, Toyota's hard work in the realm of motor sports paid off, securing a long-coveted first victory at Le Mans and a WRC manufacturer's title. With the

GR Supra as its flagship model, Toyota will leverage the know-how developed in its motor sports activities around the world in the further expansion of the GR series and product development more broadly.

## Developing Our Cars and Our People through Motor Sports

The major motor sports competitions Toyota participates in include the FIA World Rally Championship (WRC) and the FIA World Endurance Championship (WEC), including the 24 Hours of Le Mans. Standing in contrast to these is the 24 Hours of Nürburgring endurance race (NBR). Unlike the factory-backed professional teams that compete in the WRC and WEC, Toyota's NBR team, including the mechanics and engineers, comprises only Toyota employees, who compete with a race car built by employees who work on Toyota's mass-production vehicles. GAZOO Racing was established to compete in NBR in 2007 with a team led by Hiromu Naruse. Since then, Toyota has taken employees to Nürburgring every year for the purpose of developing its cars and people to help make ever-better cars through the extremities of this 24-hour race on what is reputed to be one of the most challenging courses in the world. The experiences employees forge in these harsh conditions are utilized in vehicle development. At the same time, parts and technologies that Toyota aims to commercialize are refined by use in the race vehicles employees build.

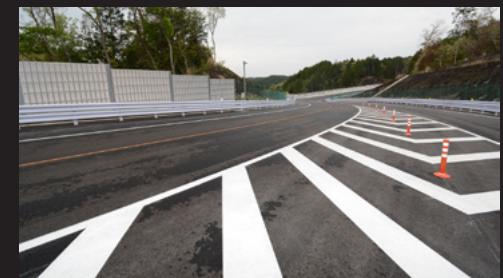
In 2019, its 13th year in the competition, Toyota raced two vehicles. The first, as in 2018, was a LEXUS LC equipped with a range of next-generation technologies. The second, competing for the first time, was a GR Supra. Behind the wheel of the GR Supra, President Toyoda took part as a driver for the first time in three years. The GR Supra drove the full 24 hours with virtually no issues, finishing 41st overall, while the LC finished 54th.

## New Technical Center: Pushing Automotive Manufacturing Further through Genchi Genbutsu

Laid out to resemble ordinary European country roads, the Nürburgring is known as one of the world's most difficult courses, with an exceptionally long circuit of 25 km, narrow track widths, a maximum altitude difference of around 300 m, and more than 170 corners.

To further raise the bar in terms of driving performance, environmental friendliness, and safety as it looks to build the cars of the future and provide ever-better cars to customers around the world, Toyota is constructing Toyota Technical Center Shimoyama in a mountainous area straddling the cities of Toyota and Okazaki. The full-scale opening of the facility is scheduled for fiscal 2023. Part of the facility, the 5.3 km country road test course, opened in April 2019. With a design based on our extensive experience at Nürburgring, the course takes advantage of the natural terrain, offering a maximum altitude

difference of approximately 75 m and numerous corners. Leveraging the challenging driving conditions recreated here, Toyota will thoroughly hone every one of its models and strive to develop cars that epitomize the true joy of driving. At this time of transformation in the very nature of mobility, Toyota will remain true to its strengths of building cars through *Genchi Genbutsu* (onsite, hands-on experience) and delivering emotional performances to bring smiles to customers' faces.



Toyota Technical Center Shimoyama

In addition, around 70% of the trees and greenery covering the site (approximately 650 hectares) have been left undisturbed. By preserving these areas and developing new green spaces, Toyota is working to appropriately maintain and manage the site's natural environment.



TOYOTA GAZOO Racing

# Speeding the Popularization of Electrified Vehicles for Our Home Planet



Realizing the widespread use of electrified vehicles and a cleaner global environment will require the help of many partners. Toyota has already begun.

**Shigeki Terashi**  
Executive Vice President,  
Member of the Board of Directors

With the environment as one of management's highest priorities, Toyota has advanced initiatives in line with its basic policies of conserving energy, addressing fuel diversity, and contributing to sustainability through the proliferation of eco-cars. As part of the Toyota Environmental Challenge 2050, launched in 2015, we set for ourselves the New Vehicle Zero CO<sub>2</sub> Emissions Challenge, under which we aim to reduce by 90% Toyota's global average new vehicle CO<sub>2</sub> emissions during operation by 2050, compared with the 2010 level. Since launching the Prius hybrid electric vehicle (HEV) in 1997, Toyota has sold approximately 14 million electrified vehicles around the world (as of July 2019), helping to cut CO<sub>2</sub> emissions by more than an estimated 113 million tons.

In 2017, Toyota announced milestones for 2030 in the Toyota Environmental Challenge 2050 that target new vehicle sales totaling 5.5 million electrified vehicles, including at least 4.5 million HEVs and plug-in hybrid vehicles (PHEVs) and more than 1 million battery electric vehicles (BEVs) and fuel cell vehicles (FCEVs). Sales of electrified vehicles have recently been growing at a pace that exceeds these targets.

Over the past few years, the frequency and extent of damage caused by abnormal weather, such as torrential rainfall, and natural catastrophes has grown worldwide. We can wait no longer to find solutions to the problem of global warming. Our problems will multiply unless we come up with fixes for air pollution and energy issues. Addressing these global problems will require taking on fresh perspectives and looking through the lenses of our hometowns, home countries, and home planet. We must pass along to future generations a deep sense of responsibility to care for these homes, instilling a love for the towns and countries in which we were born and raised as well as a love for the planet that is the home of everyone in the world. Toyota is working on these environmental issues with the mindset that planet Earth is our only home.

## Regulations Are Being Tightened, along with New Government Policies, to Combat Global Warming.

Two major trends in automobile-related environmental regulations have drawn considerable attention lately.

The first is regulations on CO<sub>2</sub> emissions and fuel efficiency. Corporate average fuel economy (CAFE) is the average fuel efficiency of the entire fleet of automobiles sold by an automaker, and governments have moved to regulate the automobile industry using this metric. Under this framework, which is increasingly being adopted by countries worldwide, the required level of cuts in CO<sub>2</sub> emissions rises each

year. In order to improve corporate average CO<sub>2</sub> emissions and fuel efficiency, companies must not only pursue technological innovation, but also transition their mix of vehicle types toward models with better fuel efficiency. With regard to CO<sub>2</sub> regulations in Europe, for example, Toyota led the industry in meeting 2017 regulatory values, and, although the current-generation Prius satisfies 2025 regulatory values, it is challenging for SUVs and other types of relatively heavy vehicles, even hybrid models, to clear this regulatory hurdle, necessitating the greater proliferation of PHEVs, BEVs, and FCEVs.

The second trend entails regulations for zero emission vehicles (ZEVs), which have come into effect in some parts of the United States and Canada, and regulations for new energy vehicles (NEVs) in China. Automakers above a set production threshold are obligated to ensure that vehicles like BEVs and FCEVs account for a minimum percentage of sales. This government policy basically aims to increase the number of vehicles on the road with zero CO<sub>2</sub> emissions. Around the world, countries are projected to increasingly adopt similar regulations. Other government incentives include subsidies, car access restrictions, and priority car lane access.

To reduce CO<sub>2</sub> emissions on a global scale, the fuel economy of entire fleets must be improved by rounding out the lineup of HEVs and PHEVs, while also quickly getting customers to favor ZEVs over conventional vehicles, even in the absence of government regulations and incentives. With a strong vision,

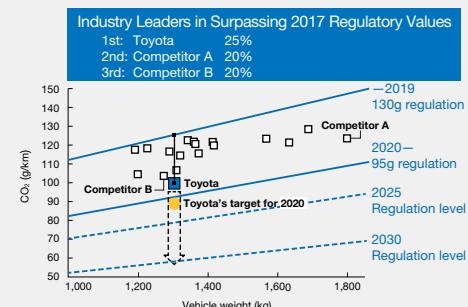
Toyota is advancing various measures to increase the popularity of electrified vehicles.

## Providing More Electrification Technologies and Systems to Reduce CO<sub>2</sub> Emissions

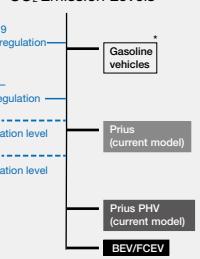
Since introducing the first-generation Prius in 1997, Toyota has established mass production technologies while honing the core technologies essential for electrified vehicles for more than two decades. We have put into place a global structure for producing 1.6 million electrified vehicles annually. Our motors, batteries, and power control units (PCUs) are core technologies that are used in all kinds of electrified vehicles, including HEVs, PHEVs, BEVs, and FCEVs. The foundation that we have built to date is one of our main strengths, and where we can make a major contribution to the spread of electrified vehicles in the future.

Over the past few years, Toyota has seen an increase in inquiries about its vehicle electrification systems from companies engaged in the development of HEVs and other electrified vehicles. Toyota believes now is an opportune time to cooperate with other companies in light of the growing need for electrified vehicles and, as a technological supplier of systems for vehicle electrification, is providing them with access to its growing library of technologies in the field. In principle, Toyota has an open policy regarding the handling of its intellectual property (patents), and has offered access to its patents for appropriate

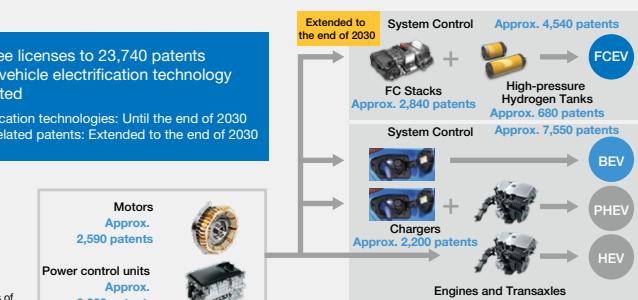
### Response to European CO<sub>2</sub> Standards



### CO<sub>2</sub> Emission Levels



### Initiatives to Encourage Spread of Electrified Vehicles



# Speeding the Popularization of Electrified Vehicles for Our Home Planet

licensing fees upon receiving applications from third parties. In 2015, Toyota began offering royalty-free licenses to its proprietary fuel cell-related patents.

More recently, Toyota has decided to provide royalty-free licenses to its portfolio of patents (about 23,740 patents) related to vehicle electrification technologies, such as motors, PCUs, and system control—a legacy accumulated over more than 20 years of HEV development. Additionally, Toyota will provide technical support for the commercialization of electrified vehicles being developed and produced with its powertrain system.

If these initiatives accelerate the development of electrified vehicles at other companies, we will have helped hasten the reduction of CO<sub>2</sub> emissions. With the support of our many stakeholders, we aim to contribute to the popularity of electrified vehicles around the world.

## Toyota is Full Steam Ahead on Initiatives to Promote BEVs

The Toyota ZEV Factory is an internal organization created by bringing together the EV Business Planning Department, which began as an internal start-up, and the previously separate FCEV team. The Factory is charged with the planning and development of developing plans for BEVs.

Among electrified vehicles, Toyota is taking a broad approach to developing BEVs ranging from pedestrian-zone vehicles and ultra-compact two-passenger vehicles to compact and mid-size passenger cars. In

December 2017, Toyota set itself the objective of making a full-scale entry into the BEV market, beginning in China, in 2020 before increasing its BEV models worldwide to at least 10 models in the early 2020s. Toyota has advanced preparations in line with this schedule, unveiling the C-HR/IZOA model at the Shanghai Motor Show in April 2019.

With a mind to further promote BEVs, Toyota has launched initiatives with the aim of building a new business model that, in the spirit of collaboration, openly includes business partners. This new business concept goes beyond the conventional model of developing and manufacturing BEVs for dealers who then distribute them to customers. To help make society better, we will create a new business model that is open to partners who share our aspirations.

While improving product appeal by offering high-endurance, high-performance batteries, Toyota is maximizing the use of both BEVs and batteries from production until final disposal to tackle issues hindering the proliferation of BEVs. In addition to sales, Toyota is expanding leasing, ensuring the collection of used vehicles, assessing used batteries, and putting used vehicles back on the market while getting the maximum use out of batteries through reuse as supply parts and in non-vehicle applications. Furthermore, we offer peripheral services optimized for BEV owners, such as charging and insurance, so they can drive their BEVs without worrying about these details. We are keen to create new business models like this with our business partners in other fields as well.

## Japan: Start Building a New Business Model for Ultra-Compact BEVs

In Japan, Toyota sees new business opportunities in compact, short-distance, and corporate-use BEVs. For starters, in 2020 we plan to unveil an ultra-compact two-passenger BEV smaller than a conventional light vehicle (which is already smaller than a standard passenger vehicle) and capable of traveling about 100 km on a single charge. This car will make it easy for young people who have just got their driver's license and elderly people to get around on a daily basis. Our even-smaller i-ROAD three-wheel BEV is undergoing pilot testing on public roads for possible use in car sharing services in urban areas and tourist destinations.

Our pedestrian-zone BEVs, for use in areas where people walk, are being prepared for a 2020 launch. In addition to a ride-while-standing model, we plan to release a ride-while-sitting model and a wheel-chair-linked model in 2021.

By offering a diverse lineup of such BEVs, we will provide a means for safe, worry-free transportation in tune with the life stage of each customer. In order to see such BEVs gain popularity, we are engaged in talks with business partners in various fields and local governments interested in using BEVs, with the intention of creating integrated business models covering development and sale through final disposal. Together with diverse like-minded stakeholders, we are taking steps to support lifestyles in tune with the needs of communities and our customers.

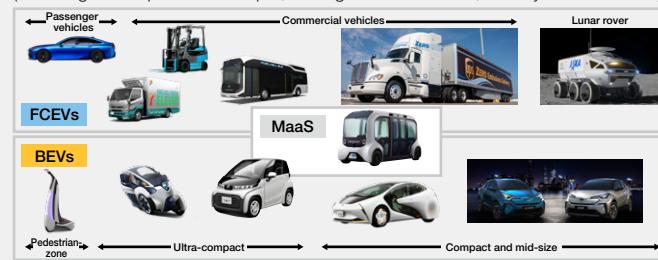
## Development of BEVs for China, the United States, and Europe

For markets with strong demand for BEVs, Toyota is efficiently developing reasonably priced models in a sufficient variety to meet diverse customer needs. Concretely, we are developing specific types of vehicles to meet specific customer needs. We are planning and developing these various models in collaboration with partner firms, such as Subaru Corporation, Suzuki Motor Corporation, and Daihatsu Motor Co., Ltd., to leverage to their respective areas of expertise. Toyota has signed an agreement to jointly develop BEVs with BYD Co., Ltd., and the two parties are developing BEVs and batteries with the aim of bringing to the Chinese market a BEV under the Toyota brand in the first half of the 2020s.

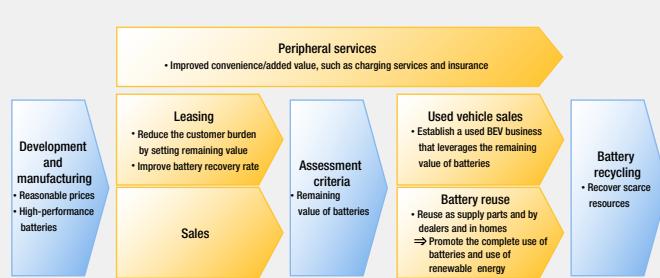
## Development and Supply of World-Leading Batteries

Batteries are a core technology used in all electrified vehicles and have a significant impact on vehicle performance. Toyota has finely honed this core technology over the course of developing and marketing more than 14 million HEVs. For example, Toyota's HEVs are highly efficient systems that, even with only a small battery capacity, achieve low fuel consumption. In terms of durability, a factor that has an outsized impact on BEV performance, and residual capacity after a long period of use, Toyota batteries have demonstrated industry-leading performance with regard to units used in its first-generation Prius PHV, which was launched in 2012, as well as its second-generation Prius that was unveiled in 2017. We aim

## Zero Emission Vehicles (Including Development Concepts, Driving Demonstrations, and System Provision)



## BEV Business Models under Consideration



## BEVs for Global Deployment



# Speeding the Popularization of Electrified Vehicles for Our Home Planet

to achieve even higher levels of battery durability in the BEVs we plan to launch in 2020. Toyota continues to carry on battery development with an eye on achieving world-leading performance when it brings BEV models to market globally.

The promise of electrified vehicles has exceeded our initial expectations, and we must now prepare for the full-fledged proliferation of BEVs that will require higher-capacity batteries than those used in HEVs and PHEVs. To cooperate on battery procurement, Toyota jointly established Primearth EV Energy Co., Ltd. with Panasonic Corporation in 1996, and we have signed an agreement to create a new joint venture by the end of 2020.

To rapidly meet the diverse needs of regions around the world, Toyota has put into place a structure for procuring the batteries needed to make electrified vehicles more popular, while coordinating and collaborating with Contemporary Amperex Technology Co., Ltd. (CATL), BYD Co., Ltd., GS Yuasa Corporation, Toshiba Corporation, and Toyota Industries Corporation.

In preparing for the spread of BEVs and to win over customers to our BEVs, we have a long list of initiatives to follow through on, including developing vehicles, ensuring the stable supply of batteries, improving the durability of batteries, and preparing for the reuse of older batteries. Toyota has been making steady progress on building business structures, including the creation of new business models. With an eye on helping to create a better society, we are open to

working with a wider range of business partners than ever before, and intend to accelerate our efforts with partners who share our vision for the future.

## Aiming to Expand Ultimate Eco-Car FCEVs

Toyota views hydrogen as a promising energy for the future, and came up with the concept of the Ultimate Eco-Car as an FCEV that will be key in a sustainable society. With the aim of encouraging the spread of FCEVs and realizing a hydrogen-powered society, Toyota intends to spur demand for hydrogen by leveraging the synergistic effects of introducing FCEV passenger cars and commercial vehicles. For starters, we are developing an FCEV version of mass-production passenger cars while continuing to improve performance and bring costs down. We will then apply these FCEV technologies to commercial vehicles, which are fewer in number but use larger amounts of energy per vehicle. As demand for hydrogen expands, the price of hydrogen should decrease and create incentives to expand related infrastructure.

In the passenger car market, Toyota has taken the initiative in encouraging the spread of FCEVs with the 2014 launch of the Mirai, which has sold approximately 10,000 units in total around the world. In late 2020, Toyota plans to release the next-generation Mirai with a 30% longer cruising range than the previous generation, thanks to a completely revamped fuel cell (FC)

system, drastic improvements in performance for a FCEV, and a larger hydrogen tank. We will greatly increase our production capacity for FCEVs along with the launch of this next-generation Mirai.

Turning to commercial vehicles, Toyota plans to introduce 10 FC commercial heavy-duty trucks for a project being promoted by the Port of Los Angeles that aims to achieve zero emissions in cargo transportation with the use of FC technology. Toyota plans to construct a Tri-Gen\* facility to generate electricity using carbonate fuel cell power generation techniques that extract hydrogen from waste biomass. This facility will be used to refuel these 10 FC commercial heavy-duty trucks. Plans also call for using the hydrogen fuel in non-transportation applications.

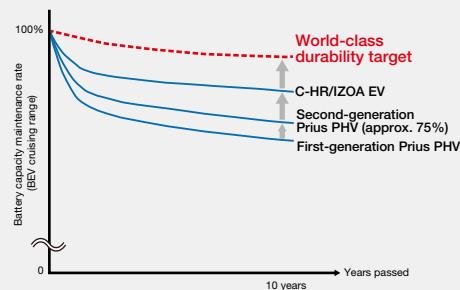
In 2020, the Olympic and Paralympic Games will be held in Tokyo. As a Worldwide Partner, Toyota plans to give the world a glimpse into the hydrogen-powered society of the future with around 500 FCEVs, the SORA FC bus, and FC forklifts.

\* Tri-Gen is short for Tri-Generation, the production of water, electricity, and hydrogen.



Mirai Concept (Exhibited at the Tokyo Motor Show 2019)

## Durability of Batteries



Aiming for world-class durability by limiting battery degradation through innovations in battery materials, pack structure, and control systems

## Framework for Battery Procurement and Collaboration



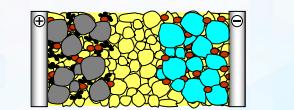
In addition to long-standing partners Panasonic Corporation and Primearth EV Energy Co., Ltd., collaborate with global battery makers to respond to the rapid popularization of electrified vehicles

## Participation in an International Space Exploration Mission



Toyota and the Japan Aerospace Exploration Agency (JAXA) have been working together on the development of a manned, pressurized rover that uses FCEV technology for an international effort to explore the moon's surface, providing the mobility solution required for the human exploration of the moon. The rover will accommodate two passengers and feature automated driving functions for exploring the moon's surface for six weeks with more than 10,000 kilometers of driving range. To ensure there is enough energy for driving, the lunar rover will have Toyota's next-generation fuel cells that enable travel over 1,000 kilometers on a full hydrogen tank. To ensure the safety of the crew as they reach their destination, the lunar rover must also be able to exhibit adequate driving performance under harsh conditions and automated driving functions to assist the crew.

## Challenging Solid-State Batteries as a Battery Maker



Toyota has been working on the development and production of its own batteries and aims to develop a mobility solution that demonstrates its new solid-state batteries by 2020 or so. Solid-state batteries use high-density solids instead of liquids, allowing batteries to be more compact, which will enable more batteries to be installed in a vehicle. Despite the high hurdles to mass production, we are gradually prototyping larger batteries while validating their safe operation.

# Toward a World with No Traffic Casualties—Active Safety and Automated Driving Research and Development



Toyota's active safety and automated driving technologies have the potential to improve mobility and quality of life for all people, regardless of age or ability.

Gill A. Pratt

Fellow

Since the 1990s, Toyota has engaged in active safety and automated driving technology research and development with the primary goal of eliminating traffic casualties.

Today, Toyota is advancing research and development based on its Mobility Teammate Concept. This concept is built on the belief that people and vehicles can work together as teammates in the service of mobility that is safe, convenient, efficient, and fun.

Toyota believes that cars will continue to be loved even in a future where some driving is automated. Active safety and automated driving technologies will also improve mobility for all, for example, by giving new independence to the lives of elderly individuals who otherwise would not be able to drive. The spread of these technologies in synergy with connected technologies also promises to reduce traffic congestion and lower atmospheric pollution from vehicle exhaust.

## Toyota's Active Safety and Automated Driving Development Framework

Toyota's active safety and automated driving research and development efforts take place across

complementary organizations that specialize by research areas and stages of technology development.

Toyota Research Institute (TRI) is headquartered in Silicon Valley and uses AI and research vehicles to advance the development of automated mobility. TRI leverages deep collaborations with research universities from its operating locations in Ann Arbor, Michigan and Cambridge, Massachusetts.

Toyota Motor Europe researches recognition technology and Toyota Central R&D Labs focuses on improving sensor technologies.

Toyota Research Institute - Advanced Development (TRI-AD) in Tokyo serves as a bridge connecting the innovation of Silicon Valley with Japanese master craftsmanship to accelerate development of the robust, production-quality software needed to bring TRI's technology to Toyota vehicles. TRI develops proof of concept vehicles that incorporate new capabilities; TRI-AD builds on these, incorporating TRI's automated driving research and working to mature both the software and hardware to create viable pre-production vehicles. Innovation will continue even after vehicles are sold using Over-The-Air (OTA) updates for continuous performance improvements and added functionality. In this way, TRI-AD is the

bridge to the creation of world-leading software for automated vehicles that achieves production level quality.

Toyota and TRI-AD are working toward mass production in partnership with the integrated vehicle control systems company J-QuAD DYNAMICS (established as a joint venture of DENSO, Aisin Seiki, ADVICS, and JTEKT). Together, these companies have formed a cooperative framework, spanning innovation to manufacturing as a unified team.

## Toyota's Unique Approach to Active Safety and Automated Driving

Toyota is developing active safety and automated driving systems based on two research approaches: Toyota Guardian™ and Toyota Chauffeur, respectively.

Chauffeur's goal is to allow a vehicle to drive on its own, ultimately without human oversight or fallback responsibility. This approach can provide mobility for those who cannot currently drive because of age, infirmity, or other reasons. Toyota recognizes it is crucial not to underestimate the formidable hurdles to deploying such automated driving systems. Technologically, how do we train a machine to perceive and participate

### Toyota's Vision

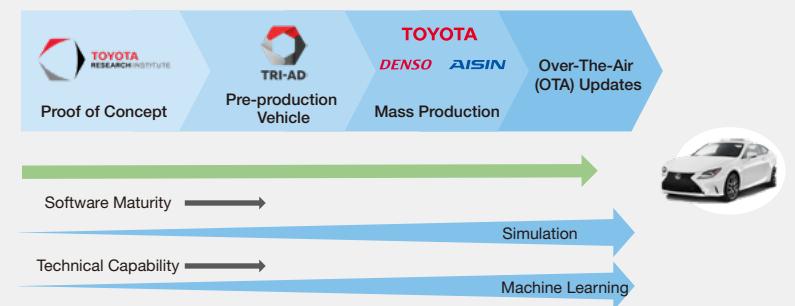


### Our Guiding Development Philosophy



Toyota's unique approach to automated driving is built on the belief people and vehicles can work together in the service of safe, convenient, and efficient mobility.

### Development Pipeline



# Toward a World with No Traffic Casualties—Active Safety and Automated Driving Research and Development

in the social ballet required to navigate through an ever-changing environment of human drivers? Sociologically, how long will it take until the public accepts the less frequent, but still inevitable, crashes that will occur with no one at the wheel?

Because of these difficulties, Toyota is using the same underlying technologies for Chauffeur to also develop Mobility Teammate and Guardian systems. This approach is designed to help improve safety by amplifying and enhancing the driver's capabilities, not replacing them, providing seamless assistance to the driver when the driving task is approaching or beyond their capability. Additionally, Toyota must make breakthroughs in performance of these systems versus hardware cost, so as to deploy the system in a larger number of vehicles.

Guardian can also be combined in parallel with the L4 and L5 automated driving systems developed by Toyota or other companies to enhance safety and quality. In other words, Guardian can serve as a check for Chauffeur-type systems, from another point of view, to provide redundancy and lower the chance of system failure.

## Advances in Active Safety and Automated Driving Research and Development

### Blended Envelope Control

One area of recent progress by the TRI is a Guardian capability called "blended envelope control." Blended envelope control is inspired and informed by the way that modern fighter jets operate. A pilot controls the stick, but actually does not fly the plane directly. Instead, the pilot's intent is translated by the flight control system to stabilize the aircraft and stay within a specific safety envelope. Applying this same approach to cars is much more challenging because of traffic. In the case of a car, the safety envelope is defined not only by vehicle dynamics, but also by perception and prediction of other agents, which makes the envelope computation variable and dynamic. If a driver begins to reach the edge of a dynamically changing safety envelope, the machine begins to collaborate with the driver, first warning, then nudging the vehicle back into a safe corridor. The control envelope is not a discrete on-off switch

between the human and the automated driving system. Rather, it is a seamless blend of both, working as teammates, to extract the best input from each.

### TRI-P4 Automated Driving Test Vehicle

In January 2019, TRI unveiled the TRI-P4, its next-generation automated driving test vehicle. Based on the fifth-generation Lexus LS 500h, the new vehicle helps accelerate the development of automated driving technology for both the Chauffeur and Guardian approaches. The TRI-P4 is Toyota's most advanced automated driving research vehicle with greater perception and computing power, capable of operating a large number of machine learning algorithms in parallel for faster learning.

### RADICAL Software

TRI has developed RADICAL, short for Robust Autonomous Driving Incorporating Cameras And Learning, an umbrella term that describes the vision for its approach to automated driving. This approach is made possible by lower-cost cameras becoming more ubiquitous combined with dramatic advances in

accurate perception with advanced machine learning. Using RADICAL, TRI has also created a robust object perception pipeline that can recognize objects, classify road segments, and predict the future behavior of dynamic agents in the world.

The RADICAL software architecture can take advantage of available high definition maps, but does not require them, allowing the system to work in unmapped areas and to be used in more locations around the world. Hand in hand with this approach, TRI has also developed a state-of-the-art large-scale Simultaneous Localization And Mapping (SLAM) framework for on-board dynamic map generation and precision localization.

Furthermore, TRI has developed cloud-based simulation technology in order to conduct large-scale testing and accurately measure the overall performance and capability of the system.

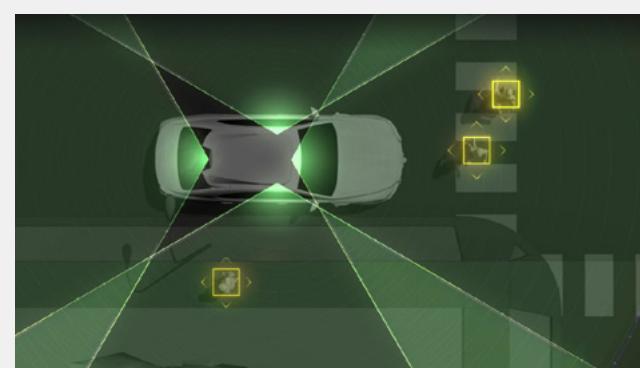
### Michigan Closed-course Test Facility

During 2019, TRI completed the build out of its dedicated test track in Ottawa Lake, Michigan, allowing closed-course testing of RADICAL software

**TRI-P4, Next-Generation Automated Driving Research Vehicle**



**Image of RADICAL Software Coverage**



**Michigan Closed-course Test Facility**



# Toward a World with No Traffic Casualties—Active Safety and Automated Driving Research and Development

innovations prior to testing capabilities on public roads. This facility enables systematic replication of the most challenging infrastructure characteristics and driving scenarios in which the P4 must navigate autonomously.

## Mobility Teammate

TRI-AD is preparing to launch a series of production ready vehicles under the Mobility Teammate Concept from 2020. When deployed, the vehicle becomes intelligent, utilizing a powerful state-of-the-art onboard computer and AI technology based on deep learning. The Mobility Teammate system will also bring a new level of perception, able to detect and understand the roadway and surrounding traffic by processing vast amounts of sensor data in real time through its cutting-edge, 360-degree, multi-modal sensor configuration. Additionally, Teammate will be upgradeable through OTA continuing to deliver future value to customers.

## Summer 2020 Demonstrations

From July to September 2020, the TRI-P4 will be used to demonstrate Toyota's Chauffeur approach to automated driving, showcasing capabilities in a Mobility as a Service (MaaS) driving environment in Odaiba, Tokyo. In preparation, TRI has replicated the congested urban environment of Odaiba with a scaled version of the road network at the Ottawa Lake, Michigan, track for developing new code. Further testing of P4 software is being conducted on public roads in Odaiba and around TRI's Ann Arbor, Michigan, and Los Altos, California, research offices.

TRI will also showcase its automated driving software, AI agent software, and heads-up display UX software in the LQ vehicle during this time as well as telepresence robot technology.

## University Research Partnerships

In 2019, the Automated Driving team leveraged research at Stanford University, the Massachusetts

Institute of Technology (MIT), and the University of Michigan sponsored by the TRI University Research Program. At Stanford, Professors Gerdts and Schwager developed and demonstrated methods for envelope control; TRI implemented these methods on its prototype vehicles and demonstrated them in operation on test tracks. At the University of Michigan, Professor Ergal invented new trajectory planning methods to avoid collisions near the dynamic limits of handling; TRI has integrated the trajectory planner into the TRI simulation framework and will soon integrate the method for on-vehicle testing. At MIT, Professors Rus and Karaman used models from social psychology to classify the behavior of drivers; TRI has begun exploring the use of those classifications to quantify the risk of various driving maneuvers near other drivers. These three examples, one from each university, illustrate how technology developed at the universities is entering TRI.



TRI



TRI-AD

## Building a World-class Team



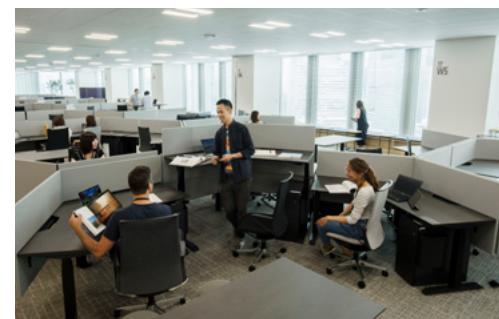
James Kuffner  
CEO, TRI-AD

"In order to succeed in our mission to deliver world-leading technology, the most important ingredient is building a world-leading team of engineers and professionals. Attracting top talent is the reason that TRI-AD set out to create a new kind of work environment and working style, with creativity and innovation at the core."

I am very excited that TRI-AD has been able to attract a diverse development team of some of the world's top professionals in Nihonbashi. These employees share our company commitment to build future mobility that will dramatically improve the quality of life for people around the world."



The TRI-AD office



## Initiatives in Connected Cars and MaaS in Toyota's Transformation into a Mobility Company



Toyota has set its sights on new growth as a mobility service platform provider through connected technology.

**Shigeki Tomoyama**  
Executive Vice President

The Mobility as a Service (MaaS) business domain is poised to expand as cars become platforms for providing mobility services to society. Toyota unveiled its Connected Strategy in late 2016 and has been accelerating MaaS initiatives.

- 1 Build a Mobility Service Platform (MSPF) for use with vehicles that will all be "connected"
- 2 Accelerate business innovation within Toyota by promoting the utilization of big data, benefiting customers and society
- 3 Create new mobility services via tie-ups with various companies

Essentially, Toyota's Connected Strategy comprises three arrows, namely "connect all cars," "use big data," and "create new mobility services." Our MSPF serves as the information infrastructure vital to this strategy. Both the cloud that connected cars link to and the vehicle information stored in the cloud will be responsibly managed by Toyota using its safe and

secure MSPF. Insurance companies and companies that provide services such as ride-sharing and car-sharing can offer services linked to Toyota and Lexus vehicle information via the MSPF. Through connected technology, Toyota is transforming itself from a car company into a mobility company—a provider of the value of movement itself and peripheral services for society. In this way, we are aiming for new growth as a mobility service platform provider.

### Three Faces of Our Connected Strategy



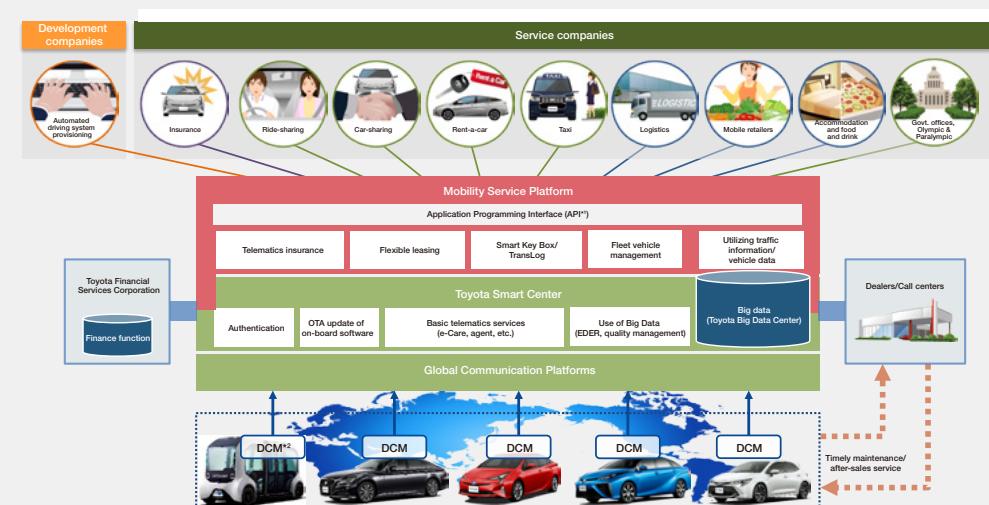
Our Connected Strategy has three faces: defense, Kaizen, and offense. Defense entails the establishment of long-term relationships of trust with customers and the maintenance and expansion of existing value chains. Kaizen encompasses reforms to traditional ways of working and making major improvements in quality, lead times, and productivity. Offense is about creating new value for cars and a new mobility business.

Key defensive initiatives for our Connected Strategy include e-Care and health check services, entailing timely after-sales services offered by dealers and call centers based on vehicle data. In addition to delivering a worry-free car ownership experience, we believe these initiatives will enhance customer loyalty to Toyota and Lexus vehicles and increase the volume of business for dealers that provide these services.

A key aspect of Kaizen is early detection and early resolution (EDER) based on vehicle data. Drawing from a constant stream of vehicle data, the EDER approach enables Toyota to quickly detect market defects and facilitate rapid and efficient market remedies. Furthermore, over-the-air (OTA) software updates ensure a vehicle's software is always the latest version.

In terms of offense, we are keen to generate new value for cars and create new mobility businesses. For example, Toyota's agent function creates new value. A cloud-based AI assistant, the agent serves the wishes of drivers by facilitating their interaction with their vehicles. Agent 1.0 functionality has become a practical reality, allowing drivers to use natural speech when communicating with car navigation systems. In the future, we plan to launch more advanced Agent 2.0 functionality. Creating new mobility businesses, such as MaaS, is the area in which we aim for new growth into a mobility company.

### MSPF Information Infrastructure That Supports Our Connected Strategy



\*1 API stands for Application Programming Interface, a set of subroutines used to program software. Using an API makes it possible to use the functions of the subroutines simply by calling them.

\*2 DCM stands for Data Communication Module. It is a special communications module for transmitting data.

# Initiatives in Connected Cars and MaaS in Toyota's Transformation into a Mobility Company

## Strategic Approach to MaaS

Toyota's MaaS strategy comprises two approaches:

- 1) Providing MaaS via collaboration with leading regional MaaS providers, such as Uber, Grab, and DiDi
- 2) Providing MaaS with Toyota and Toyota dealers taking the lead

The approach we choose to pursue depends on the region and local conditions. In both approaches, we place emphasis on expanding the deployment of Toyota vehicles, as well as on securing value chains in maintenance, insurance, and leasing. With an eye to the future, Toyota has set its sights on becoming a mobility service platform provider able to comprehensively furnish everything from vehicles to maintenance services when MaaS evolves to include ride-sharing services based on automated vehicles.

## Increasingly Popular Mobility Services around the World

### Collaboration with Leading MaaS Providers

#### Partnership with Grab: Provision of Total Care Services

In December 2018, Toyota and Toyota dealers began providing total care services for ride-sharing vehicles in partnership with Grab Holdings, Inc., one of the largest ride-sharing companies in Southeast Asia. These services include insurance and maintenance linked to driving data from connected rental cars that Grab rents out to its drivers. Toyota and Grab are expanding this service to all Grab vehicles in Southeast Asia while at the same time increasing the ratio of Toyota vehicles used by Grab to 80% in the region.

### Partnership with Uber: Development of Automated Driving Technologies for Ride-Sharing Services

In April 2019, Toyota, along with DENSO Corporation, opened a collaboration center with Uber Technologies Inc.'s Advanced Technologies Group (Uber ATG) to advance the development and commercialization of cars equipped with automated driving technologies for ride-sharing services. Under this partnership, the companies aim to develop and mass produce automated driving systems (ADSs) for vehicles while standardizing the vehicle interfaces required for automated driving, with the aim of bringing to market ride-sharing services that fully utilize automated driving technologies.

### Partnership with DiDi: Establishment of Ride-Sharing Vehicle Rental Business

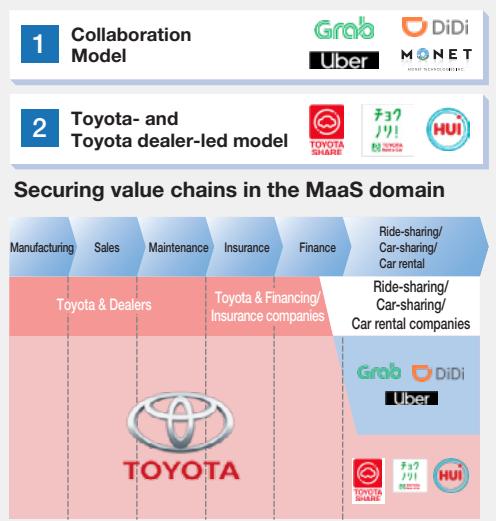
Toyota and DiDi Chuxing Technology Co., one of the largest ride-sharing companies in China, established a joint venture in September 2019 to launch a car rental operation for DiDi drivers. These rental cars will

receive the same total care services for ride-sharing vehicles that Toyota provides for Grab. The two companies are also looking into rolling out BEVs for MaaS that would dovetail with mobility services in China.

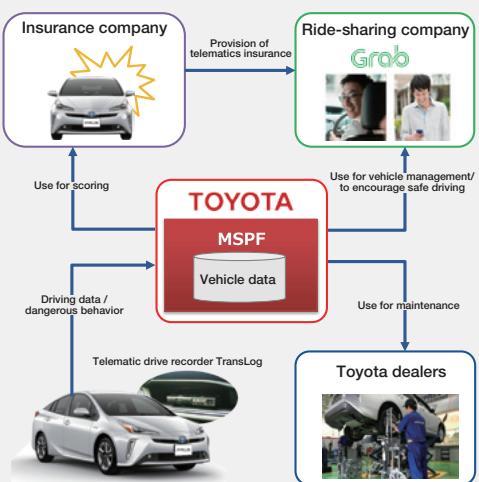
### MONET's Business Development: Solving Mobility Problems in Society

MONET Technologies Corporation was established by Toyota and SoftBank Corporation in October 2018 to focus on solving mobility problems in Japan, such as traffic congestion in cities or elderly access to transportation in underpopulated areas. MONET Technologies has begun coordination with 25 local governments across Japan to provide next-generation on-demand mobility services. In addition, we created the MONET consortium with 400 member companies. Trials of on-demand bus services are already under way in the cities of Yokohama, Toyota, and Fukuyama as is an on-demand commuter shuttle in the Marunouchi district of Tokyo.

## Two Approaches to MaaS Strategy



## Grab: Total Care Service



## MONET: Pilot Testing

### Coordination with local governments: On-demand bus services



### Coordination with businesses: On-demand commuter shuttle



## MaaS with Toyota and Toyota Dealers Taking the Lead

### Toyota Share and Chokunori!

In October 2019, Toyota dealers and Toyota car rental and leasing branches in Japan began to offer Toyota Share car-sharing services and Chokunori! unmanned rent-a-car services. These services feature Smart Key Box (SKB), which lets users unlock vehicles with their smartphones, and TransLog, a communications-linked driving recorder. With only a smartphone, a customer can sign up, unlock a car, return the car, and settle their account.

Servco Pacific Inc., a Toyota distributor in Hawaii, rolled out its Hui unmanned car rental service in July 2018, becoming a model for developing MaaS for Toyota distributors in other countries.

# Initiatives in Connected Cars and MaaS in Toyota's Transformation into a Mobility Company

## Future Lineup of MaaS Vehicles

Existing passenger cars are currently being deployed as vehicles for ride-sharing and car-sharing services under MaaS initiatives. In the future, we believe vehicles designed specifically for MaaS will become necessary, and Toyota plans to add three such models to its lineup.

In addition to the e-Palette model unveiled at CES 2018, Toyota is working on a mid-size vehicle based on the Sienna and an even smaller BEV compact model. Building on these MaaS vehicles, Toyota envisions mobility services using automated driving technologies, a concept it has dubbed Autono-MaaS.

## Toward the Realization of Autono-MaaS

Toyota is advancing the development of autonomous vehicles for use in Autono-MaaS based on the idea that mass-produced vehicles capable of SAE International level 2 or level 3 autonomy can be equipped with ADSs to create MaaS vehicles with level 4 autonomy. In some cases, a third-party developer will supply the automated driving software for the ADS, and the Toyota Guardian system installed in the base vehicles will provide a layer of redundancy by monitoring surrounding conditions to increase overall vehicle safety. Moreover, Toyota will standardize the vehicle control interfaces (VCIs) that connect ADSs and vehicles and make control units, including the Toyota Guardian system, versatile enough to use with any vehicle or ADS. By doing so, we aim to provide safe and reasonably priced Autono-MaaS.



Guardian System, p. 15

## MaaS and TPS

Vehicles for ride-sharing and car-sharing services are used at far higher rates than privately owned and used vehicles and thus require more frequent maintenance. In order to shorten vehicle down time and reduce the cost of maintenance, Toyota is basing its maintenance approach on the Toyota Production System (TPS). For example, for the total care services that we provide for ride-sharing vehicles used by Grab, Toyota dealers have been furnished with stalls for providing concentrated service called Intensive Care Stalls (ICSs) that leverage TPS improvements to shorten maintenance down time and improve work quality.

Looking ahead, to realize MaaS, it will be vital not only to develop tailor-made vehicles and software, but to improve the productivity and quality of related operations, such as maintenance and cleaning services. Introducing TPS is becoming a key factor in making this a reality.

## Real-World Technology and Assets as Our Strengths

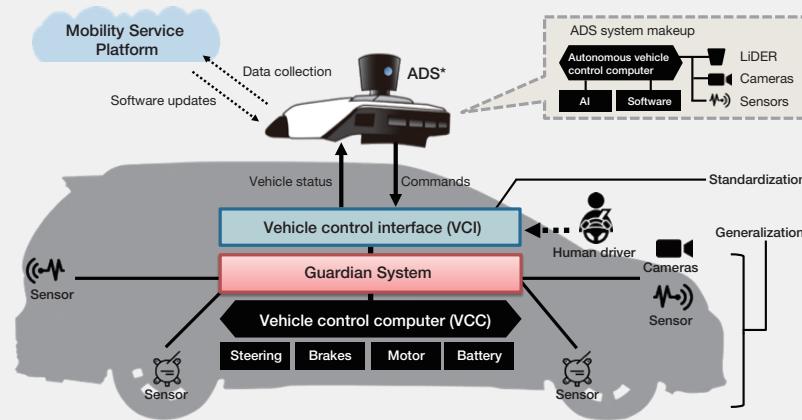
IT firms and companies in other sectors have made inroads into the MaaS domain, but IT and AI alone will not lead to the creation of a safe and convenient mobility society. Cars are already a combination of advanced hardware and software, a form of transportation that entails a duty of responsibility for people's lives. To provide cars that are mass produced at excellent quality and cost and maintained at regular intervals as a safe and reasonable means of transportation, Toyota must leverage all its accumulated real-world know-how and technologies, starting with TPS, and all its real-world assets, including its service network. Along with the development of cutting-edge technologies, Toyota will continue to refine quality and improve productivity in its traditional automobile business. A key issue going forward will be integrating this business with the potential of new businesses.

Through connected technology and MaaS, Toyota aims to create a safe and comfortable mobility society with freedom of movement for all.

## MaaS-dedicated Vehicle Lineup

	e-Palette	MaaS Sienna	MaaS BEV
Application	Multi-purpose, short-range transportation (people and goods)	Medium- and long-range ride-sharing services	Short- and medium-range ride-sharing services
Launch	Olympic and Paralympic Games Tokyo 2020	2021	—
Motor	BEV	HEV	BEV
Size	Large	Medium	Small

## Automated Vehicles for Autono-MaaS



## Real-World Expertise and Technology: ICS\*



Standardized work with work-assistance carts



Voice input of maintenance records saves time

\* ICS: Intensive Care Stall

# Enabling Active Participation in Society for All with Partner Robots

## Expanding the Scope of Support Provided by Partner Robots to Include All People

Toyota's founder, Kiichiro Toyoda, espoused the view that "A machine is complete only when it works in perfect harmony with people." In line with this sentiment, Toyota has always introduced robots not to replace people, but to collaborate with them. We believe that only when robots work in harmony with people can they fulfill their true purpose, and by working in harmony with robots, people can expand and strengthen their abilities. This approach is different from full automation, in which robots operate alone, and it is the reason that Toyota calls the robots it develops "partner robots."

## Toyota's Three Types of Movement

Toyota seeks to provide freedom of movement for all through partner robots and robotics technologies. By "movement," Toyota refers to not only the physical movement of a person or thing from one location to another, but also virtual movement, using an avatar or agent to move a part or the whole of oneself remotely, as well as the feeling of being moved emotionally by the excitement of experiencing new things and meeting and interacting with others that other kinds of movement make possible. Toyota aims to one day provide high-quality partner robots at affordable prices to help enable active participation in society for all.

Through the development of robots and robotics technologies, Toyota will continue to blaze the trail forward to create ever-better communities in which all people can participate with a sense of purpose.

## Toyota's Development of Partner Robots

### Human Support Robot: HSR



Toyota's human support robot (HSR) can move independently or via manual control and grasp and fetch objects. Because the HSR can be controlled remotely, it offers the potential to perform work offsite. In 2015, to enhance the HSR's functionality, Toyota created the HSR Development Community. As of October 31, 2019, 50 institutions in 14 countries are taking part in this community. Furthermore, the HSR has been selected as a platform for the worldwide RoboCup competition and the World Robot Summit, sponsored by the Ministry of Economy, Trade and Industry. We have also begun joint development with Preferred Networks using the HSR with the aim of creating robots capable learning in typical living environments to cater to future market needs. At the Olympic and Paralympic Games Tokyo 2020 (the Tokyo 2020 Games), for a portion of the wheelchair accessible seating at the Olympic Stadium, the HSR will guide guests to their seats and offer assistance to help them to more freely enjoy the competition.

### Humanoid Robot: T-HR3



The T-HR3 is a remotely controlled robot that allows the operator to feel external forces applied to the T-HR3 while recreating the operator's movements. Capable of gentle, smooth movement, the T-HR3 is designed with the aim of serving as a partner robot that can safely provide assistance in daily life alongside humans in a variety of settings, such as the home or office. Going forward, Toyota hopes to develop applications for its use in such hazardous conditions as disaster-stricken areas and construction sites. At the Tokyo 2020 Games, Toyota will provide "mascot robots" featuring a simplified, miniaturized version of the T-HR3's control system. Through communication and remote control via the mascot robot and T-HR3, guests in remote locations will be able to interact with athletes and truly feel the atmosphere of the event as if they were there in person.

### Rehabilitation Robot: Welwalk



From autumn 2017, we began rental of the Welwalk WW-1000, a robot designed to aid in the gait training of patients with lower limb paralysis due to stroke or other factors. Since then, we have delivered 80 units to medical institutions across Japan. In November 2019, we announced a successor model, the Welwalk WW-2000, which can analyze patient's gait characteristics to suggest appropriate parameter settings and includes gaming functions to increase patient motivation. In addition, we moved to in-house production, leveraging the quality management functions of the Motomachi Plant developed through car production, and switched from rental to sales.

With an eye to overseas expansion, we have begun experimental research in partnership with Chulalongkorn University in Thailand and China Medical University in China.

### AI Athlete Robot: CUE



CUE began as a project of the Toyota Engineering Society,\* a voluntary employee organization within Toyota. The team members had zero experience in developing robots and were also complete beginners when it came to AI. They studied from scratch and, through a process of trial and error, developed CUE, an AI basketball robot that scores 100% of its shots. Now an official member of the team Alvark Tokyo, CUE has expanded the area from which it can shoot with each season it has played. Its rapid progress caught the attention of Guinness World Records, and after a six hour, thirty-five minute attempt, it officially set a new record, "Most consecutive basketball free throws by a humanoid robot (assisted)," with 2,020 shots.

\* Toyota Engineering Society: A voluntary organization inaugurated in 1947 to contribute to the development of technological fields in various areas of business. At present, it has approximately 30,000 members.

# Developing People in a Once-in-a-Century Transformational Period



Mitsuru Kawai  
Executive  
Vice President



## The Situation at Production Sites is Ever-Changing

At a production site, an equipment failure, quality problem, missing part, or other issue can arise at any time. The situation at such sites is ever-changing. As such, quick judgment and swift, on-the-spot decision making, and sometimes even major manpower mobilization, is crucial to avoid keeping customers waiting.

At Toyota, when a problem occurs at a production site, the first thing we do is halt the operation in question. We seek to identify the precise issue and its root cause, then implement steps to prevent recurrences and improve. The experience built up in this way, handling issues in the course of daily operations, enables our people to respond quickly. The mindset of always looking for ways to improve processes and, reduce costs while adapting to new changes every day and considering quality, production volume, and above all, safety, is firmly established.

I am constantly reminding those around me that today's best is not always tomorrow's best, and that we must evolve every day. I believe that this spirit of *Kaizen* (improvement) will enable us to flexibly respond to large-scale change going forward.

## Further Deepening Our Culture of Improvement

Front-line production sites have the advantage of clear goals, set in such terms as productivity and cost, and the effects of improvements are readily apparent. In contrast, at administrative and technical workplaces, due in part to fine segmentation and specialization, the end results of one's work can be less obvious, and the culture of seeking improvement every day is not as strong.

In spreading this culture of constant improvement throughout the Company, it is crucial that employees themselves seek to make changes in their work and be alert to opportunities for improvement. To encourage this, since spring 2019, we have been calling for operational improvement suggestions from throughout the Company under our Creative Suggestion system.\*

As a result, Company-wide participation in the Creative Suggestion system has risen from 60% to 90%. However, participation remains low in certain

departments, and I think it is too early to say that our corporate culture has truly changed.

While global annual vehicle production has been steadily above 10,000,000 units in recent years, we are now pressed to fund the development of forward-looking technologies. We are therefore advancing with the understanding that we must continue to vigorously seek cost reduction.

\* Creative Suggestion: A system launched in 1951 through which employees propose suggestions for improvement.

## Creating a Whole That Is Greater than the Sum of Its Parts

In anticipation of the CASE\* era, Toyota is seeking to increase its competitiveness through alliances. The key factor in alliances is people. The mere alignment of company with company does not make either stronger—only when their people come together, helping each other and working with a shared purpose does their competitive strength grow.

In 2018, I started the "Oyaji no Kai," a gathering of experienced technicians from across the Toyota Group. The aim of this gathering is to foster relationships among technicians at different workplaces so that they call one another up to ask for advice and help with front-line issues, such as personnel shortages and workload fluctuations. The group's first meeting was just a casual dinner, but, being so like-minded, the participants quickly hit it off and really did start to help each other from the very next day. Now, they are moving forward with efforts to strengthen relationships between front-line personnel within Group companies. I think that such human connections will bolster the effectiveness of efforts to help regions and businesses recover after natural disasters and other major disruptions, as well.

Sharing knowledge and experience can spark new insights, leading to developments and improvements that one person might never think of alone—I believe that alliances, should, in this way, create a whole that is greater than the sum of its parts.

\* CASE: Connected, Autonomous/Automated, Shared, and Electric.

## People: The Core of Manufacturing

As individuals from different corporate cultures, with different ways of working, increasingly work alongside one another, it is vital that we candidly exchange views and look for opportunities to combine our respective strengths. For this to work, each individual must be a true professional. This entails cultivating both the expertise to swiftly make decisions based on the *Kaizen* mindset and leadership with a human touch to help others understand and get them on board.

In 2019, I was appointed to the position of Chief Officer of the General Administration & Human Resources Group. Our current training and personnel systems developed during a period of corporate expansion, and I feel that they are now in need of significant revision.

Going forward, we will develop professionals with the following qualities, which are essential in this once-in-a-century transformational period.

- Can think proactively and take action
- Can take on new challenges see them through to conclusion
- Consider continuous self-improvement and continue to contribute throughout their career
- We will advance rational, merit-based human resource management, giving proper recognition to those who are doing well, regardless of academic background, age, or formal qualifications. At the same time, we will firmly establish a corporate culture in which everyone constantly seeks to surpass their role models and help nurture junior colleagues who will eventually surpass them.

However markets or industries may evolve, people remain the core of manufacturing. We will continue to do our utmost to develop our people in order to achieve sustainable growth.

### What is a Professional?



# Message from the CFO



**Koji Kobayashi**

**Executive Vice President,  
Member of the Board of Directors**

My role as CFO and advisor to the president is to keep watch over Toyota's overall management, maintain daily communication with the president, come up with ways to realize the president's aspirations, priorities, and strategies, and give directions as appropriate.

Sustainably increasing corporate value is the duty of all companies. As a mobility company, Toyota is facing a once-in-a-century period of profound transformation and therefore must advance aggressive forward-looking investment and business model innovation. Given this, I would like to share some of my thoughts on the factors that will be important to maintain and increase corporate value going forward.

## Raising the Value of Our Human Resources

A company's true value lies not in its factories, machinery, or other physical assets, but in the people who use them. One of my favorite sayings is from Shingen Takeda, a prominent 16th century lord and general, and literally translates as "people are the stone walls." In other words, just as rocks of various shapes and sizes can together form a strong stone wall, developing and effectively deploying human resources with diverse values and expertise is essential to building a strong company.

Management determines the Company's strategy and explains the hurdles that must be overcome to bring out the best efforts of employees so that everyone at Toyota will work hard and support one another as a team. Employees hone their respective expertise and carry out their responsibilities as professionals. Such daily efforts are the essential elements of increasing corporate value and the foundation that supports Toyota.

## Cost Reduction, the TPS, and Next-generation Investment

Cost reduction and the Toyota Production System (TPS) are Toyota's core strengths and traditions, handed down from our predecessors. However, I think that we still have further to go to fully embrace the true essence of these.

Examining costs means examining actions. We carefully scrutinize every action, from each use of a pencil by each individual all the way up to major projects, drawing on the full extent of our knowledge and abilities to determine which parts of our actions are wasteful so that we can improve them. When I visit Toyota's worksites and talk with employees, I do my utmost to encourage them each to develop an awareness of costs and a concrete view of the value of specific things and actions. By implementing such activities globally, we are securing the funds to sustainably invest in electrification, automation, connectivity, and other next-generation technologies and to accelerate investment in partner companies and start-ups.

## Maximizing Group Competitiveness

The Toyota Group has grown by building on the foundation laid by Kiichiro Toyoda and constantly pushing to do better. The strength of the Toyota Group is in its shared set of basic values. As we prepare to take on new rivals in as-yet unknown arenas, it is more important than ever to return to the roots of the Group and gather our full strength. By having each Group company focus on its particular areas of expertise, we will further enhance our competitiveness. To do this, we are rebuilding our existing frameworks. I think that the common values shared by the companies of the Group are what will enable the success of the "home and away" strategy espoused by President Toyoda. To achieve this strategy, we will reduce consolidated fixed costs, streamline development and investment, reinforce cost competitiveness, and advance human resource development to achieve greater results from the efforts of the Group's employees and thereby increase the corporate value of the Group as a whole.

Going forward, I will be sure to report the yearly progress and results of such initiatives to our investors and shareholders.



Dialogue with employees



# Capital Policy

## Financial Strategy

### Three Pillars

The three pillars of Toyota's financial strategy are stability, growth, and efficiency. By maintaining adequate stability while pursuing growth and efficiency over the medium and long terms, we aim to build a robust financial foundation to support sustainable growth.

#### 1. Stability: Securing Liquidity

Having experienced financial crises and the Great East Japan Earthquake, in order to ensure business continuity in any business environment, we maintain a sufficient level of liquidity to cover half a year of both fixed costs in the automotive business and refinancing requirements in the financial services business.

Ample liquidity is essential to maintaining a full line-up in each region and retaining the ability to respond to all options and opportunities in this era of profound transformation in mobility. As such, it is a vital part of the foundation supporting the creation of corporate value.

#### 2. Growth: Aggressive Forward-looking Investment

The auto industry is on the verge of a once-in-a-century turning point. We believe that technological innovation in such areas as connected technologies, automated driving, sharing, and electrification will be key to the mobility of the future. Every year, we spend more than 1 trillion yen on R&D. By enhancing efficiency in existing areas, we are strategically increasing the portion of R&D spending allotted to cutting-edge fields like the above.

We are advancing a wide range of investment initiatives aimed at reinforcing competitiveness. These include investments in start-ups through the Mirai Creation Fund and Toyota AI Ventures; funding for our business tie-up partners, such as Grab and Uber; the joint funding of MONET with SoftBank; and investments in Uber ATG, Uber's automated driving group, DiDi, and other companies.

#### 3. Efficiency: Enhancing Capital Efficiency

Using cost reduction and the thorough application of the TPS, we are reinforcing the profit structure and securing funds to invest in advanced and cutting-edge technologies.

In capital expenditures other than R&D expenses, as well, we are carefully assigning priority to individual projects and tracking their progress while advancing

measures to improve productivity, such as streamlining development in existing fields, making equipment more compact, shortening processes, and facilitating faster response to changes in production quantities.

Furthermore, in addition to sustainably increasing ROE by repurchasing shares, we are strengthening investment management by regularly evaluating the rationality of our strategic shareholdings in terms of the needs of our business strategies and economic utility. In these ways, we are striving to enhance capital efficiency.

### Diversifying Our Funding Base

To diversify our means of funding, in 2015 Toyota issued approximately 500 billion yen in Model AA class shares to raise funds for long-term R&D activities and build a base of medium- and long-term shareholders. The funds raised are being invested in R&D related to advanced and cutting-edge technologies, such as fuel cells, infrastructure, information technology, and highly intelligent mobility.

In 2019, Toyota issued straight bonds worth 50.0 billion yen in Japan and 1.5 billion USD overseas. We are using the proceeds from these for as operating capital and for capital expenditures. Through such measures,

we are diversifying our funding base to ensure that we can respond on all fronts to new challenges and opportunities in this time of profound transformation in mobility.

### Shareholder Return

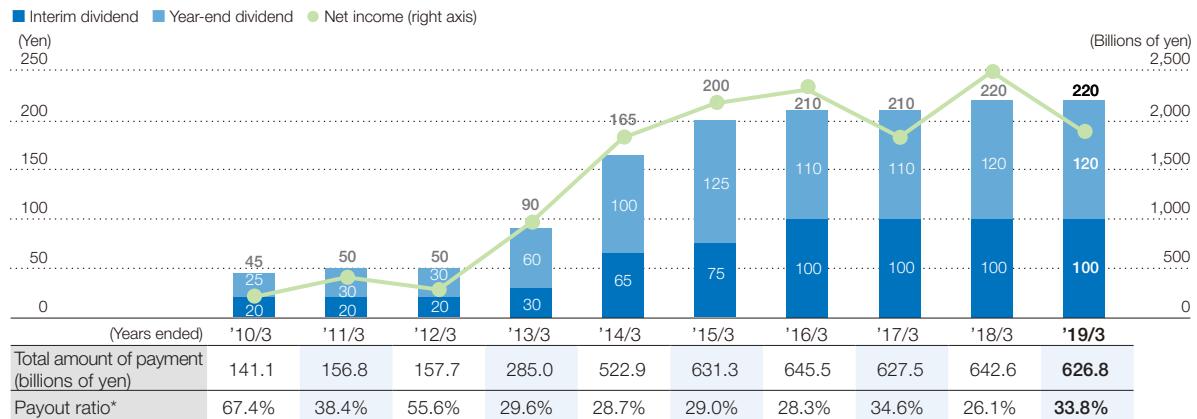
We prioritize shareholder return as part of our capital policy. In principle, shareholder return is determined on the basis of net income.

We strive to maintain stable and sustainable dividend payments based on a benchmark consolidated dividend payout ratio of 30%. For the fiscal year ended March 31, 2019, we paid an annual dividend of 220 yen per share.

We flexibly repurchase shares to improve capital efficiency based on a comprehensive consideration of such factors as liquidity on hand and the share price. For the fiscal year ended March 31, 2019, we paid out 550.0 billion yen for the repurchase of shares, resulting in a total of 80 million shares acquired. Combined with dividends, this brought the total annual shareholder return to 1,186.8 billion yen, for a consolidated payout ratio of 63.0%.

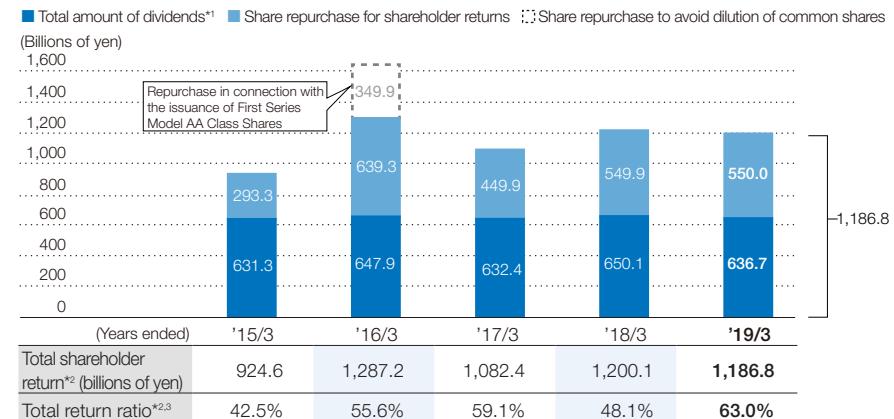
Going forward, we will strive to further improve net income and ensure ongoing shareholder return through dividends and share repurchases.

### Dividend per Share and Net Income



\* Payout ratio: This is the ratio of (i) the amount of dividend per common share to (ii) net income attributable to Toyota Motor Corporation per common share.

### Total Shareholder Return and Total Return Ratio



\*1 Includes dividends paid to First Series Model AA Class Shares

\*2 Excluding repurchase made to avoid dilution of common shares.

\*3 Total return ratio: This is the ratio of (i) the sum of dividends on both common shares and the First Series Model AA Class Shares and the amount of repurchase of common shares for shareholder returns to (ii) net income attributable to Toyota Motor Corporation.

# Initiatives for Sustainable Growth

## Working with Global Society

In cooperation with global society, Toyota is working to contribute to the sustainable development of society and the planet through its business activities. At the root of these efforts are the Five Main Principles of Toyoda, passed down as the core of Toyota's corporate management, and the Guiding Principles, which lay out how Toyota should be as a company. Based on our experiences with the 2008 global financial crisis and the series of recalls in 2010, in 2011 we announced the Toyota Global Vision, which lays out what the Company should strive for going forward.

This approach and these values align with the aims of the United Nations Sustainable Development Goals (SDGs), promulgated in January 2016.

Toyota regards addressing environmental issues as an especially key aspect of sustainability. To help

achieve the Paris Agreement goal of keeping global warming below 2°C,\* we are promoting initiatives under the Toyota Environmental Challenge 2050.

\* The Paris Agreement was negotiated in 2015 at the 21st yearly session of the Conference of the Parties (COP 21) to the United Nations Framework Convention on Climate Change, held in Paris. The agreement set the long-term goal of limiting global warming to well below 2°C compared with pre-industrial levels and calls for reaching net zero anthropogenic emissions of CO<sub>2</sub> and other greenhouse gases during the second half of the 21st century.

## Valuing All Stakeholders

Toyota places value on all stakeholders in the management of its businesses and strives to maintain and develop sound relationships with them through open, fair communication in order to contribute to the sustainable development of society and the planet.

Specifically, Toyota engages in dialogue with key stakeholders via its relevant divisions or its offices around the world to communicate the Company's approaches and deepen mutual understanding.

In addition, we communicate with outside experts and other parties to better formulate policies and initiatives related to sustainability. Toyota seeks to further enhance its dialogue with stakeholders, earnestly engage with the expectations of and challenges faced by society, and utilize the insights gained from these efforts in its initiatives going forward.

 Stakeholder Engagement (Sustainability Data Book 2019, p. 9)

## Implementation Framework for Addressing Sustainability Issues

As the automotive industry faces a once-in-a-century period of profound transformation, quicker decision making and greater operational efficiency than ever before are essential. At the same time, stakeholder expectations are rising with regard to non-financial issues, particularly environmental (E), social (S), and governance (G) issues.

To respond to these changes, Toyota established the Sustainability Meeting in 2018. Chaired by the chief risk officer, the meeting's members include Outside Directors and Outside Audit & Supervisory Board Members. The meeting discusses non-financial considerations from a range of angles and examines the overall direction of management.

## Helping Solve Global Social Problems



## Together with Our Stakeholders



## Implementation Framework



# Corporate Philosophy

## Toyota's Founding Philosophy and Its Implementation: The Five Main Principles of Toyoda, the Guiding Principles at Toyoda, and the Toyota Way

The Five Main Principles of Toyoda have been passed down since Toyota's founding as the core of its management. These principles embody the thinking of the Toyota Group's founder, Sakichi Toyoda. In 1992, they were reorganized in light of changes in society and business structure to create the Guiding Principles at Toyota.

The auto industry is at a once-in-a-century turning point. In response, we are advancing initiatives to encourage all employees to return to Toyota's foundations—the Five Main Principles of Toyoda—and reexamine the mindsets and approaches that they bring to their work.

The Guiding Principles at Toyota lay out the kind of company we want to be. Building on this, the Toyota Way 2001 (hereinafter called the "Toyota Way") was established in 2001, laying out values and business practices that everyone working at Toyota around the world should embrace. The Toyota Way thus clearly articulates and facilitates the global sharing of values and practices that had previously been passed down only as implicit knowledge.

The Toyota Way's main pillars are the concepts of continuous improvement and respect for people, with the keywords of taking on challenges, Kaizen (Continuous improvement), and *Genchi Genbutsu* (onsite, hands-on experience) under the former and respect and teamwork under the latter. Continuous improvement means never

being satisfied with the status quo and always doing our utmost to create even greater added value. Respect for people entails respect for all our stakeholders and working to achieve business success by promoting the growth of employees.

## Rewarded with a Smile by Exceeding Your Expectations. The Toyota Global Vision

The Toyota Global Vision, published in March 2011, was created through exhaustive, Company-wide reexamination and discussion of the kind of company that Toyota aspires to be and the values that it esteems in light of the Company's losses following the

global economic crisis of 2008 and the series of recalls in 2010. We are implementing a positive cycle of making ever-better cars that exceed customer expectations, enriching lives of communities, being rewarded with the smiles of customers and communities and thus reinforcing our stable base of business in order to sustainably grow in concert with society.

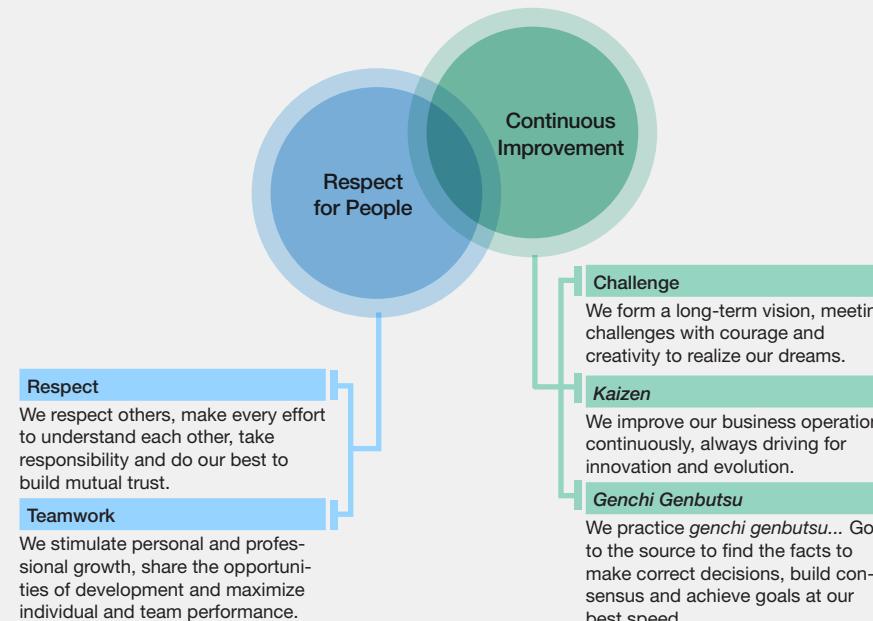


Corporate Principles  
(Sustainability Data Book 2019, p. 5)

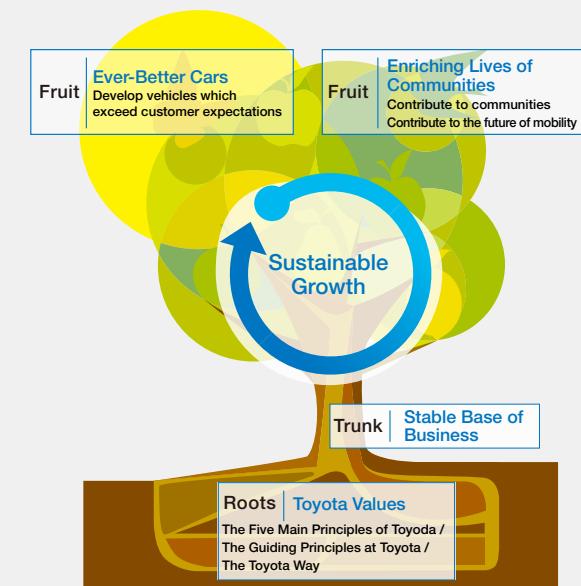
## Five Main Principles of Toyoda

- Always be faithful to your duties, thereby contributing to the company and to the overall good.
- Always be studious and creative, striving to stay ahead of the times.
- Always be practical and avoid frivolousness.
- Always strive to build a homelike atmosphere at work that is warm and friendly.
- Always have respect for spiritual matters, and remember to be grateful at all times.

## The Two Pillars and Five Keywords of the Toyota Way



## Toyota Global Vision



Toyota Global Vision

# Corporate Governance

## Fundamental Approach

Toyota regards sustainable growth and the stable, long-term enhancement of corporate value as essential management priorities. Building positive relationships with all stakeholders, including shareholders, customers, business partners, local communities, and employees, and consistently providing products that satisfy customers are key to addressing these priorities. To this end, Toyota constantly seeks to enhance corporate governance.

Moreover, Toyota complies with the general principles of the Corporate Governance Code. The specifics of these efforts are discussed by the Sustainability Meeting and reported to the Board of Directors.

## Business Execution and Supervision

With the aim of achieving the Toyota Global Vision, Toyota has been implementing ongoing revisions in its operational framework in order to quickly respond to the unprecedentedly rapid changes occurring in the external environment. Since 2011, to accelerate decision making and operational execution, Toyota has been undertaking a variety of reforms, including the introduction of the in-house company system.

In 2018, to accelerate business execution that is fully coordinated with the workplace, Toyota moved up the timing for changing the executive lineup from April to January, revised the corporate strategy function, and restructured the Japan Sales Business Group based on regions rather than sales channels. These efforts have yielded a business framework able to make decisions at points closer to customers and front-line workplaces.

In 2019, to further advance its acceleration of management and the development of a diverse and talented workforce, we made executive and organizational changes as follows.

- Executives comprise only senior managing officers and persons of higher rank.
- A new classification called “senior professional/senior management” was created, replacing the following titles and ranks: managing officer, executive general manager, (sub-executive managerial level) senior grade 1 and senior grade 2 manager, and grand master.

From the perspective of appointing the right people to the right positions, those designated senior professional/senior management hold a wide range of posts—from chief officer, deputy chief officer, field

general manager, and plant general manager to group manager—to which they are assigned regardless of age or length of employment. These assignments are made to deal with management issues as they arise and strengthen the development of such personnel as part of a diverse and talented workforce through *Genchi Genbutsu* (onsite, hands-on experience). Executives themselves go to where the action is taking place and, together with senior professionals/senior management and other front-line personnel, work toward the real-world attainment of their visions of a mobility society of the future.

The Sustainability Meeting, in which Outside Directors and Outside Audit & Supervisory Board Members participate, supervises the execution of operations from a societal perspective toward the sustainable growth of the Company and deliberates on the corporate governance structure.

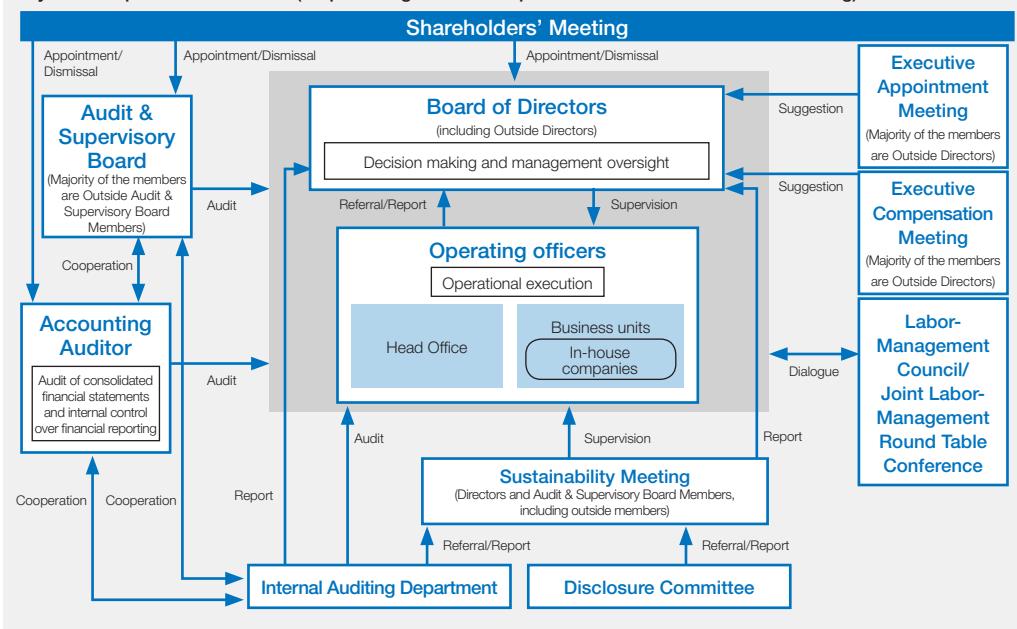
In addition, we deliberate on and monitor management and corporate activities from the perspectives of various stakeholders through a wide variety of deliberating bodies, including the Labor-Management Council/Joint Labor-Management Round Table Conference.

## Board of Directors and Related Structures

The Members of the Board of Directors are selected based on comprehensive consideration of suitability with the aim of ensuring prompt, appropriate decision making and appointing the right person to the right position. Toyota believes that it is crucial to appoint individuals who comprehend and are capable of putting into practice its core concepts of making ever-better cars and *Genchi Genbutsu*. Moreover, these individuals must be able to contribute to decision making aimed at sustainable growth into the future. Toyota's Executive Appointment Meeting, more than half the members of which are Outside Members of the Board of Directors, makes recommendations to the Board of Directors regarding the appointment and dismissal of Members of the Board of Directors.

In order to ensure that outside perspectives are adequately reflected in management decision making, the Company has three Outside Members of the Board of Directors, all of whom are registered as independent officers with the relevant financial instruments exchanges. When selecting Outside Directors who will serve as independent officers, Toyota considers candidates in line with the requirements set forth in the Companies Act and the standards of independence established by the relevant financial instruments exchanges.

Toyota's Corporate Governance (Emphasizing Front-line Operations + Multidirectional Monitoring)



Toyota's Outside Members of the Board of Directors draw on their broad experience and insight, including in their respective fields of expertise, to inform decision making from perspectives independent of business execution.

## Overview of the Executive Appointment Meeting

Purpose and authority	Formulation of recommendations to the Board of Directors concerning the appointment or dismissal of Members of the Board of Directors and Audit & Supervisory Board Members
Number of persons	5
Members	Member of the Board of Directors Takeshi Uchiyamada (Chairman) Member of the Board of Directors Koji Kobayashi Outside Director Ikuro Sugawara Outside Director Sir Philip Craven Outside Director Teiko Kudo

## Audit & Supervisory Board

Toyota has adopted an Audit & Supervisory Board system. The six Audit & Supervisory Board Members

(including three outside members) play a key role in Toyota's corporate governance by undertaking audits in line with the audit policies and plans established by said board.

Toyota's appointments to the Audit & Supervisory Board are based on the belief that candidates must offer broad-ranging experience and insight, particularly in their respective fields of expertise, and be able to audit business execution and advise management from a fair and neutral standpoint. Toyota's Executive Appointment Meeting, more than half the members of which are Outside Members of the Board of Directors, makes recommendations to the Audit & Supervisory Board regarding such appointments.

Three individuals, all of whom are registered as independent officers with the relevant financial instruments exchanges, have been appointed as Outside Audit & Supervisory Board Members. When selecting Outside Audit & Supervisory Board Members, Toyota considers candidates in line with the requirements set forth in the Companies Act as well as the standards of independence established by the relevant financial instruments exchanges.

# Corporate Governance

## Executive Compensation

The amount of executive compensation, how its calculation method is determined, and the calculation method are described below.

### Policy and Process for Determining Compensation

The director compensation system is based on the following principles.

- The system should encourage Members of the Board of Directors to work to improve the corporate value of Toyota over the medium to long term
  - The system should maintain compensation levels that will allow Toyota to secure and retain talented personnel
  - The system should motivate Members of the Board of Directors to implement management from the same viewpoint as shareholders with a stronger sense of responsibility as corporate managers
- Compensation for Members of the Board of Directors is effectively linked to corporate performance while reflecting individual job responsibilities and performance. Compensation standards in each member's home country are also taken into account when determining compensation amounts and methods. Compensation for Outside Directors and Audit & Supervisory Board Members consists only of fixed payments. As a result, said compensation is not readily impacted by business performance, helping to ensure independence from management.

Compensation for Members of the Board of Directors and the compensation system are decided by the Board of Directors and by the members of the Executive Compensation Meeting, a majority of whom are Outside Directors. The Board of Directors decides on total compensation for a given fiscal year and delegates the determination of the amount of compensation for each Member of the Board of Directors to the Executive Compensation Meeting. The Executive Compensation Meeting reviews the compensation system for Members of the Board of Directors and determines compensation for each Member of the Board of Directors, taking into account such factors as corporate performance and individual job responsibilities and performance.

Compensation for Audit & Supervisory Board Members is determined by the Audit & Supervisory Board within the scope determined by resolution of the Shareholders' Meeting. Additionally, we check the appropriateness of our executive compensation by referencing benchmarking results created by outside compensation consultants.

### Overview of the Executive Compensation Meeting

Purpose and authority	Evaluation of the executive compensation system as well as the determination of individual compensation is based on such factors as corporate performance and individual job responsibilities and performance. The Board of Directors decides the total amount of compensation for the current fiscal year and delegates the determination of individual compensation to the Executive Compensation Meeting.
Number of persons	5
Members	Representative Director Takeshi Uchiyamada (Chairman) Representative Director Koji Kobayashi Outside Director Ikuro Sugawara Outside Director Sir Philip Craven Outside Director Teiko Kudo

### Method of Determining Performance-based Compensation

Compensation for Members of the Board of Directors is effectively linked to corporate performance while reflecting individual job responsibilities and performance. Compensation standards in each member's home country are also taken into account when determining compensation amounts and methods.

#### 1) Directors with Japanese citizenship (excluding Outside Directors)

Toyota determines the annual total compensation received by each Member of the Board of Directors based on consolidated operating income, the volatility of Toyota's share price and an individual performance evaluation. The balance after deducting fixed compensation from annual total compensation constitutes performance-based compensation.

#### Explanation of Indicators

Consolidated operating income	Indicator for evaluating Toyota's efforts based on business performance
Volatility of Toyota's share price	Corporate value indicator used by shareholders and investors to evaluate Toyota's efforts
Individual performance evaluation	Qualitative evaluation of each director's performance

#### Evaluation Methods and Reference Values for Indicators, and Evaluation Result for the Current Fiscal Year

	Evaluation method	Reference value	Evaluation result for the current fiscal year
Consolidated operating income	Evaluate the degree of attainment of consolidated operating income in the current fiscal year using the level of income required for Toyota's sustainable growth (set in 2011) as a reference value	1 trillion yen	
Volatility of Toyota's share price	Comparatively evaluate the volatility of Toyota's share price up to the end of the current fiscal year using the share price of Toyota and the Nikkei stock average at the end of the previous fiscal year as reference values	Toyota's share price: 6,825 yen Nikkei average: 21,454 yen	170%

### Method of Determining Annual Total Compensation

Annual total compensation is calculated using a formula established based in part on benchmarking results. Specifically, annual total compensation is determined for each rank based on consolidated operating income and the volatility of Toyota's share price, and then adjusted for each member based on their individual performance evaluation. This adjustment is limited to a range of 10% above or below the annual total compensation for each rank.

#### 2) Directors with non-Japanese citizenship (excluding Outside Directors)

Fixed compensation and performance-based compensation are set at levels and in structures that allow Toyota to secure and retain talented personnel. Fixed compensation is determined with regard to each member's job responsibilities and the compensation standards of said individual's home country. Performance-based compensation is determined with reference to consolidated operating income, the volatility of Toyota's share price and the individuals' performance, taking into account job responsibilities and the compensation standards of said individual's home country. Toyota's approach to these parameters is the same as for directors with Japanese citizenship (excluding Outside Directors).

#### Share Compensation System

Toyota's Board of Directors decides the amount of annual share compensation, within the maximum (4.0 billion yen per year) set by the 115th Ordinary General Shareholders' Meeting held on June 13, 2019.

### Analysis and Evaluation of the Effectiveness of the Board of Directors

Pursuant to the instruction of the Chairman of the Board of Directors, after the Secretariat of the Board of Directors conducts a quantitative analysis of the state of the Board's performance, a survey is conducted of the participants of Board of Directors meetings (Members of the Board of Directors and Audit & Supervisory Board Members) regarding the state of execution of operations and of the supervision of such execution.

Based on results of the survey, interviews are held individually with the participants of Board of Directors meetings, including the Outside Directors and Outside Audit & Supervisory Board Members. The Secretariat of the Board of Directors compiles and explains the findings to the Chairman of the Board of Directors, then reports them to the Board of Directors for discussion.

The evaluation of performance in fiscal 2019 confirmed that effectiveness was secured. Nevertheless, worthy comments were provided during the evaluation process regarding the acceleration of decision making, management oversight of operations, and other matters. Toyota will act on these to make improvements in fiscal 2020 to further enhance effectiveness.

## Fundamental Approach and Maintenance of Internal Control Systems

### Basic Stance on System for Ensuring Appropriate Business Operations

Toyota and its subsidiaries work to foster a sound corporate culture based on the Guiding Principles at Toyota and the Toyota Code of Conduct. Toyota integrates the principles of problem identification and *Kaizen* (continuous improvement) into its operational processes and makes continuous efforts to train employees who will put these principles into practice.

### System to Ensure Appropriate Operations

Toyota endeavors to maintain and properly operate a system for ensuring the appropriateness of business operations as a corporate group in accordance with its Basic Policies on Establishing Internal Controls. Each fiscal year, Toyota inspects the establishment and implementation of internal controls to confirm that the organizational units responsible for implementing internal controls are functioning autonomously and enhancing internal controls as necessary. The findings of these inspections are reviewed by the Sustainability Meeting and the Board of Directors.

For details on our fundamental approach to and maintenance of internal control systems, please see "IV. Basic Approach to Internal Control System and its Development" in the Corporate Governance Report.



Corporate Governance Report

## Messages from the Outside Directors

Grasping the Opportunity of “Start Your Impossible” in this Once-in-a-Century Period of Major Change



Sir Philip Craven

During my first full year as an Outside Board Director of TMC I have been on a very steep learning curve as I absorbed the history, the present and the probable future of this great company.

As President Toyoda has said, we are in the middle of a once in a hundred years period of rapid and major change from being an auto manufacturer to a mobility company. He has also stated that every employee must grasp the opportunity of “Start Your Impossible.”

Coming from the sports world, I am particularly attracted to the Toyota principles of the Spirit of Challenge, Teamwork and Respect which when combined with Kaizen and Genchi Genbutsu, should mean we know no boundaries to our future progress.

My particular interests have concentrated on two major areas. Firstly, HR and my desire to help devise a more open style of management which will ensure faster, more agile two-way communication between all workforce members. Secondly, Toyota has such a lead in mass hybridisation, but I am concerned and want to encourage TMC to make sure there is enough supply as governments and regions wake up to hybrid and electrification. We must maximize the opportunities that Toyota + Lexus started!

Finally, I wish to state that I am very happy in my function as an Outside Board Director of TMC and can report on a most interesting and productive teamwork ethic with my two fellow Outside Board Directors.

Working Quickly and Flexibly to Create New Value from the User's Perspective



Teiko Kudo

Over the past year, I have taken part in Toyota's management from an outside perspective. Uninvolved in business execution, I considered how Toyota can remain irreplaceable to society while sustainably growing and whether Toyota's corporate conduct aligns with societal norms and values.

Toyota is changing.

Management and employees are aligning their efforts, driven by a strong sense of urgency and purpose to further enhance the operational excellence they have built together and transform Toyota into a mobility service company brimming with creativity.

Toyota's drive to manufacture trustworthy cars continues unaltered. However, Toyota is working quickly and flexibly to create new value, unafraid of discarding previous approaches, based on a serious examination of how it can deliver services that will create a better society from the user's perspective.

Drawing on its robust financial base, outstanding and passionate employees, and the social trust it enjoys, Toyota will deliver exciting cars and high quality mobility services to its customers. I intend to do my part to help Toyota move steadily forward in these endeavors.

Toyota Must Face Its Weaknesses and Correctly Understand Outside Factors to Make It through This Period of Transformation



Ikuro Sugawara

Over the past year, as the changes in the environment of the auto industry intensify, Toyota has swiftly made many significant decisions, such as forming alliances and executing major investments around the world. In the course of making such decisions, I believe that the discussions of the Board of Directors have come to be far more active than ever before.

Recently, in addition to the Outside Directors and the Directors in charge of specific items being discussed, the President and all members of the Board have frankly voiced their opinions from a Company-wide, long-term perspective. This is becoming the norm at Board of Directors meetings.

Part of the reason for this is the understanding permeating among the Company's executives that if Toyota does not squarely face its weaknesses and correctly understand the changes going on around it, it may not make it to the other side of this once-in-a-century period of profound transformation. Furthermore, a shift in approach, to more proactively incorporate outside views and flexibly adjust plans as needed, is becoming apparent. For example, separate from Board of Directors meetings, every month, the Outside Directors and other relevant executives meet to examine the Company's response to long-term issues.

Toyota will continue to take on new challenges in order to survive in this new era, and no matter what, I am sure that it will continue to move forward.

# Corporate Governance

## Board of Directors and Audit & Supervisory Board Members (As of October 1, 2019)

### Chairman of the Board of Directors



Takeshi Uchiyamada

Apr. 1969 Joined TMC  
Jun. 1998 Member of the Board of Directors of TMC  
Jun. 2001 Managing Director of TMC  
Jun. 2003 Senior Managing Director of TMC  
Jun. 2005 Executive Vice President of TMC  
Jun. 2012 Vice Chairman of TMC  
Jun. 2013 Chairman of TMC (to present)

### Member of the Board of Directors



Koji Kobayashi  
Positions and areas of responsibility:  
Chief Financial Officer  
Chief Risk Officer

Apr. 1972 Joined TMC  
Jun. 2004 Executive Director of DENSO Corporation  
Jun. 2007 Senior Executive Director, Member of the Board of Directors of DENSO Corporation  
Jun. 2010 Executive Vice President of DENSO Corporation  
Jun. 2015 Vice Chairman of DENSO Corporation  
Feb. 2016 Advisor of TMC  
Apr. 2017 Senior Advisor of TMC  
Jan. 2018 Executive Vice President of TMC  
Jan. 2018 Member of the Board of Directors of DENSO Corporation  
Jun. 2018 Retired as Member of the Board of Directors of DENSO Corporation  
Jun. 2018 Member of the Board of Directors and Executive Vice President of TMC (to present)

### Members of the Board of Directors



Ikuro Sugawara  
Outside and Independent Director

Apr. 1981 Joined Ministry of International Trade and Industry  
Jul. 2010 Director-General of the Industrial Science and Technology Policy and Environment Bureau, Ministry of Economy, Trade and Industry  
Sep. 2012 Director-General of the Manufacturing Industries Bureau, Ministry of Economy, Trade and Industry  
Jun. 2013 Director-General of the Economic and Industrial Policy Bureau, Ministry of Economy, Trade and Industry  
Jul. 2015 Vice-Minister of Ministry of Economy, Trade and Industry  
Jul. 2017 Retired from the Ministry of Economy, Trade and Industry  
Aug. 2017 Special Advisor to the Cabinet  
Jun. 2018 Retired as Special Advisor to the Cabinet  
Jun. 2018 Outside Member of the Board of Directors of TMC (to present)

### Vice Chairman of the Board of Directors



Shigeru Hayakawa

Apr. 1977 Joined Toyota Motor Sales Co., Ltd.  
Jun. 2007 Managing Officer of TMC  
Sep. 2007 President of Toyota Motor North America, Inc.  
Jun. 2009 Retired as President of Toyota Motor North America, Inc.  
Apr. 2012 Senior Managing Officer of TMC  
Jun. 2015 Member of the Board of Directors and Senior Managing Officer of TMC  
Apr. 2017 Vice Chairman of TMC (to present)

### Members of the Board of Directors



Didier Leroy  
Positions and areas of responsibility:  
Business Planning & Operation (President)  
Chief Competitive Officer

Sep. 1982 Joined Renault S.A.  
Aug. 1998 Retired from Renault S.A.  
Sep. 1998 Joined Toyota Motor Manufacturing France S.A.S.  
Sep. 1998 Vice President of Toyota Motor Manufacturing France S.A.S.  
Jan. 2005 President of Toyota Motor Manufacturing France S.A.S.  
Jun. 2007 Managing Officer of TMC  
Jul. 2007 Executive Vice President of Toyota Motor Europe NV/SA  
Jul. 2009 Chairman of Toyota Motor Manufacturing France S.A.S.  
Jun. 2010 President of Toyota Motor Europe NV/SA  
Jul. 2010 Retired as Chairman of Toyota Motor Manufacturing France S.A.S.  
Apr. 2011 President and CEO of Toyota Motor Europe NV/SA  
Apr. 2012 Senior Managing Officer of TMC  
Apr. 2015 Chairman of Toyota Motor Europe NV/SA (to present)  
Jun. 2015 Member of the Board of Directors and Executive Vice President of TMC  
Apr. 2017 Member of the Board of Directors and Executive Vice President of TMC (to present)

Oct. 1998 President of the International Wheelchair Basketball Federation  
Dec. 2001 President of the International Paralympic Committee  
Jul. 2002 Retired as President of the International Wheelchair Basketball Federation  
Sep. 2017 Retired as President of the International Paralympic Committee  
Jun. 2018 Outside Member of the Board of Directors of TMC (to present)

### President, Member of the Board of Directors



Akio Toyoda

Positions and areas of responsibility:  
Chief Executive Officer  
Chief Branding Officer

Apr. 1984 Joined TMC  
Jun. 2000 Member of the Board of Directors of TMC  
Jun. 2002 Managing Director of TMC  
Jun. 2003 Senior Managing Director of TMC  
Jun. 2005 Executive Vice President of TMC  
Jun. 2009 President of TMC (to present)



Shigeki Terashi  
Positions and areas of responsibility:  
Advanced R&D and Engineering Company (Chairman)  
Powertrain Company (Chairman)  
Chief Technology Officer

Apr. 1980 Joined TMC  
Jun. 2008 Managing Officer of TMC  
Jun. 2008 Executive Vice President of Toyota Motor Engineering & Manufacturing North America, Inc.  
May 2011 President and COO of Toyota Motor Engineering & Manufacturing North America, Inc.  
Apr. 2012 President and CEO of Toyota Motor Engineering & Manufacturing North America, Inc.  
Apr. 2012 President and COO of Toyota Motor North America, Inc.  
Apr. 2013 Retired as President and CEO of Toyota Motor Engineering & Manufacturing North America, Inc.  
Apr. 2013 Retired as President and COO of Toyota Motor North America, Inc.  
Apr. 2013 Senior Managing Officer of TMC  
Jun. 2013 Member of the Board of Directors and Senior Managing Officer of TMC  
Jun. 2015 Executive Vice President of TMC  
Apr. 2017 Member of the Board of Directors and Executive Vice President of TMC (to present)



Teiko Kudo  
Outside and Independent Director

Apr. 1987 Joined Sumitomo Bank  
Apr. 2014 Executive Officer of Sumitomo Mitsui Banking Corporation  
Apr. 2017 Managing Executive Officer of Sumitomo Mitsui Banking Corporation (to present)  
Jun. 2018 Outside Member of the Board of Directors of TMC (to present)

# Corporate Governance

## Board of Directors and Audit & Supervisory Board Members (As of October 1, 2019)

### Full-Time Audit & Supervisory Board Members



Haruhiko Kato

Apr. 1975 Joined Ministry of Finance  
 Jul. 2007 Director-General of the Tax Bureau, Ministry of Finance  
 Jul. 2009 Commissioner of the National Tax Agency  
 Jul. 2010 Retired as Commissioner of the National Tax Agency  
 Jan. 2011 Senior Managing Director of Japan Securities Depository Center, Inc.  
 Jun. 2011 President of Japan Securities Depository Center, Inc.  
 Jun. 2013 Member of the Board of Directors of TMC  
 Jul. 2015 President and CEO of Japan Securities Depository Center, Inc.  
 Jun. 2018 Retired as Member of the Board of Directors of TMC  
 Apr. 2019 Director of Japan Securities Depository Center, Inc.  
 Jun. 2019 Audit & Supervisory Board Member of TMC (to present)  
 Jun. 2019 Retired as Director of Japan Securities Depository Center, Inc.



Masahide Yasuda

Oct. 1972 Joined TMC  
 Jun. 2007 President of Toyota Motor Corporation Australia Ltd.  
 May 2014 Chairman of Toyota Motor Corporation Australia Ltd.  
 Dec. 2017 Retired as Chairman of Toyota Motor Corporation Australia Ltd.  
 Jun. 2018 Audit & Supervisory Board Member of TMC (to present)



Katsuyuki Ogura

Apr. 1985 Joined TMC  
 Jan. 2015 General Manager of Affiliated Companies Finance Dept. of TMC  
 Jan. 2018 General Manager of Audit & Supervisory Board Office of TMC (to present)  
 Jun. 2019 Audit & Supervisory Board Member of TMC (to present)

### Outside Audit & Supervisory Board Members



Yoko Wake  
Outside and  
Independent Member

Apr. 1970 Joined the Fuji Bank, Limited  
 Dec. 1973 Retired from the Fuji Bank, Limited  
 Apr. 1977 Assistant Lecturer of Faculty of Business and Commerce of Keio University  
 Apr. 1982 Associate Professor of Faculty of Business and Commerce of Keio University  
 Apr. 1993 Professor of Faculty of Business and Commerce of Keio University  
 Jun. 2011 Outside Audit & Supervisory Board Member of TMC (to present)  
 Apr. 2013 Professor Emeritus of Keio University (to present)



Hiroshi Ozu  
Outside and  
Independent Member

Jul. 2012 Prosecutor-General  
 Jul. 2014 Retired as Prosecutor-General  
 Sep. 2014 Registered as Attorney  
 Jun. 2015 Outside Audit & Supervisory Board Member of TMC (to present)



Nobuyuki Hirano  
Outside and  
Independent Member

Apr. 1974 Joined Mitsubishi Bank  
 Jun. 2001 Executive Officer of The Bank of Tokyo-Mitsubishi, Ltd.  
 Oct. 2005 Director of Mitsubishi UFJ Financial Group, Inc.  
 Jan. 2006 Managing Director of The Bank of Tokyo-Mitsubishi UFJ, Ltd.  
 Oct. 2008 Senior Managing Director of The Bank of Tokyo-Mitsubishi UFJ, Ltd.  
 Jun. 2009 Deputy President of The Bank of Tokyo-Mitsubishi UFJ, Ltd.  
 Jun. 2009 Managing Officer of Mitsubishi UFJ Financial Group, Inc.  
 Oct. 2010 Deputy President of Mitsubishi UFJ Financial Group, Inc.  
 Apr. 2012 President of The Bank of Tokyo-Mitsubishi UFJ, Ltd.  
 Apr. 2012 Director of Mitsubishi UFJ Financial Group, Inc.  
 Apr. 2013 President & CEO of Mitsubishi UFJ Financial Group, Inc.  
 Jun. 2015 Director, President & Group CEO of Mitsubishi UFJ Financial Group, Inc.  
 Apr. 2016 Chairman of the Board of Directors of Bank of Tokyo-Mitsubishi UFJ, Ltd.  
 Apr. 2018 Company name changed from The Bank of Tokyo-Mitsubishi UFJ, Ltd. to MUFG Bank, Ltd.  
 Jun. 2018 Outside Audit & Supervisory Board Member of TMC (to present)  
 Apr. 2019 Director of MUFG Bank, Ltd. (to present)  
 Apr. 2019 Director and Chairman of Mitsubishi UFJ Financial Group, Inc. (to present)

# Toyota Environmental Challenge 2050 and the 2030 Milestone

## Toyota Environmental Challenge 2050

Considering environmental issues to be of paramount importance, we have formulated the Toyota Earth Charter based on the Guiding Principles at Toyota and established a promotional structure for addressing such issues. Always attentive to public opinion and world trends, Toyota constantly considers where it can best focus its efforts as it works to find solutions by applying new ideas and technologies ahead

of future challenges. In October 2015, we formulated six challenges in light of the plethora of unaddressed environmental issues, and we have been moving ahead, aiming to establish a future society in harmony with nature.

### The 2030 Milestone

In September 2018, we announced the 2030 Milestone, indicating the progress we aim to have

made as of 2030 toward the six challenges as a medium- to long-term initiative to achieve the Toyota Environmental Challenge 2050.

In 2019, Toyota became a signatory to the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. Based on these recommendations, we implemented a scenario analysis and found that the 2030 Milestone is an effective and resilient strategy.

- Details about the TCFD Recommendations
- Signatory to the TCFD Recommendations (Environmental Report 2019, p. 5)
- Scenario Analysis (Environmental Report 2019, p. 11)
- TCFD Content Index

		Toyota Environmental Challenge 2050	2030 Milestone
CHALLENGE <b>1</b>	 New Vehicle Zero CO <sub>2</sub> Emissions Challenge	<p>Reduce global average CO<sub>2</sub> emissions during operation from new vehicles by 90% from Toyota's 2010 global level</p> <ul style="list-style-type: none"> <li>Accelerate widespread use of next-generation vehicles to save energy and respond to diverse fuels           <ul style="list-style-type: none"> <li>• Accelerate global expansion of electrified vehicles</li> <li>• Jointly develop electrified vehicles and establish networks to encourage their widespread adoption</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Make annual global sales of <b>more than 5.5 million</b> electrified vehicles, including <b>more than 1 million</b> zero-emission vehicles (BEVs and FCEVs)</li> <li>• Reduce global average CO<sub>2</sub> emissions in g-CO<sub>2</sub>/km from new vehicles by <b>35% or more</b> compared to 2010 levels (may vary depending on market conditions)</li> </ul>
CHALLENGE <b>2</b>	 Life Cycle Zero CO <sub>2</sub> Emissions Challenge	<p>Completely eliminate all CO<sub>2</sub> emissions from the entire vehicle life cycle</p> <ul style="list-style-type: none"> <li>Reduce CO<sub>2</sub> emissions along the entire vehicle life cycle, from materials production and parts and vehicle manufacturing to driving and disposal           <ul style="list-style-type: none"> <li>• Develop and expand use of low-CO<sub>2</sub> emission materials</li> <li>• Promote eco-friendly action throughout the entire value chain</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Reduce CO<sub>2</sub> emissions by <b>25% or more</b> over the entire vehicle life cycle compared to 2013 levels by promoting activities for the milestones of challenges 1 and 3, and with support from stakeholders such as suppliers, energy providers, infrastructure developers, governments, and customers</li> </ul>
CHALLENGE <b>3</b>	 Plant Zero CO <sub>2</sub> Emissions Challenge	<p>Achieve zero CO<sub>2</sub> emissions at all plants by 2050</p> <ul style="list-style-type: none"> <li>Promote both the development and introduction of low-CO<sub>2</sub> technologies and daily Kaizen and the utilization of renewable energy and use of hydrogen at all production plants           <ul style="list-style-type: none"> <li>• Reduce CO<sub>2</sub> emissions per unit at newly established plants by simplifying and streamlining production processes and taking innovative energy-saving measures</li> <li>• Use renewable energy at all plants</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Reduce CO<sub>2</sub> emissions from all plants by <b>35%</b> compared to 2013 levels</li> </ul>
CHALLENGE <b>4</b>	 Challenge of Minimizing and Optimizing Water Usage	<p>Minimize water usage and implement water discharge management based on individual local conditions</p> <ul style="list-style-type: none"> <li>Promote activities from the two perspectives of water quantity and water quality           <ul style="list-style-type: none"> <li>• Reduce water usage in existing production processes, introduce technologies reducing industrial water usage through rainwater use, and improve water recycling rates</li> <li>• Manage water discharge quality according to strict standards, improving the local environment by returning clean water for nature</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Implement measures, on a priority basis, in the regions where the water environment is considered to have a large impact           <ul style="list-style-type: none"> <li>Water quantity: Complete measures at <b>the four challenge-focused plants</b> in North America, Asia, and South Africa</li> <li>Water quality: Complete impact assessments and measures at all of <b>the 22 plants</b> where used water is discharged directly to rivers in North America, Asia, and Europe</li> </ul> </li> <li>• <b>Disclose information appropriately</b> and <b>communicate actively</b> with local communities and suppliers</li> </ul>
CHALLENGE <b>5</b>	 Challenge of Establishing a Recycling-based Society and Systems	<p>Promote global deployment of end-of-life vehicle treatment and recycling technologies and systems developed in Japan</p> <ul style="list-style-type: none"> <li>Establish a recycling-based society with four key features: use eco-friendly materials; use auto parts longer; develop recycling technologies; and manufacture vehicles from end-of-life vehicles</li> <li>Two global projects started in 2016:           <ul style="list-style-type: none"> <li>• Toyota Global 100 Dismantlers Project</li> <li>• Toyota Global Car-to-Car Recycle Project</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Complete establishment</b> of battery collection and recycling systems <b>globally</b></li> <li>• <b>Complete setup of 30</b> model facilities for appropriate treatment and recycling of end-of-life vehicles</li> </ul>
CHALLENGE <b>6</b>	 Challenge of Establishing a Future Society in Harmony with Nature	<p>Connect nature conservation activities beyond the Toyota Group and its business partners among communities, with the world, to the future</p> <ul style="list-style-type: none"> <li>Enhance Toyota's long-standing nature conservation activities promoting harmony with nature, environmental grants, and environmental education</li> <li>Develop three "connecting" projects started in 2016, sharing our know-how and environmental experience           <ul style="list-style-type: none"> <li>• Connecting communities: Toyota Green Wave Project</li> <li>• Connecting with the world: Toyota Today for Tomorrow Project</li> <li>• Connecting to the future: Toyota ESD Project</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Realize "Plant in Harmony with Nature"—<b>12 in Japan and 7 overseas</b>—as well as implement activities promoting harmony with nature in all regions where Toyota operates in collaboration with local communities and companies</li> <li>• Contribute to <b>biodiversity conservation activities</b> in collaboration with NGOs and others</li> <li>• Expand initiatives <b>both in-house and outside</b> to foster <b>environmentally conscious persons</b> responsible for the future</li> </ul>

# Toyota Environmental Challenge 2050 and the 2030 Milestone

## Key Fiscal 2019 Initiatives under the Toyota Environmental Challenge 2050



### Challenge 1 Accelerate Electrification and Steadily Improve Powertrains

Toyota is implementing initiatives under the New Vehicle Zero CO<sub>2</sub> Emissions Challenge and in line with the belief that eco-friendly vehicles can best help protect the environment if they are in widespread use. In order to curb greenhouse gas emissions, we believe that effective vehicle electrification is essential to promote the efficient use of energy and utilization of alternative fuels. As such, we are actively advancing the development and spread of electrified vehicles.

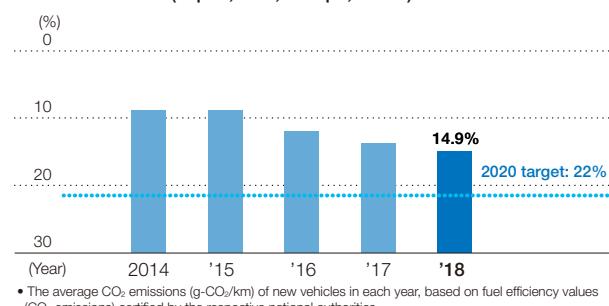
**More details** "Speeding the Popularization of Electrified Vehicles for Our Home Planet," p.12

At the same time, we are working to improve fuel economy. By developing TNGA-based powertrains, we are working to further enhance the environmental performance of both engine-powered cars and electrified vehicles.

#### Annual and Cumulative HEV Sales (Global)



#### Global Average CO<sub>2</sub> Emissions from New Vehicles Reduction Rate Versus 2010 (Japan, U.S., Europe, China)



### Challenge 3 Effective Use of Renewable Energy toward Creating a Decarbonized Society by 2050

One means of decarbonization regarded as holding particular promise in recent years is the use of renewable energy. Toyota is working to reduce CO<sub>2</sub> emissions through comprehensive energy-saving activities via daily improvement and the introduction of innovative technologies at manufacturing sites. In addition, to decarbonize the energy needed by society, Toyota is promoting both the introduction of renewable energy and the utilization of hydrogen.

The utilization of renewable energy is an issue that needs to be addressed throughout society, and, accordingly, we are collaborating with many parties, including national and local governments as well as local communities and other businesses. Our objective is to achieve zero CO<sub>2</sub> emissions at our plants all over the world by 2050.

Toyota is expanding the use of renewable energy while taking into consideration environmental, regional, and economic perspectives. Toyota actively participates in creating systems and mechanisms that lead to the widespread use of renewable energy and is working to expand the use of renewable energy throughout society.

#### Main Projects in Japan

- Participation in local production and local consumption model for renewable energy
- Purchase of green power certificates

#### Main Projects Overseas

- Europe:** 100% renewable electricity used at four plants
- Asia-Pacific:** Solar power generation introduced in Southeast Asia, India, and Taiwan
- North America:** Renewable electricity covers all electric power at the North American Headquarters campus
- South Africa:** Continued introduction of solar power generation
- South America:** 100% renewable electricity by 2020
- China:** Solar power generation being introduced at plants



New North American headquarters



Solar panels at a new plant in China



### Challenge 6 Grants for Environmental and Biodiversity Conservation

#### Toyota Collaborates with the IUCN to Enhance Species Conservation Data

Toyota began a five-year partnership with the IUCN\*1 in May 2016 to promote scientific understanding of the biodiversity crisis. Under the partnership, we provide annual grants of approximately US\$1.2 million to support the IUCN Red List.\*2

#### Key Initiatives in Fiscal 2019

- Introduced Toyota's biodiversity conservation initiatives at COP14
- Donated vehicles to environmental NGOs at COP14
- Improved mountain gorilla habitat

\*1 International Union for Conservation of Nature: Founded in 1948, the IUCN is a membership union uniquely composed of both government and civil society organizations

\*2 The IUCN Red List of Threatened Species™: A list of threatened species around the world managed by the IUCN



Photo by IUCN/Toyota (enb.iisd.org/biodiv/cop14/side-events/20how.htm)



Left: Presentation ceremony  
Right: Donated Hilux

#### Five-year Partnership with the WWF on the Living Asian Forest Project

Toyota is continuing its five-year partnership with the World Wide Fund for Nature (WWF) aimed at accelerating the globe's transition to sustainability. Toyota is the first car company and the first Japanese company to sign a Global Corporate Partnership agreement with the WWF. To promote biodiversity conservation under the partnership, Toyota has made annual US\$1 million grants to WWF since 2016 to support the Living Asian Forest Project.



Relocated Sumatran rhinoceros  
© Ridho Hafiz Zainur Ridho/WWF-Indonesia

#### Key Initiatives in Fiscal 2019

- Protected the Sumatran rhinoceros, a designated endangered species



# Respect for Human Rights and Supply Chain Management

## Fundamental Approach

Toyota complies with local, national, and international laws and regulations as well as the spirit thereof and conducts business operations with honesty and integrity. With the goal of contributing to sustainable development, we place value on all stakeholders in the management of our businesses, endeavoring to build and maintain sound relationships with them through open and fair communication.

## Human Rights, the Essential Foundation of Labor Relations

Toyota respects the basic human rights of all individuals, including employees and those in the supply chain. Toyota practices the philosophy of “respect for people,” which is based on the shared belief that every Toyota employee possesses an unlimited capacity for the betterment of themselves, the Company, and society. The cumulative efforts of our employees are what drive corporate growth, thereby enabling improvement in working conditions and environments and building employee trust, which, in turn, enables further growth and improvement.

We strive to ensure safe, healthy, and inclusive work environments that are free of discrimination and harassment and in which each employee’s dignity and diverse values are respected. Each employee’s contribution to the creation of such workplaces is essential to achieving the productivity improvements necessary for corporate growth. Discriminatory, unhealthy, or unsafe work environments are not only violations of human rights, they negatively impact employee performance. Recognizing the irreplaceable value of the time our employees choose to share with Toyota, we aim to create positive working conditions and environments that will allow them to excel.

Moreover, the contributions and cooperation of all our stakeholders are essential to providing products and services that satisfy our customers. Our car

making over the decades has been made possible thanks to the support of our many stakeholders. Going forward, Toyota will continue to work hand-in-hand with employees and respect all its stakeholders as it continues to contribute to society as a mobility company.

At present, with our customers’ needs and the very concept of automobiles constantly changing, Toyota is endeavoring to transform itself from an automobile company to a mobility company, that is, a provider of all kinds of mobility-related services. As we face new competitors and an evolving business domain, based on the management philosophy of “respect for people,” Toyota’s employees are each harnessing their knowledge and giving their best efforts to help the Company survive in an environment marked by constant, major change. To meet the expectations of our stakeholders, we also refer to international norms, such as the United Nations Guiding Principles on Business and Human Rights and the Universal Declaration of Human Rights, to tackle issues related to human rights.

## United Nations Guiding Principles Reporting Framework

Toyota has formulated an internal policy related to human rights and, in implementing it, refers to the UN Guiding Principles on Business and Human Rights and other international norms. To fulfill our responsibility to respect human rights, we have identified certain risks vis-à-vis our operations adversely impacting human rights as priority issues based on such factors as the scale and character of our businesses, the possibility of mitigation, and stakeholder expectations. Currently, we have identified three areas—freedom of association, precarious work, and supply chain due diligence—in which certain of our operations are at risk of adversely impacting human rights and are working to address them as a matter of top priority.

In addition, Toyota has developed the Toyota Supplier CSR Guidelines based on the UN Guiding Principles on Business and Human Rights and the Universal Declaration of Human Rights.

## Three Priority Areas

### Freedom of Association

In accordance with Toyota’s “respect for people” management philosophy, we aim to respect and fully

utilize individuals’ capabilities, ability to think, and creativity. To this end, it is necessary to ensure a shared understanding among all employees of the Company’s management situation, business environment, and management issues. We therefore emphasize thorough dialogue with employees. In addition, based on the Universal Declaration of Human Rights, we respect our employees’ right to freely associate while also respecting their right not to be compelled to belong to an association in compliance with the laws of the countries in which we operate.

Regardless of the presence or absence of labor unions, Toyota takes every opportunity it can to engage in thorough dialogue with employees and build sound labor-management relations. We believe that such relations encompass dialogue and discussion with employees or their appropriate representatives.

Moreover, to ascertain the status of dialogue with employees and issues related to freedom of association, we periodically send out and collect questionnaires from our subsidiaries and request improvements to policies and activities based on the responses as needed. For affiliates that require concentrated initiatives, associates from TMC are dispatched to review the affiliate’s policies and activities and work together to enhance communication with and training for employees regarding Toyota’s policies concerning freedom of association and legal compliance.

### Precarious Work

The term “non-permanent workers” includes temporary workers, contract employees, and dispatch employees. Non-permanent status is marked by a number of forms of uncertainty and instability, such as uncertain employment periods, low wages, and poor employee benefits. Our businesses require personnel equipped with both a deep understanding of Toyota’s values and advanced skills. Because cultivating such personnel requires a great deal of time, Toyota strives to provide stable employment even when the external environment is challenging. At the same time, Toyota is engaged in the automobile industry, in which demand is greatly influenced by new product releases and seasonal factors. Accordingly, to respond to such fluctuations, the Company directly and indirectly hires a certain number of temporary personnel.

As such, each of our affiliates bases its hiring of non-permanent workers on the prevailing customs and labor laws of its respective region, and Toyota strives to avoid inappropriate working conditions and

employment. First, we confirm the composition of employees at our affiliates in each country and identify affiliates requiring prioritized examination of non-permanent employment relationships. Associates from TMC are dispatched to affiliates thus identified and, if deemed necessary, implement improvements, such as reassignments and changes to employment rules related to contract terms. In addition, we review and seek to continuously improve the working conditions of fixed-term contract employees at TMC itself.

### Supply Chain Due Diligence

A single automobile comprises approximately 30,000 parts, necessitating extremely broad and deep supply chains. As such, we recognize preventing adverse impacts on human rights in our supply chains as a priority. Accordingly, we hold workshops for suppliers that are particularly large and would be difficult to replace in which we share issues to be wary of and examples of solutions.

Toyota adheres to the principle of mutual trust and mutual responsibility between labor and management and aims to collaborate with suppliers to contribute to sustainable societal development as well as the earth’s sustainability. Toyota also strives to comply with the laws of the countries and regions it operates in while protecting human rights and contributing to both local communities and the international community.

## Conflict Minerals Issues

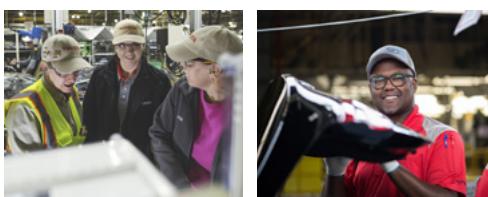
Toyota has adopted the Policies and Approaches to Conflict Minerals Issues, which it applies as a set of guidelines when tackling conflict mineral-related issues.

Please see the content linked to below for information about activities in 2018.

 Respect for Human Rights  
(Sustainability Data Book 2019, p. 23)

 Collaboration with Suppliers  
(Sustainability Data Book 2019, p. 26)

 Toyota’s Approaches to Conflict Minerals Issues  
(Sustainability Data Book 2019, p. 25)



# Employees

Toyota prioritizes respect for people, aiming to provide employees with opportunities to make social contributions and realize self actualization through their work and to allow them to exercise their ability to think, create, and take action.

To achieve this goal, a relationship of mutual trust and mutual responsibility between labor and management is essential. In such a relationship, Toyota places the highest priority on ensuring stable employment for its employees and proactively strives to improve labor conditions, while employees do their utmost to enhance the prosperity of the Company. This philosophy is shared by all Toyota affiliates around the world and, together with considerations for regional characteristics, is reflected and implemented in Toyota's management and policies.

Toyota believes that this approach leads not only to management that operates with respect for people, but to customer satisfaction and social contribution and thus to the sustainable growth of both the Company and society.

## Safety and Health

### Fundamental Approach

Ensuring the safety and health of employees has been one of Toyota's most important long-standing business activities and will continue to be so going forward.



### Global Safety Measures

Toyota regional headquarters take the lead in promoting safety and health measures in each region. We are currently working with each region to develop an



Toyota believes that creating safe and healthy work environments will lead to productivity improvements of the Company necessary for corporate growth.

In 1957, Senior Managing Director Eiji Toyoda explained his fundamental approach to health and safety as "Safe work is the 'gate' to all work. Let us pass through this gate." These words still ring true today and are part of our Basic Philosophy for Safety and Health. In 2017, Toyota announced its "Proclamation of Health Commitment: Aiming at Becoming a Health-first Company," under which it is advancing a wide range of initiatives to promote health.

When advancing initiatives in safety and health, we ensure that they conform to workplace needs while making iterative improvements through the PDCA cycle. Toyota's manager in charge of Company-wide safety and health (operating officer) takes the lead in formulating priority policies, and related KPIs are regularly reported to Executive Meetings and considered important metrics to be monitored by management.

occupational safety and health management system (OSHMS) globally. Along with unique regional requirements, we have established requirements that are shared globally throughout Toyota based on ISO 45001.\* Using OSHMS, weaknesses are identified by *Genchik Genbutsu* (onsite, hands-on experience) to improve safety management.

\* ISO 45001: The international standard related to occupational safety and health management systems established by the ISO (International Organization for Standardization)

Employees (Safety and Health, Sustainability Data Book 2019, p. 32)

## Human Resource Development

### Fundamental Approach

Toyota is committed to developing human resources in accordance with its philosophy that *monozukuri* (manufacturing) is about developing people. In order to sustain growth, it is essential to utilize the wisdom of our people to make constant improvements.

At the same time, while employees bring a wide range of cultures and customs, to make ever-better cars and carry out our Customer First policy, all employees must share certain values.

To this end, Toyota is implementing human resource development aimed at sustainable growth through a global educational program centered on the application of the Toyota Way. On-the-job training (OJT) is the foundation of this program.

Toyota Way 2001

### Evaluation of and Feedback to Each Employee in Relation to Principles and Policies

The daily work (topics and roles) of Toyota employees is derived from annual policies. Evaluation and feedback are based on close communications between subordinates and superiors.

Specifically, topics and roles are determined at the beginning of each fiscal year and employees consult with their supervisors periodically. Through these

consultations, supervisors assess the employees' self-evaluations and provide feedback. Repeating this cycle leads to human resource development. Results for each half year are reflected in bonuses and performance abilities are reflected in raises for the following year.

### Developing Executives Globally

The GLOBAL 21 program is aimed at developing executives globally. The program serves to enable outstanding human resources from around the world to obtain the skills and discernment expected of global-level Toyota executives and to fully realize their individual strengths in their respective roles. The program consists of the following three pillars.

#### 1. Ensuring understanding of our management philosophy and the expectations of executives

We are applying the Toyota Way and Toyota Global Vision, incorporating them into global personnel evaluation systems and education.

#### 2. Personnel management

We are unifying evaluation standards and processes globally to ensure fairness and consistency. Our main evaluation criteria are individuals' ability to set tasks, carry out tasks, manage their organization, and effectively utilize human resources as well as the level of trust and respect that others have for them.

#### 3. Development framework and education programs

We are allocating human resources and developing executives globally. Our development of human resources at overseas affiliates is based on education conducted by affiliates in each region, with OJT at TMC so that participants can learn Toyota-style ways of working. In addition, we are implementing a program similar to GLOBAL 21 for employees of TMC in Japan.

### Global Executive Human Resource Development Global 21 Program



Employees (Human Resource Development, Sustainability Data Book 2019, p. 35)

# Employees

## Diversity and Inclusion

### Fundamental Approach

Our strengths lie in our capacity to respect our employees' abilities to think and promote reforms involving every member.

Recent technical innovations centered on CASE\* are propelling Toyota to transform from a car company into a mobility company. We believe such a transformation is becoming increasingly important as we are expected to continue creating innovations steadily in existing areas while taking on challenges in new areas.

In such an environment, we consider diversity and inclusion to be one of the key bases of management and are working to create an attractive workplace where employees with wide-ranging skills and values can demonstrate their abilities to the fullest and achieve self-realization.

In order to become a company that will be needed and chosen by society, we are promoting collaboration with a wide variety of partners both inside and outside the Company while putting into practice the values Toyota has embraced since its founding, such as the attitude of humbly learning and taking on challenges from the customer's viewpoint.

\* CASE: Connected, Autonomous/Automated, Shared, and Electric.

### Promoting Women's Participation in the Workplace (Japan)

In promoting diversity and inclusion, we recognize that gender diversity has been an issue, particularly at Toyota. In 2002, we started initiatives at Toyota centered on expanding and establishing measures to support women who are trying to balance work and childrearing. Then in 2012, we began focusing on initiatives for creating a work environment that would help motivate women and supporting their greater participation (especially the development of female managers).

**Support Measures for Balancing Work and Childcare**  
For those planning to take maternity leave, we have been offering pre-maternity leave seminars and supervisor career interviews since 2015. The goals of these initiatives are to ease the participants' concerns about

balancing work and childcare and to raise the level of desire to continue growing after returning to work, as well. The participants evaluate their career plans and how best to achieve them, hear about other employees who successfully balanced work with family in the past, and participate in roundtable discussions.

### Career Development Support Measures

In 2019, we introduced a career workshop targeting female employees and their supervisors. We are promoting the continued growth of female employees through various measures, including supporting long-term career building with life events taken into consideration, providing advice to supervisors on how to guide their subordinates, and facilitating dialogue between supervisors and subordinates.

### Initiatives Related to Persons with Disabilities

#### Initiatives in Japan

Based on the concept of a harmonious society, in which all persons with or without disabilities work and live together in harmony, we provide various work opportunities to those with disabilities. We offer a range of support to enable persons with disabilities to work energetically by fully utilizing their abilities.

For example, we have assigned a job consultant to each office, created a consultation hotline that ensures privacy, and introduced a special holiday system that can be used by employees for going to the hospital or other clinics. Furthermore, to ensure that persons with disabilities are given fair

opportunities, we send in sign language interpreters, provide a variety of support tools, and make workplace improvements as needed.

In terms of facilities, we are creating workplaces with improved accessibility as needed by, for example, providing handicapped parking spaces and universally accessible toilets.

For those workplaces hiring employees with disabilities, we distribute guidebooks to help other employees better understand disabilities and gain the knowledge necessary for providing support.

In addition, to cultivate a workplace-wide culture, we have implemented "Emotional Barrier-free Training" targeting a wide range of employees, from new employees to senior professionals/senior management, to promote understanding of and empathy for people with disabilities.

As of June 2019, the number of persons with disabilities employed was 1,322 accounting for 2.33% of the entire workforce (including special-purpose subsidiaries) which is above the legal requirement of 2.2%.

### Creating an Environment Where the Disabled Can Work with Confidence

Toyota Loops Corporation began operation in April 2009 with 28 people with disabilities, and received certification from the Minister of Health, Labour and Welfare as a special-purpose subsidiary of Toyota in October of that year.

As of June 2019, Toyota Loops employed 256 persons with disabilities performing a variety of office support work.

The number of support staff has also been increased to accommodate the hiring of more persons with disabilities, and also to eliminate or reduce

### Toyota is advancing measures to empower women at affiliates in each region.

Toyota Motor Europe (Belgium)



Toyota Daihatsu Engineering & Manufacturing Co., Ltd. (Thailand)



Toyota Motor North America, Inc. (U.S.)

anxieties that employees may have regarding their health or work.

We actively exchange information with governmental bodies, local communities, and social welfare organizations to create working environments where each employee can work with confidence.



Toyota Loops employees competing in the Abilympics

### Global Initiatives

We are striving to create a workplace environment that is friendly even to employees with disabilities by, for example, providing universally accessible toilets, handicapped parking spaces, and wheelchair ramps. We also conduct a variety of events, for example, participating in campaigns and holding workshops, to promote understanding about people with disabilities.



Employees (Diversity & Inclusion Sustainability Data Book 2019, p. 38)



Thailand: Toyota Safe Driving Campaign implemented in cooperation with organizations that help people with disabilities



**GET SKILLED ACCESS**

Australia: Mr. Dylan Alcott, a wheelchair tennis champ, presents a workshop called "Champions of Change"

# Risk Management

## Fundamental Approach

Toyota has been working to reinforce its risk management systems since the series of recall issues in 2010. In June 2010, Toyota established the Risk Management Committee (now the Sustainability Meeting) and appointed risk managers for the global group and each region and business section as part of global measures to prevent and mitigate the impact of risks that could arise in the course of business activities.

## Organization and Structure

Toyota has appointed a global chief risk officer (CRO) to head global risk management. The global CRO is charged with handling major risks and coordinating and directing the response to major emergencies on a global basis.

Beneath the global CRO are regional CROs appointed to oversee specific regions, and each region has its own risk management structure.

Within the head office (accounting, purchasing, etc.), risk management is assigned by function to chief officers and risk managers, while in each in-house company, risk management is assigned by product to the company president and company risk managers. Furthermore, the regional head offices and individual sections coordinate and cooperate with one another on risk management.

At the global level, we are working to reinforce risk management capabilities based on the Toyota Global Risk Management Standard (TGRS), which lays out common global standards regarding our approach to risk management as well as related systems and their operating procedures. At the same time, the Sustainability Meeting reviews and reports on major current risk items in order to promote preventive action.

In addition, the meeting advances special measures related to information security and business continuity management (BCM), areas in which the level of risk corporations face has been growing in recent years.

Risks related to Toyota's businesses and other factors that could significantly impact the decisions of investors are listed in Toyota's Form 20-F under the categories Industry and Business Risks; Financial Market and Economic Risks; and Regulatory, Legal, Political, and Other Risks.



Risk Management  
(Sustainability Data Book 2019, p. 108)



Form 20-F for the year ended March 31, 2019

## Business and Other Risks

### Industry and Business Risks

- The worldwide automotive market is highly competitive
- The worldwide automotive industry is highly volatile
- Toyota's future success depends on its ability to offer new, innovative and competitively priced products that meet customer demand on a timely basis
- Toyota's ability to market and distribute effectively is an integral part of Toyota's successful sales
- Toyota's success is significantly impacted by its ability to maintain and develop its brand image
- Toyota relies on suppliers for the provision of certain supplies, including parts, components, and raw materials
- The worldwide financial services industry is highly competitive
- Toyota's operations and vehicles rely on various digital and information technologies

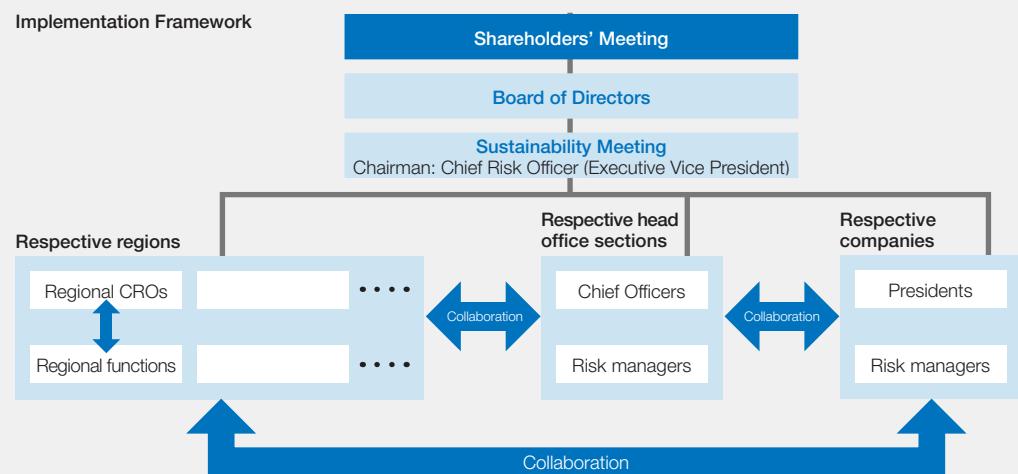
### Financial Market and Economic Risks

- Toyota's operations are subject to currency and interest rate fluctuations
- High prices of raw materials and strong pressure on Toyota's suppliers could negatively impact Toyota's profitability
- A downturn in the financial markets could adversely affect Toyota's ability to raise capital

### Regulatory, Legal, Political, and Other Risks

- The automotive industry is subject to various governmental regulations and actions
- Toyota may become subject to various legal proceedings
- Toyota may be adversely affected by natural calamities, political and economic instability, fuel shortages or interruptions in social infrastructure, wars, terrorism, and labor strikes

## Implementation Framework



## Information Security Initiatives

Cyber attacks are growing more sophisticated and complex. Their corporate targets have expanded from confidential information and information systems to include systems that control plants and vehicles, such as those for on-board devices. Information security is thus an increasingly important priority for Toyota.

Toyota considers ensuring the safety and peace of mind of its customers as well as protecting its customers' personal information and other assets to be its social responsibility.

Toyota has established an Information Security Policy that clearly lays out Toyota's basic approach to information security and related initiatives to facilitate united information security initiatives by TMC

and its consolidated subsidiaries. Based on this policy, we are advancing a range of initiatives to reinforce information security from the perspectives of governance and risk management.

Information Security Policy

## Key Points of Our Information Security Policy (Toyota's Basic Approach)

- Compliance
- Maintenance of stable business infrastructure
- Providing safe products and services
- Contribution to the establishment of safe cyberspace
- Information security management

# Compliance

## Fundamental Approach

The Guiding Principles at Toyota state that Toyota shall "honor the language and spirit of the law of every nation and undertake open and fair business activities to be a good corporate citizen of the world." Toyota believes that by adhering to this principle in its actions, it can fulfill its corporate social responsibility and ensure compliance.

The Toyota Code of Conduct (adopted in 1998 and revised in March 2006) outlines the basic frame of mind that all Toyota personnel should adopt and sets forth concrete guidelines to assist them in upholding the Guiding Principles at Toyota and doing their part to ensure that Toyota carries out its corporate social responsibility. A booklet containing the Toyota Code of Conduct is distributed to all employees.

In addition, the Sustainability Meeting discusses the expectations of stakeholders and Toyota's responses to various social issues. In particular, the meeting deliberates and receives reports on matters related to compliance.



Toyota Code of Conduct

#### **Checks to Enhance Compliance**

In fiscal 2009, Toyota began implementing internal checks to enhance its compliance structure. In fiscal 2010 these checks were extended to subsidiaries in and outside Japan. Since then, these checks have been carried out and improved upon every year. Results are reported to the Sustainability Meeting and used as a basis for further improvement. By

incorporating improvement initiatives into each year's action plans, we ensure that these checks lead to ongoing positive action.

Moreover, Toyota holds meetings with subsidiaries in order to keep track of their compliance efforts and provide them support as needed.

contact information to all employees and periodically putting up signs in company cafeterias.

The identity of the employees using the hotline can, at their request, be kept anonymous, and every effort is taken to ensure that the individual need not worry about being identified. Regarding potential issues, the law firm contacts the relevant internal divisions, which then investigate and quickly take steps to address any problems identified. Once the facts of the situation have been confirmed, problems thus discovered are dealt with appropriately in accordance with the rules of employment and other internal rules.

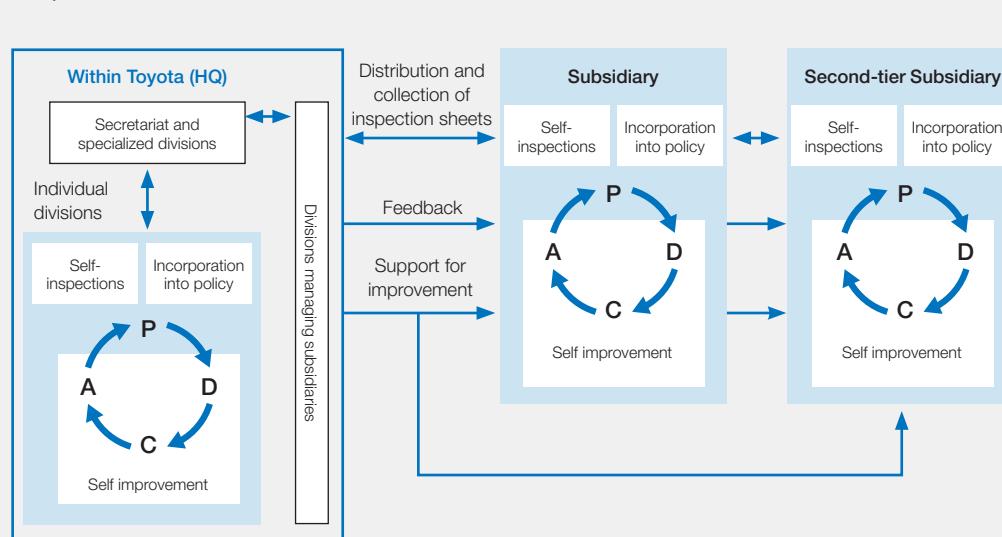


<sup>1</sup> Compliance (Sustainability Data Book 2019, p. 112)

The Compliance Hotline

Toyota uses hotlines to quickly and fairly address a wide range of employee concerns, complaints, and questions. Through a contracted external law firm, we have set up a compliance hotline that employees can consult regarding compliance-related questions. We strive to ensure awareness of this hotline through such efforts as distributing cards with the hotline's

## Compliance Check



#### Ensuring Compliance

To ensure that awareness of compliance extends from top management all the way to each and every employee, Toyota conducts training programs for directors and executives, managers, and new hires as well as Company-wide e-learning programs.

In addition to standard legal topics, such as labor law, antimonopoly law, and subcontracting law, we conduct seminars covering bribery prevention, personal information protection, the Product Liability Act, and other topics.

In addition, based on specific needs, the Legal Division conducts onsite seminars on a wide range of topics at individual divisions.

## Main Training Themes to Date

- Contracts
  - The Act against Unjustifiable Premiums and Misleading Representations
  - Intellectual property (trademarks)
  - Confidentiality management
  - Labor
  - Antimonopoly law
  - Insider trading regulations
  - The Product Liability Act
  - Bribery prevention
  - Export operations management
  - Subcontracting law
  - Copyright
  - The Act on the Protection of Personal Information
  - Taxes
  - Safety and health

# Customer First and Quality First Measures

## Fundamental Approach

The origins of Toyota's Customer First and Quality First principles lie in the Five Main Principles of Toyoda, which embody the thinking of Sakichi Toyoda, and the spirit of audit and improvement espoused by Kiichiro Toyoda. Since its foundation, Toyota has built a corporate culture that focuses particular attention on customer-pleasing quality and continuous *Kaizen* (improvement) achieved through *Genchi Genbutsu* (onsite, hands-on experience). In accordance with our commitment to quality as stated in the Toyota Global Vision, each employee in each field maintains a constant and strong awareness of issues and a sense of ownership, striving to continuously implement *Kaizen* and collaborating closely with personnel in other fields to enhance customer safety, peace of mind, and satisfaction.

### Initiatives to Improve Quality

Toyota sees quality as the combination of product quality, sales and service quality, and, as the foundation supporting these, the quality of the work performed by each employee.

We believe that our products and services can only gain the confidence of customers when all employees across every process, from development, purchasing, production, and sales to after-sales service, build in quality, coordinate with one another across processes, and implement the quality assurance cycle.

Quality starts with the spirit of audit and improvement. Through continuous improvement based on repeated implementation of the PDCA cycle, Toyota pursues ever-higher quality—this is the unchanging core of Toyota's manufacturing.

### Customer First Measures

The essence of Toyota's principle of Customer First is providing customers with products and services that bring smiles to their faces. Toyota aims to provide cars that achieve superior environmental, safety, and quality performance without sacrificing driving performance or other aspects of the intrinsic appeal of cars, at an affordable price. We humbly and openly accept information provided by our dealers and customer feedback received at customer assistance centers, taking such input to heart and utilizing it to make ever-better cars.

### After-sales Services Measures

To bring smiles to the faces of as many customers as possible, it is essential to realize both better cars and better services. Customer car use requires regular servicing, inspections, and repairs following

breakdowns or accidents. After-sales service provides safety, peace of mind, and comfort to customers at these times, supporting the Toyota and Lexus brands.

In recent years, the average duration of car use has been lengthening. In fiscal 2019, the average length of use of passenger vehicles in Japan (excluding mini-vehicles) was 13.2 years, 1.6 years longer than a decade earlier. Accordingly, the role of after-sales service is becoming increasingly important. More than 100 million Toyota vehicles are currently in use worldwide, and each one is irreplaceable to a customer. Toyota strives to provide ever-better services in accordance with the 3S Spirit (*Seikaku + Shinsetsu = Shinrai*, meaning Accuracy + Caring = Trust) to ensure that customers will be highly satisfied with their vehicles.



Customer First and Quality First Measures  
(Sustainability Data Book 2019, p. 5)

## Maintaining Focus on the Series of Recall Issues

February 24, the anniversary of the day that President Akio Toyoda attended U.S. Congressional hearings held to investigate the series of recall issues that occurred in 2010, has been designated Toyota Restart Day. We have created mechanisms and are taking measures to raise awareness in order to keep the lessons learned from the series of recall issues fresh.

### Customer Quality Learning Center

In 2014, Toyota established the Customer Quality Learning Center to convey the experiences and lessons learned from the series of recall issues to future generations of employees. With exhibits that appeal to the five senses, such as actual examples of faulty parts and vehicle simulators, these centers serve the important educational role of conveying the circumstances surrounding the series of issues. The content of the centers is updated every year to cover the most recent quality issues. Plants, including overseas plants, have also established their own Customer Quality Learning Center, which they use to deepen understanding and spread awareness of the importance of quality among employees.



### Storytelling Activities

Employees who experienced the 2010 series of recall issues take on the role of storyteller to convey the facts and lessons learned from those events at their own work sites. For Toyota Restart Day 2019, Chairman Uchiyamada served as a storyteller at a seminar where he discussed his feeling of danger regarding the fading of the lessons learned from the series of recall issues. The seminar helped to boost storytelling activities, with participants commenting that the seminar helped them understand the importance of communicating feelings, rather than just knowledge, and that it helped renew a healthy sense of danger within them.



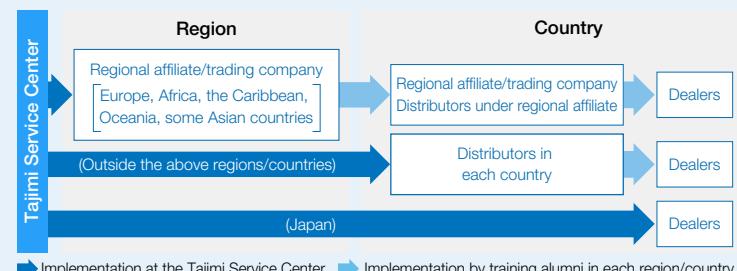
## Training Centers Develop Global Service Engineers

The Tajimi Service Center provides training on vehicle servicing technologies and body repair and paint to service technicians from dealers in Japan and distributors worldwide.

Opened in July 2013, the Tajimi Service Center is fully equipped with classrooms, practice areas, and drive evaluation courses with a variety of road conditions on a vast 187,000 m<sup>2</sup> site. In fiscal 2019, approximately 2,100 staff from 18 locations in Japan and overseas trained at the center, bringing the center's cumulative total number of training alumni to approximately 11,800.

Research and development of new technologies for the service, repair, and painting of new vehicles equipped with cutting-edge technologies is also concentrated at the center. As a global training facility, the center enables staff who come to the center for training to improve their knowledge and skills, helping build a solid foundation for reinforcing global competitiveness in service technology.

### Service Technology Training Process



Tajimi Service Center

## Working to Better the World around Us

Based on a philosophy of contributing to society through the manufacture of automobiles, Toyota endeavors to contribute to sustainable development.

Toyota seeks to make ever-better cars in order to bring happiness to customers. At the same time, Toyota implements a wide range of activities, such as sponsoring sporting events—including the Olympic Games and Paralympic Games—fostering initiatives related to mobility through the Toyota Mobility Foundation, and promoting social contribution activities. All of these efforts are aimed at realizing the mobility society of the future and richer lifestyles.

Toyota will continue to contribute to the realization of a prosperous mobility society with greater happiness for all.

### Olympic and Paralympic Worldwide Partnerships

In 2015, aiming to use sports to create a peaceful and inclusive society and to use mobility to contribute to the realization of a sustainable society, Toyota formed a partnership with the International Olympic Committee (IOC) and International Paralympic Committee (IPC) in the areas of vehicles, mobility services, and mobility solutions, making it the first Worldwide Olympic and Paralympic Partner in the mobility category.

### MOBILITY FOR ALL



Through the Olympic and Paralympic Games, Toyota is aiming to achieve the following goals: "Ever Better MOBILITY FOR ALL," "Ever Better SOCIETY" and "Ever Better TOYOTA." Toyota is carrying out initiatives with the aim of realizing a society in which everyone can participate and strive.

At the Olympic and Paralympic Games Tokyo 2020 (Tokyo 2020), Toyota aims to provide mobility solutions that go beyond its conventional framework of supplying vehicles based on three pillars: 1. Mobility for all, 2. Sustainability centered on the realization of a hydrogen-powered society (environment and safety), and 3. Transportation support leveraging the Toyota Production System (TPS) for those involved in the games.

### Specific Measures

Using its full line-up of electrified vehicles, Toyota will reduce environmental impact while supporting smooth operations at Tokyo 2020 through mobility solutions that combine the TPS with diverse forms of mobility.

Toyota will provide a total of around 3,700 vehicles for Tokyo 2020. Nearly 90 percent of these will be electrified vehicles, including the Mirai, a fuel cell vehicle (FCEV), and the Prius PHV (a plug-in hybrid vehicle, known as the Prius Prime in some markets), as well as such battery-powered electric vehicles (BEVs) as the Accessible People Mover (APM), created specifically for Tokyo 2020, and versions of the e-Palette and LQ specifically designed for Tokyo 2020. Among

the electrified vehicles provided will be approximately 500 FCEVs and 850 BEVs, for a total of approximately 1,350 vehicles that emit no CO<sub>2</sub> during driving, the largest such fleet at any Games to date.

By offering new ways of watching the Olympic and Paralympic Games and operational support using robots as well as mobility solutions that go beyond conventional conceptions of mobility, Toyota is striving to provide freedom of movement for all, including those who, until now, have been unable to experience the Games.

For example, through communication and remote control via robots, guests in remote locations will be able to interact with athletes and truly feel the atmosphere of the event as if they were there in person. In field events, we aim to help staff operate the Games efficiently using field event support robots.

Furthermore, Toyota's human support robot will offer assistance to guests using wheelchairs to help them to more freely enjoy the competition.

Toyota Olympic, Paralympic and Sports page

### The Toyota Mobility Foundation: Supporting Ideas and Initiatives to Enrich Mobility

The Toyota Mobility Foundation was established in August 2014 to create a truly mobile society and help



overcome the barriers to mobility for all. The foundation seeks to combine Toyota's expertise with the innovative vision and experience of NPOs and research organizations worldwide to solve mobility-related issues and create a better mobility society.

Going forward, in addition to further improving its current projects, the foundation will leverage the know-how gained through its activities thus far to advance initiatives aimed at solving a wide range of mobility issues.

Toyota Mobility Foundation

### Taking Our Founding Principle of Social Contribution Global

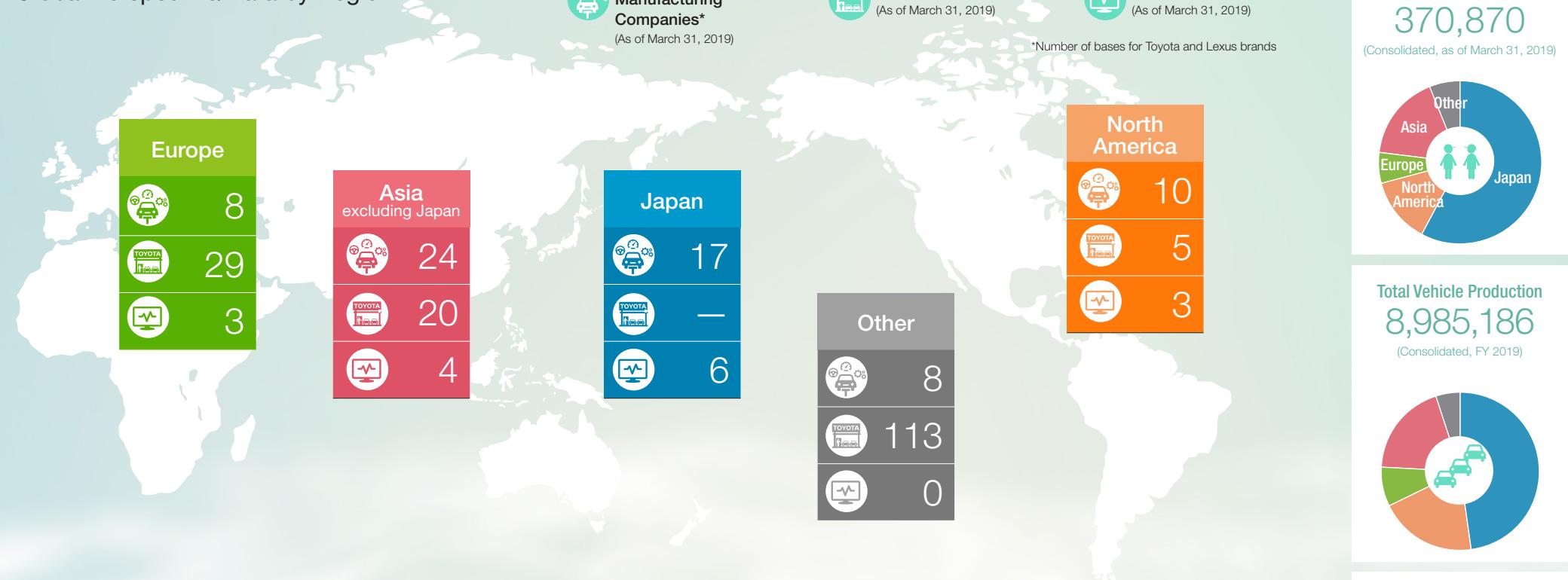
Toyota has a long history of social contribution that traces back to the desire of Sakichi Toyoda—the father of Toyota Motor Corporation's founder, Kiichiro Toyoda—to support inventions that would enrich people's lives. Kiichiro and his team, who together built Toyota's automotive business, kept this spirit of social contribution alive after Sakichi's death, espousing the concepts of contributing to the development and welfare of the country and remembering to always be grateful. These concepts were eventually woven into the Five Main Principles of Toyoda, the Guiding Principles at Toyota, and the Toyota Global Vision. In these various forms, this spirit of social contribution has been handed down to today.

In addition to contributions made through its businesses, Toyota is pursuing social contribution in three designated global priority fields: the environment, traffic safety, and education. We are also promoting activities in social, cultural, and other fields to meet the social needs of specific countries and regions, utilizing our technologies, expertise, and other resources to proactively advance initiatives. Going forward, Toyota will continue striving to support volunteering and to sustain automotive and manufacturing cultures.

Social Contribution Activities

## At a Glance

### Global Perspective/Data by Region



**Financial Highlights  
for the Year Ended  
March 31, 2019  
(Consolidated)**

The second of each pair of figures is the year-on-year change.

**Total Vehicle Sales**  
8,977 thousand  
+13 thousand

**Net Revenues**  
¥30,225.6 billion  
+2.9%

**Operating Income**  
¥2,467.5 billion  
+2.8%

**Net Income**  
¥1,882.8 billion  
-24.5%

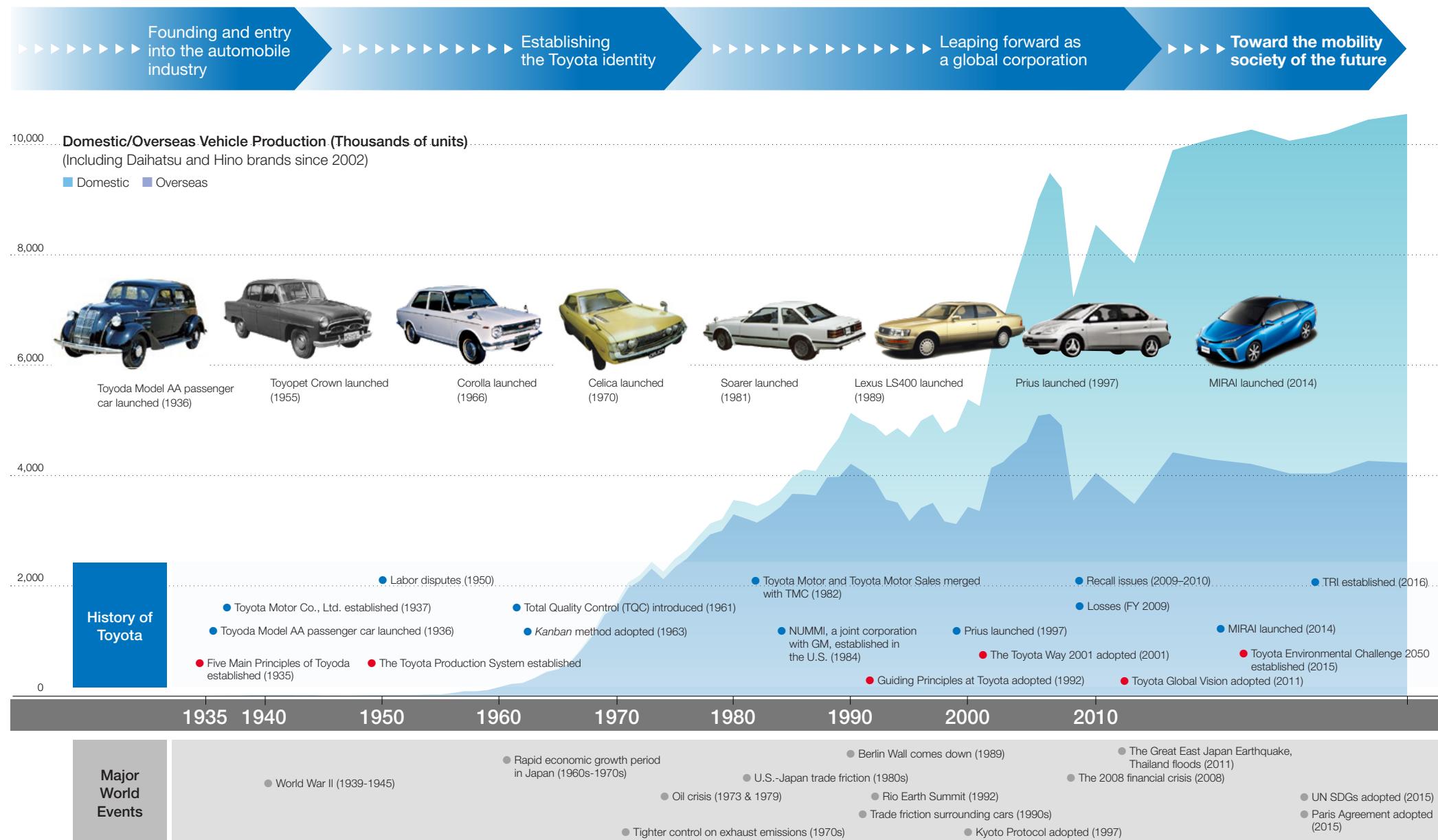
**Total Liquid Assets**  
¥9,454.4 billion  
+82.3 billion

**Total Shareholder Return (max)**  
¥1,186.8 billion  
-¥13.3 billion

**R&D Expenses**  
¥1,048.8 billion  
-¥15.4 billion

**Capital Expenditures**  
¥1,465.8 billion  
+¥163.1 billion

## History



## Financial Summary (Consolidated)

&lt;U.S. GAAP&gt;

Fiscal years ended March 31		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Consolidated Vehicle Sales		(thousands of units)	7,237	7,308	7,352	8,871	9,116	8,972	8,681	8,971	8,964	8,977	
Foreign Exchange Rates (Average)		Yen to US Dollar Rate	93	86	79	83	100	110	120	108	111	111	
Yen to Euro Rate			131	113	109	107	134	139	133	119	130	128	
Net Revenues		(billions of yen)	18,950.9	18,993.6	18,583.6	22,064.1	25,691.9	27,234.5	28,403.1	27,597.1	29,379.5	30,225.6	
Operating Income		(billions of yen)	147.5	468.2	355.6	1,320.8	2,292.1	2,750.5	2,853.9	1,994.3	2,399.8	2,467.5	
Income before Income Taxes		(billions of yen)	291.4	563.2	432.8	1,403.6	2,441.0	2,892.8	2,983.3	2,193.8	2,620.4	2,285.4	
Net Income		(Note 1) (billions of yen)	209.4	408.1	283.5	962.1	1,823.1	2,173.3	2,312.6	1,831.1	2,493.9	1,882.8	
Common Shares	Cash Dividends		(billions of yen)	141.1	156.8	157.7	285.0	522.9	631.3	645.5	627.5	642.6	626.8
	Cash Dividends per Share		(yen)	45	50	50	90	165	200	210	210	220	220
	Payout Ratio		(%)	67.4	38.4	55.6	29.6	28.7	29.0	28.3	34.6	26.1	33.8
Value of Shares Repurchased [shareholder return]		(Note 2) (billions of yen)	—	—	—	—	180.0	293.3	639.3	449.9	549.9	550.0	
R&D Expenses		(billions of yen)	725.3	730.3	779.8	807.4	910.5	1,004.5	1,055.6	1,037.5	1,064.2	1,048.8	
Depreciation Expenses		(Note 3) (billions of yen)	1,032.0	812.3	732.9	727.3	775.9	806.2	885.1	893.2	964.4	984.8	
Capital Expenditures		(Note 3) (billions of yen)	579.0	642.3	706.7	852.7	1,000.7	1,177.4	1,292.5	1,211.8	1,302.7	1,465.8	
Total Liquid Assets		(Note 4) (billions of yen)	4,656.3	4,943.4	4,968.1	5,883.1	7,661.9	8,508.2	9,229.9	9,199.5	9,372.1	9,454.4	
Total Assets		(billions of yen)	30,349.2	29,818.1	30,650.9	35,483.3	41,437.4	47,729.8	47,427.5	48,750.1	50,308.2	51,936.9	
Toyota Motor Corporation Shareholders' Equity		(billions of yen)	10,359.7	10,332.3	10,550.2	12,148.0	14,469.1	16,788.1	16,746.9	17,514.8	18,735.9	19,348.1	
Return on Equity		(%)	2.1	3.9	2.7	8.5	13.7	13.9	13.8	10.6	13.7	9.8	
Return on Assets		(%)	0.7	1.4	0.9	2.9	4.7	4.9	4.9	3.8	5.0	3.7	

(Note 1) Shows "Net income (loss) attributable to Toyota Motor Corporation"

(Note 2) Value of common shares repurchased (shareholder return on Net Income for the period, excluding shares constituting less than one unit that were purchased upon request and repurchases made to avoid dilution of shares)

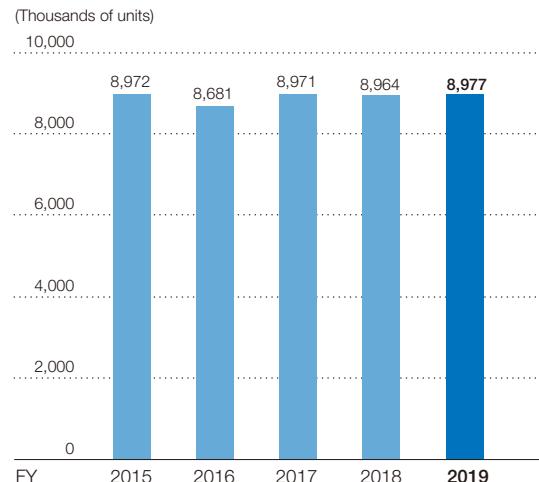
(Note 3) Figures for depreciation expenses and capital expenditures do not include vehicles in operating lease

(Note 4) Excludes financial subsidiaries

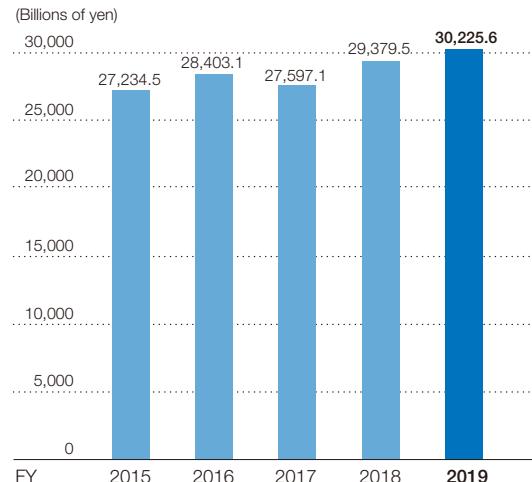
## Financial Summary (Consolidated)

&lt;U.S. GAAP&gt;

### Consolidated Vehicle Sales



### Net Revenues



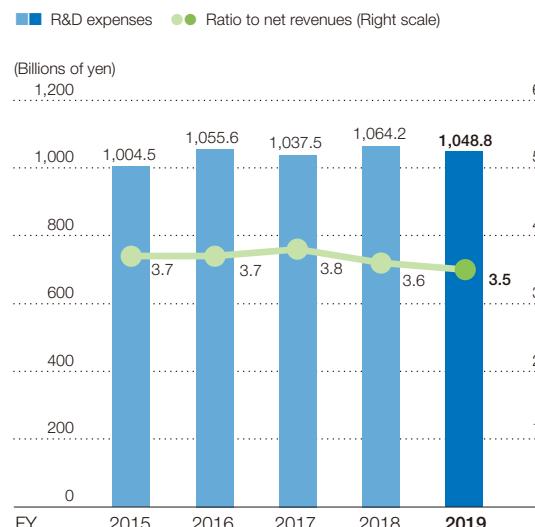
### Operating Income



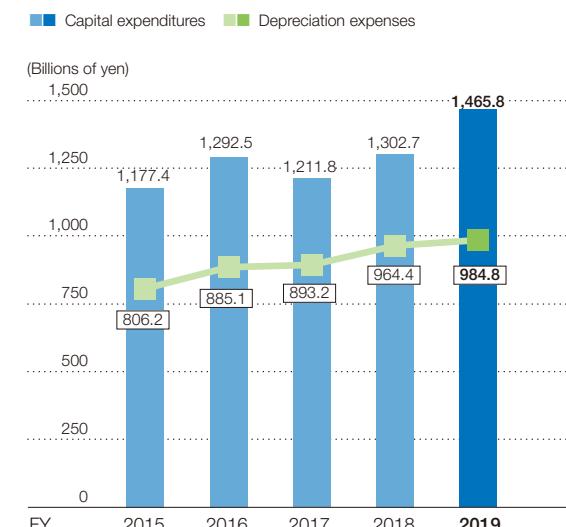
### Net Income



### R&D Expenses



### Capital Expenditures



# Non-Automotive Businesses

## Financial Services

Toyota Financial Services Corporation provides financial services, mainly auto loans and leasing, to more than 27,000,000 customers across its network, which spans more than 35 countries and regions. In fiscal 2018, the financial services business recorded net revenues of 2,153.5 billion yen and operating income of 322.8 billion yen.

Toyota's financial services center mainly on sales financing, which serves as a tool to promote car sales. At the same time, we are working in new business areas to realize a better future mobility society.

The basic role of the financial services business is to enable more customers to use our cars. We do our utmost to fulfill that role by promoting digitization, developing and offering new financial products, and expanding our network to countries where the automotive market is growing.

Furthermore, with the automotive industry undergoing major changes, we are implementing initiatives to improve customers' lifestyles and the convenience of society as a whole by expanding our value chain to

create added value through financial services across the car life cycle, from manufacture to disposal.

In Japan, KINTO Corporation was established and commenced operations. This new car provider sets in motion the novel concept of owning and driving cars on a monthly subscription basis. With the aim of expanding pan-European full-service leasing operations, Toyota Fleet Mobility GmbH was established as a joint venture dedicated to expanding leasing services in European countries.

Furthermore, Toyota is taking on the challenge of providing innovative financial services with cutting-edge technologies, building infrastructure for payments, and working on blockchain technology.

Going forward, we will continue to develop and provide financial services in line with customer needs and local market characteristics to help enrich customers' lives.



Toyota Financial Services Corporation

## A Network Spanning More Than 35 Countries and Regions



## Housing Services: Agreement to Establish Joint Venture with Panasonic Corporation in Town Development Business

Lifestyles are on the threshold of profound change due to the accelerated deployment of IoT technologies in such areas as home appliances and household equipment, as well as the evolution of mobility, as exemplified by CASE and MaaS. The latter connects cars, public transportation, and other means of transportation through IT. From here on out, information links will connect all items and services that support our daily lives. We must adopt a new, broader perspective of the "connected city" that encompasses the entire community and society, including cars.

To realize improvements in people's lives while seeking growth and advances in the town development business, which is likely to see rapid change, Toyota and Panasonic signed an agreement in May 2019 to establish a new joint venture in the town development business. Both companies aim to fuse the mobility services initiatives promoted by Toyota and the "lifestyle updates" initiatives spearheaded by Panasonic through collaboration based on the establishment of the joint venture, thereby creating new value for the town as a whole. Under this agreement, Toyota Housing Corporation, Misawa Homes Co.,

Ltd., and Panasonic Homes Co., Ltd., along with Panasonic Construction Engineering Co., Ltd. and Matsumura-gumi Corporation, which have construction operations outside the scope of detached homes and other housing, will imbue the joint venture with new development functions that will be supported with technologies from Toyota and Panasonic.

The joint venture will have three businesses: housing, construction, and town development. In the housing business, the joint venture will have industry-leading competitiveness while leveraging the unique advantages of three brands. In the construction business, the aim is to provide a new type of labor-saving automated construction by leveraging the accumulated manufacturing know-how of the parent companies. In the town development business, the objective is to create tremendous new added value that supersedes conventional wisdom in real estate value through advances in management and services.

Plans call for establishing the joint venture in January 2020. Toyota and the Panasonic Group plan to have equal ownership ratios in the new joint venture.

## Purpose of Establishing the Joint Venture

An open, safe, and comfortable mobility society

**TOYOTA**

e-Palette<sup>\*1</sup>

Various mobility services

MSPF<sup>\*2</sup>

Create new lifestyle value throughout communities

**Mission**

Create new innovations with housing × construction × town development

**Vision**

Improve lifestyles and comfort by creating homes and communities

**TOYOTA HOME**  
パナソニック建設エンジニアリング  
**MISAWA**  
Panasonic Homes

"Lifestyle updates"

**Panasonic**

IoT home appliances and equipment

Various spaces that relate to lifestyles

Home X

\*1 An autonomous BEV designed for MaaS

\*2 Information platform for supporting services

## Corporate Information and Stock Information (As of March 31 2019)

### Corporate Data

<b>Company Name</b>	Toyota Motor Corporation
<b>Established</b>	August 28, 1937
<b>Common Stock</b>	¥635.4 billion
<b>Fiscal Year-End</b>	March 31
<b>Public Accounting Firm</b>	PricewaterhouseCoopers Aarata LLC
<b>Number of Affiliates</b>	Consolidated subsidiaries: 608 Affiliates accounted for by the equity method: 63
<b>Number of Employees</b>	370,870 (Parent company: 74,515) Corporate information: <a href="https://global.toyota/en/">https://global.toyota/en/</a> IR information: <a href="https://global.toyota/en/ir/">https://global.toyota/en/ir/</a>
<b>Corporate Website</b>	

### Stock Data

<b>Number of Shares Authorized</b>	10,000,000,000 shares
<b>Number of Shares Issued</b>	<b>Common shares:</b> 3,262,997,492 shares <b>First series Model AA class shares:</b> 47,100,000 shares
<b>Number of Treasury Stock</b>	430,558,325 shares
<b>Number of Shareholders</b>	623,599
<b>Number of Shares per Trading Unit</b>	100 shares
<b>Stock Listings</b>	<b>Japan:</b> Tokyo, Nagoya <b>Overseas:</b> New York, London <b>Japan:</b> 7203 <b>Ratio:</b> 1 ADR=2 Common Stock <b>Symbol:</b> TM
<b>Securities Code</b>	
<b>American Depository Receipts (ADRs)</b>	
<b>Transfer Agent in Japan</b>	Mitsubishi UFJ Trust and Banking Corporation 1-1, Nikko-cho, Fuchu City, Tokyo 183-0044, Japan Japan toll-free: (0120) 232-711
<b>Depository and Transfer Agent for ADRs</b>	The Bank of New York Mellon 240 Greenwich Street, New York, NY 10286, U.S.A. Tel: +1 (0) 201-680-6825 U.S. toll-free: (888) 269-2377, (888) BNY-ADRS <b>Depositary Receipt:</b> <a href="https://www.adrbnymellon.com">https://www.adrbnymellon.com</a> <b>Transfer Agent:</b> <a href="https://www-us.computershare.com/investor">https://www-us.computershare.com/investor</a>

### Contact Points for Investors

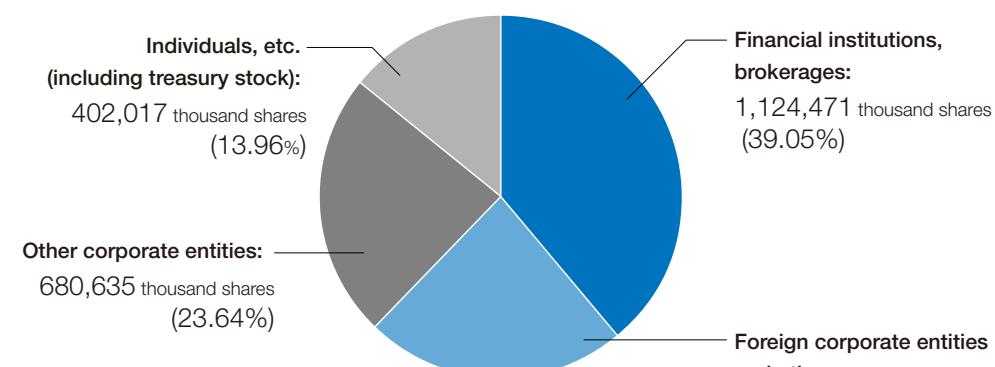
<b>Japan</b>	<b>Toyota City Head Office:</b> 1, Toyota-cho, Toyota City, Aichi Prefecture 471-8571, Japan Tel: (0565) 28-2121 Fax: (0565) 23-5721
	<b>Tokyo Head Office:</b> 1-4-18, Koraku, Bunkyo-ku, Tokyo 112-8701, Japan Tel: (03) 3817-7111 Fax: (03) 3817-9092
<b>U.S.A.</b>	Toyota Motor North America, Inc. 1114 Avenue of the Americas, Suite 4115 New York, NY 10036, U.S.A. Tel: +1 (0) 469-292-4000 <a href="mailto:irteam@tma.toyota.com">irteam@tma.toyota.com</a>
<b>U.K.</b>	Toyota Motor Europe, London Office Second Floor, Caroline House, 55-57 High Holborn, London WC1V 6DX, U.K. Tel: +44 (0) 207-290-8500 <a href="mailto:irteam@toyota-europe.com">irteam@toyota-europe.com</a>

### Major Shareholders (Top 10)

Name	Common shares (1,000 shares)	First series Model AA class shares (1,000 shares)	Total (1,000 shares)	Percentage of Shareholding (%)
Japan Trustee Service Bank, Ltd.	376,258	180	376,438	13.07
Toyota Industries Corporation	238,466	—	238,466	8.28
The Master Trust Bank of Japan, Ltd.	182,663	—	182,663	6.34
Nippon Life Insurance Company	110,813	560	111,373	3.87
JP Morgan Chase Bank, N.A. (Standing Proxy: Settlement & Cleaning Services Division, Mizuho Bank, Ltd.)	100,932	—	100,932	3.51
DENSO Corporation	89,915	—	89,915	3.12
State Street Bank and Trust Company (Standing Proxy: Settlement & Cleaning Services Division, Mizuho Bank, Ltd.)	86,044	—	86,044	2.99
Trust & Custody Services Bank, Ltd.	57,685	—	57,685	2.00
Mitsui Sumitomo Insurance Company, Limited	56,811	—	56,811	1.97
Tokio Marine & Nichido Fire Insurance Co., Ltd.	51,045	—	51,045	1.77

Note: Percentage of shareholding is calculated after deducting treasury stock (430,558 thousand shares) from the total number of shares issued.

### Ownership Breakdown



Note: The above percentages indicate the ratios of shareholdings to the total number of shares issued after deducting treasury stock (430,558 thousand shares)



Toyota is a Worldwide Olympic/Paralympic Partner in the category of vehicles, mobility support robots and mobility services.

#### Cautionary Statement with Respect to Forward-Looking Statements

This report contains forward-looking statements that reflect Toyota's plans and expectations. These forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors that may cause Toyota's actual results, performance, achievements or financial position to be materially different from any future results, performance, achievements or financial position expressed or implied by these forward-looking statements. These factors include, but are not limited to: (i) changes in economic conditions, market demand, and the competitive environment affecting the automotive markets in Japan, North America, Europe, Asia and other markets in which Toyota operates; (ii) fluctuations in currency exchange rates, particularly with respect to the value of the Japanese yen, the U.S. dollar, the euro, the Australian dollar, the Russian ruble, the Canadian dollar and the British pound, and interest rates fluctuations; (iii) changes in funding environment in financial markets and increased competition in the financial services industry; (iv) Toyota's ability to market and distribute effectively;

(v) Toyota's ability to realize production efficiencies and to implement capital expenditures at the levels and times planned by management; (vi) changes in the laws, regulations and government policies in the markets in which Toyota operates that affect Toyota's automotive operations, particularly laws, regulations and government policies relating to vehicle safety including remedial measures such as recalls, trade, environmental protection, vehicle emissions and vehicle fuel economy, as well as changes in laws, regulations and government policies that affect Toyota's other operations, including the outcome of current and future litigation and other legal proceedings, government proceedings and investigations; (vii) political and economic instability in the markets in which Toyota operates; (viii) Toyota's ability to timely develop and achieve market acceptance of new products that meet customer demand; (ix) any damage to Toyota's brand image; (x) Toyota's reliance on various suppliers for the provision of supplies; (xi) increases in prices of raw materials; (xii) Toyota's reliance on various digital and information technologies;

(xiii) fuel shortages or interruptions in electricity, transportation systems, labor strikes, work stoppages or other interruptions to, or difficulties in, the employment of labor in the major markets where Toyota purchases materials, components and supplies for the production of its products or where its products are produced, distributed or sold; and (xiv) the impact of natural calamities including the negative effect on Toyota's vehicle production and sales.

A discussion of these and other factors which may affect Toyota's actual results, performance, achievements or financial position is contained in Toyota's annual report on Form 20-F, which is on file with the United States Securities and Exchange Commission.

