

NTN provides various products for industrial machinery and automotive maintenance needs. In industrial aftermarket applications, we provide bearings for general machinery and bearings for equipment repairs such as in mining, papermaking, steel, cement and food industries. In automotive aftermarket applications, we satisfy customer needs with a product lineup of repair parts (auto parts) composed of bearings and peripheral components.

Since our visits to customers are restricted due to the coronavirus pandemic, our activities go beyond delivering products and include holding the "NTN Aftermarket Academy" to help customers learn about bearings through online lectures and practical training as well as promoting remote technical support services. Also, we contribute to improvement of productivity and stable operation of customers' facilities, for example, by providing a condition monitoring system utilizing the NTN PORTABLE VIBROSCOPE and bearing refurbish services.

Executive Officer **Etsu Harima**



■ Percentage of total sales



■ Trend in business performance



Business environment

- Rise of LCC products (improvement in quality of products made in China, etc.) through commoditization of general-purpose bearings
- Increase in the role expected of bearing suppliers by customers, such as the provision of a wide range of services
- Aftermarket overseas: Strong brand presence of European and U.S. competitors in the marketplace
- Expansion of the e-commerce market
- Sophistication of counterfeit bearings

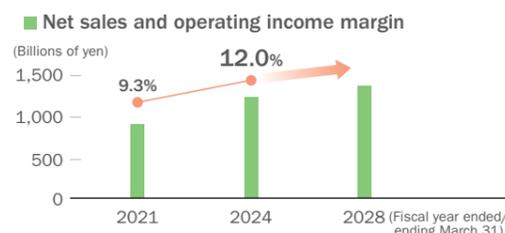
Our Vision

Transform from a "Manufacturing Company" into a "Company that Delivers Values to Customers through Products and Services."

The business environment such as the development of AI, IoT, and other digital technologies, environmental issues, and demographic shifts has been changing continually and companies are required to be flexible in accommodating new market needs to ensure sustained growth. In the aftermarket business of bearings, suppliers are faced with new expectations in addition to traditional requirements, including high-quality products, broad product lineups and timely delivery. The role of suppliers, particularly those in the equipment aftermarket business for steel, paper and other industries, is gradually changing from a bearing supplier into a provider of comprehensive maintenance services for equipment and peripheral components.

In addition to utilizing remote technical support services and the "NTN PORTABLE VIBROSCOPE," we also provide new business models such as monitoring

the operation status of customer's equipment and bearings, prediction of replacement timing utilizing know-how including sensing technology and digital technology such as AI and IoT, and bearing refurbish business. In this way, we will further enhance our brand value and aim to be No.1 in customer satisfaction in the aftermarket business.



Results for the fiscal year ended March 31, 2021 and forecast for the fiscal year ending March 31, 2022

In the fiscal year ended March 31, 2021, net sales was 91.5 billion yen which was below the previous year's level due to a substantial drop in demand and adjustments for distributor inventory due to poor market conditions in both industrial aftermarket and automotive aftermarket that were heavily impacted by the new coronavirus. Operating income also fell to 8.9 billion

yen, largely due to a decline in demand, despite efforts to reduce fixed costs such as personnel costs and expenses as well as variable cost. For the year ending March 31, 2022, we expect net sales of 101 billion yen and operating income of 12 billion yen based on the assumption of normalization of economic activities and restoration of demand after the end of the pandemic.

"DRIVE NTN100" Phase 2 strategy

Efforts to focus on in three years

- By sharing sales strategies across different types of businesses, concentrate resources on important industries
- Strengthen e-commerce
- Strengthen organizational structure to improve supply capacity, service response, and profitability
- Promote business development in the service-oriented business

One of the issues we face in expanding our aftermarket business is our low brand awareness abroad. To improve brand value, we need to enhance our competitiveness in aftermarket business from a variety of perspectives, including the promotion of business development in the service-oriented business, such as bearing refurbish services, remote

technical support services, reinforcement of technical support such as on-line seminars, reinforcement of supplying capabilities by securing available stock for aftermarket, and reinforcement of our system and organization to focus on priority industries through integrated actions from OEM to aftermarket. Over the next three years, we will focus on these measures.

Initiatives to strengthen for sales expansion (medium-to long-term)

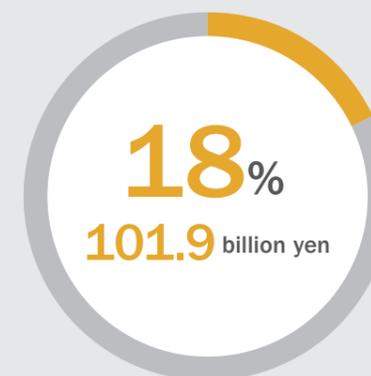
2020	2021-2023	2024
	Rebuild revenue base	From products to services
Increasing the brand value		
Strengthen product-and-service business	Expand bearing refurbish business Use of NTN PORTABLE VIBROSCOPE (In addition to sales of devices, analysis report business)	Commercialize the condition monitoring of customers' equipment by utilizing sensor technology and IoT and grasp the demand for bearing aftermarket
Strengthen service response	Strengthen technical support functions in overseas sales companies (ASEAN and India regions) Technical service units activities and technical seminars for distributors Further strengthen measures against counterfeit bearings	Develop and expand technical service through the use of remote support cameras
Strengthen the ability to supply	Maintain available stock for aftermarket Prioritize production capacity for aftermarket (use of new IT core system) Expand use of overseas manufacturing sites and external procurement	Accelerate "Made by NTN" by actively utilizing products manufactured overseas Strengthen the network system with distributors and expand e-commerce
Strengthen structure and organization	Expand sales in growing industries through integrated response from OEM to aftermarket Improve profitability by short-term concentration through task force activities for key market Strengthen sales structure in the Middle East and Africa (A sales company established in UAE in January 2021)	Relocate automotive aftermarket's headquarters functions to Europe Expand sales in potential markets such as China through the use of resources in Europe



We are responding to the demands of our customers for long operating life, improved loading capacity, and higher speed, all of which are required by all types of industrial machinery, with the world's highest standard new-generation bearings, the ULTAGE Series. In addition, through constant R&D efforts, we will launch bearings with even lower torque, more compactness and lighter weight to the marketplace, enabling environmental impact reduction in a variety of industrial machinery fields. Looking ahead to the next generation, we will promote modularizations and intelligentization by deepening bearing technologies and integrating sensors and precision equipment technologies. In addition to developing high value-added products, we will develop new products and services by utilizing the abnormality detection technology, condition monitoring system (CMS), and IoT. Specifically, we will promote sales expansion of the Wind Doctor™ condition monitoring system for wind turbines and the i-WRIST™, a Wrist Joint Module that contributes to automation and labor saving at manufacturing sites. By providing these products and services, we will contribute to the development of industry and the creation of a sustainable society.

Executive Officer **Etsu Harima**

Percentage of total sales



Trend in business performance



Business environment

- Increased demand for social infrastructure such as wind turbines and rolling stocks
- Increased demand for robot-related products
- Increased needs for automated machine operation and sensing
- Competition to develop high value-added products
- Intensified competition due to influx of low cost products

Against the backdrop of trends toward the realization of a decarbonized society, the demand for social infrastructures for wind turbines and rolling stock will continue to grow, and as the labor force population declines, the demand for robot-related products that realize labor saving will expand, and the need for automated operation of machinery and condition

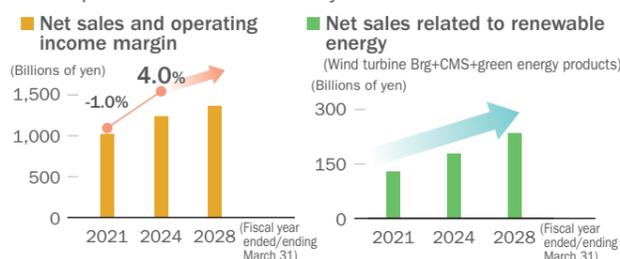
monitoring systems will increase. Under this environment, we will escape competition in the field of low-priced products and focus on high value-added products based on our proprietary technologies such as the i-WRIST™, magnetic rings, and sensor bearings in order to meet customer needs in line with changes in the social structure.

Our Vision

Company that customers rely on most for its exceptional technological competence

The industrial machinery market is comprised of a variety of industries, and bearings are used in a wide range of machinery. We supply bearings with a wide range of sizes, from miniature sizes of several millimeters in outer diameter used in electronic machinery to ultra-large sizes of several meters used in wind turbines and large mining equipment. In addition, products used in aircraft and high-speed railways require extremely high reliability because the stoppage of machinery affects human lives. We have accumulated product and manufacturing technologies for many years, and we utilize these technologies to respond to a variety of market needs. In recent years, the external environment has been constantly changing due to factors such as increasing awareness of the global environment issues and changes in population dynamics, and changes in the industrial structure can also be seen as a result of a

rapid progress in IT-related technologies including IoT and AI. Under these circumstances, we will utilize digital technology based on bearing technology in the industrial machinery business, thereby continuing to be an indispensable company in the industry, and will support the development of the world industry.



Results for the fiscal year ended March 31, 2021 and forecast for the fiscal year ending March 31, 2022

In the fiscal year ended March 31, 2021, sales increased for wind turbines in China, which swiftly overcame the effects of new coronavirus impact and for agricultural machinery in North America and Europe because of the steady worldwide demand for grains even in the pandemic.

On the other hand, sales for construction machinery fell sharply due to a decline in economic activity following the spread of the new coronavirus infections. Sales for aircrafts and rolling stock declined due to a decrease in passenger

demand. As a result, net sales was 101.9 billion yen. Operating income was 400 million yen due to a review of unprofitable products and a reduction in variable cost. For the year ending March 31, 2022, the impact of new coronavirus is expected to continue for aircrafts and rolling stock, but demand recovery is expected for construction machinery and gearboxes. We forecast net sales of 105 billion yen and operating income of 1.0 billion yen.

“DRIVE NTN100” Phase 2 strategy

Efforts to focus on in three years

- Select target areas
- Improve selling price and reduce or withdraw from unprofitable areas
- Reduce costs by procuring materials and parts from optimal locations (actively utilize materials from China and India)
- Expand sales of Wrist Joint Module “i-WRIST™”
- Expand service / solution business (CMS)
- Expand renewable energy-related products

We will reorganize our business into the following 3 fields and restructure our business and product portfolios by throwing management resources in a concentrated manner.

- “Create sector”: Establish new business areas for Wrist Joint Module “i-WRIST™”, servicing solutions (CMSs) and hydrogen-energy

- “Grow sector”: Focus on wind turbines and rolling stock in response to decarbonization trend to expand business and throw management resources in a concentrated manner
- “Harvest sector”: Secure stable earnings from sales of products for construction machinery and agricultural machinery by adding more value and strengthen cost-competitiveness.

Initiatives to strengthen by industry (medium- to long-term)

	2020	2021-2023	2024-
		Rebuild the revenue base	VS FY2020
			Growth strategy to respond to market change
Creation sector	Robot-related business (i-WRIST™)	Gain large customers Promote acquisition of overseas certified standard	Expand overseas business Develop new applications and derivatives
	Service / solution business (CMS)	Establish maintenance service for wind turbine bearings and overseas expansion	Gain bearing demand by leveraging CMS technology
	Gearbox	Develop RV gearbox bearing Expand sales of elastic bearings for wave motion gears	Expand sales in China (Follow changes in the industry)
Growth sector	Wind turbine	Focus on capturing demand in China Drive sales and profit increase	Improve profitability by capturing aftermarket demand Expand production capacity
	Machine tools	Expand sales of machine tools in China and India Utilize products manufactured in a plant in Germany to sell them on the European market	Expand CMS needs due to spread of IoT Expand sales of bearings with sensors
	Rolling stock	Promote drastic cost reduction measures including local production in China	Capture demand for railway network expansion and subway in China
Harvest sector	Construction machinery	Utilize competitive materials and components Adapt to electrification, shift to high function products	Follow changes in social structure and infrastructure Make sure to capture demand for electrification
	Agricultural machinery	Expand sales of high value-added products Expand sales of CVJ for industrial machinery	
	Aerospace	Withdraw from or reduce unprofitable projects Improve profitability by concentrating production in NTN-SNR (France)	Earn profits in MRO market Expand sales for space industry

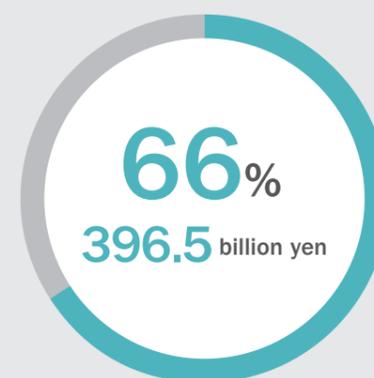
In response to the rapidly expanding trend toward CASE in the automotive market, we are responding to the needs of our customers as a specialist in the power/drive train system by developing high performance products, such as lower-friction, lighter-weight and more compact, durability-improved general bearings, hub bearings and driveshafts, which are our core products.

In addition to these basic products, we are combining products with peripheral components and integrating our core technologies. We will contribute to the creation of safe, secure, and comfortable future cars for our customers by continuously developing and proposing new products that deliver precise and smooth control, such as mechanical clutch units (MCUs) for electric oil pumps and next-generation steering systems, and hub bearings with steering assist functions.

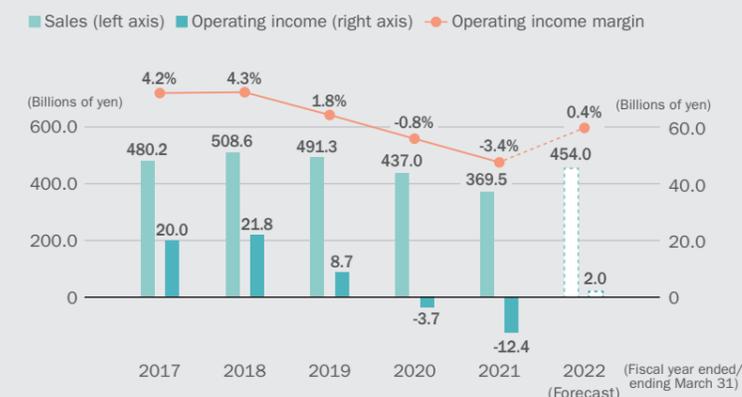
Executive Officer **Hideaki Miyazawa**



Percentage of total sales

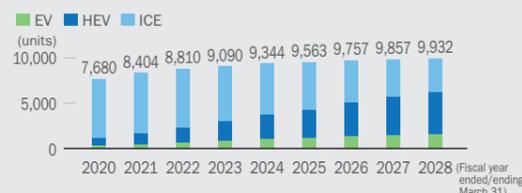


Trend in business performance



Business environment

Trends in global vehicle production



Up to FY2026: IHS Markit Since FY2027: NTN Forecast

Acceleration of EV, HEV, and electrification

- Accelerate the shift to EVs and electrification due to the fuel efficiency and CO₂ regulations and government-led targets for electrification in various countries
 - Reduce CO₂ through a highly efficient product lineup, contribute to Well-to-Wheel, expand sales of electric module product
- Increasing need for carbon-free products
 - Supply through a short supply chain utilizing global bases and carbon-free responses at its own plants
- Increased demand for compact, lightweight, high-speed, low-torque, less noise, and low vibration
 - Enhance high performance products and technological capabilities

Our Vision

"Top supplier in the Power/Drive Train system"

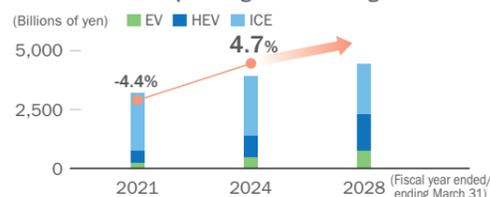
Company with No. 1 proposal ability that makes customers happy with an overwhelming speed × solution

The rise of electrified vehicles throughout the world's automotive markets calls for functional automotive components with different characteristics or more rigorous performance requirements than are required for conventional internal combustion engine vehicles. We will accommodate these needs by offering differentiated technical expertise and lineups of advanced products providing features such as size/weight reduction, higher speed rotation, lower torques and less noise/vibrations in order to secure a competitive advantage over our competitors.

Another major wave, Ride Sharing and MaaS, is based on the absolute reliability of the driving system responsible for driving, turning, and stopping vehicles. Carmakers are shifting the focus and resource of their development work from the tangible (vehicle performance) to the intangible (services), creating an expanding range of areas in which NTN can contribute to vehicle safety, reliability and

comfort. By capturing these dynamic changes in the business environment as opportunities, we will provide value that exceeds customer expectations through product development and advanced technical services that are ahead of market needs. By doing so, we aim to become the leading manufacturer in the drivetrain component segment essential to the automotive market.

Net sales and operating income margin



Results for the fiscal year ended March 31, 2021 and forecast for the fiscal year ending March 31, 2022

Net sales was 369.5 billion yen due to the impact of the outbreak of the new coronavirus infections and the sharp decline in demand following the shutdown of automotive manufacturing in various regions. Demand began to recover in the second half of the fiscal year, but sales did

not grow due to reduced production from the shortage of supplying semiconductors. As a result, operating income fell by 12.4 billion yen. For the year ending March 31, 2022, we expect net sales to be 454 billion yen and operating income to be 2 billion yen.

"DRIVE NTN100" Phase 2 strategy

Efforts to focus on in three years

1 Strengthen the profit structure

- Promote variable cost reduction through procurement reformation
- Reduce manufacturing fixed cost by reforming Monozukuri and improving productivity
- Reduce fixed cost by utilizing RPAs and improving the organizational structure and systems
- Thorough selling price management, reduction and withdrawal from unprofitable areas (regions and products)

2 Optimize portfolio to support sustainable growth

- Develop high performance and high value-added products responding to the environment, EVs, and electrification
- Expand sales of electrification products
- Order winning activities aimed at portfolio optimization and concentrated investment in focus segments

Initiatives to strengthen by product (medium- to long-term)

	2020	2021-2023	2024-	Estimated effects of EV/electrification
	Promote earning improvement NOT relying on the merit of scale		Strategy for sustainable growth	
Basic products	Driveshafts (CVJ) 	Deepen production reforms (streamlining) under way in Japan Horizontal expansion of production reforms to global manufacturing bases Concentrated investment in high-performance products and automation	Shift to large-sized SUV/PUP and EVs Secure volume in growth markets Advantage Small, lightweight, high efficiency, low vibration	No effects, stable growth
	Axle / hub bearings 	Carefully select capital investments that are directly linked to differentiation and competitiveness Devote energy into enhancing cost-competitiveness with a focus on variable cost Develop differentiated products complying with regulations for EVs, fuel efficiency and CO ₂	Develop differentiated high value-added products Realign portfolio based on customers and vehicle segments Advantage Super low friction	No effects, stable growth
	Bearings 	Strengthen sales activities especially for high-performance applications Focus on enhancing production capacity and cost competitiveness especially in Japan and China Promote use of external partners on production of standard type products	Invest resources in high performance bearings through the selection Advantage Super high speed, ultra-low friction	Flat sales, Toward high performance products
New areas (Electrification)		Increase production of gearboxes for electric hydraulic brakes Promote cost reduction (Shorten assembly CT / Promote production in China / Use Chinese materials) Develop new products for integrated electrical modules	Expand sales of electric oil pumps Commercialize eHUB/ sHUB Commercialize electric brakes	Increase volume Grow together

Concept of Monozukuri

The NTN Group vision is a realization of a "NAMERAKA Society." In Monozukuri (manufacturing) as well, we will smoothly connect and streamline and information to shorten lead times and increase throughput by reducing in-process inventory. In addition, through the introduction of digital technology, we will realize a paradigm shift in manufacturing. By efficiently collecting information such as quality, cost, and inventory within the plant and substituting manual work with unmanned operations, we will shift our operations to speed up the improvement cycles and prevent the occurrence of problems through the analysis of such information. Furthermore, we will strengthen our efforts toward carbon neutrality to respond to the environmental issues that are becoming increasingly serious.

Executive Officer **Isao Ozako**



Priority measures of "DRIVE NTN100" Phase 2

As a decreasing birthrate and aging population progresses particularly in developed countries, the decline of the workforce population is expected to accelerate in the future. While there are concerns about a mid- and long-term shortage of labor all over the world, we are currently facing the issue of lowering domestic production efficiency in particular.

In "DRIVE NTN100" Phase 2, we need to urgently improve the cash flow by optimizing production as a whole, and we will reduce logistics costs and inventory assets by consolidating and organizing business sites.

We will also use external partners to reduce manufacturing costs. In terms of our capital investment, we will, in principle, freeze investment in expansion of capacity and shift to investment for risk and safety measures such as natural disasters, as well as measures to maintain and upgrade facilities and improve efficiency. Costs will be kept to 60 billion yen or less for the next 3 years. Based on this assumption, we will promote production reorganization and production reformation activities in order to control the growth in fixed cost and increase assets turnover.

Reorganization of production

Concentrate management resources in products / processes where NTN can leverage its strengths

Reorganize domestic production bases of radial bearings

- Outsource production of standard type products to Taiwanese bearing manufacturer (Break away from "self-sufficiency")
- For special products, implement reorganization of production with a new plant established in Wakayama playing a central role

Basic policy in production reorganization

With the aim of strengthening profits by maximizing production efficiency, we will promote production reorganization to reduce inter-site logistics costs and inventories by consolidating and reorganizing existing sites, to strengthen product supply capabilities by utilizing external partners, and to reduce investment in maintenance and renewal of facilities.

"DRIVE NTN100" Phase 2 will accelerate the creation of a foundation for a future manufacturing system by first implementing production restructuring of radial bearings, one of NTN's basic products, and then using the created space to promote restructuring of other products as well.

Production reorganization of radial bearings

The environment surrounding NTN's radial bearings is expected to see growth in the market for high-performance products specialized in quietness and low vibration and high-speed rotation as a rapid shift is made to EVs and electrification. On the other hand, standard products are expected to face further price competition in the marketplace due to the rise of manufacturers in emerging countries. In this business environment, NTN will aggressively enter growing markets and strengthen its price-competitiveness. In order to expand sales, we will promote the reorganization of production of radial bearings.

First of all, we will concentrate our high-performance products, including products responding to automotive electrification, into a new plant in Wakayama which was completed in October 2019, and the Ball Bearing Plant in Iwata Works, and NTN Mie Corp., which is the main

production site for medium-sized radial bearings, in order to improve productivity and strengthen price-competitiveness by introducing the latest production technologies.

With regard to standard products, we will strengthen collaboration with NTN's affiliate, TUNG PEI INDUSTRIAL CO., LTD. (Taiwan), and expand outsourcing of production (approximately 5 million products/month). In this way, we will strengthen product supply capabilities by realizing higher efficiency production, curtail investment in maintenance and upgrading of equipment, reduce fixed costs, and reduce costs by utilizing local components to strengthen earnings. The expansion of outsourcing to TUNG PEI INDUSTRIAL CO., LTD. will start in October 2021 with the gradual transfer of production from domestic bases and be expected to be completed in October 2024.

Establishment of PT. Astra NTN Driveshaft Indonesia (ANDIN)

We established Astra NTN Driveshaft Indonesia (ANDIN) PT., a joint venture that manufactures constant velocity joints with Inti Ganda Perdana (IGP) of Astra Group with the aim of expanding the supply of constant velocity joints, which are essential for front-wheel drive vehicles (FF vehicles), for which demand is growing in the Indonesian automotive market, and started mass

production in March 2021.

Thanks to NTN locally producing for the first time in Indonesia, we will speed up the response to customer and shorten delivery lead times, thereby increasing its presence and increasing its market share in the Indonesian automotive market.

Production reform

Realize streamlined production and increase throughput

Promote overall optimization (rationalization of overall SCM) and break away from partial optimization (rationalization by process)

- Lead by specialized organization
- Expand lean production method horizontally
- Develop human resources to promote reforms

Creating a new Monozukuri system

Since 2019, we have been promoting production reform activities aimed at reducing lead times and improving the inventory turnover ratio across the entire supply chain, from materials procurement to sales to customers.

Production reform is "management reform," and in order to promote three-pronged activities among management, promoters, and practitioners, we have established a specialized organization to promote and support the creation of new Monozukuri systems, such as planning and promotion of the content of production reform activities and setting of a new KPI, with the cooperation of external consultants.

Monozukuri is the development of human resources, and we work together with our human resource development divisions, including level-specific training in the Lean Production System, which serves as the foundation for production reform activities, as well as

practical training on reform methods and plant tour sessions. Awareness reform is also necessary for production reform, and we have launched a website for employees that provides information on activities and educational materials, and is also engaged in PR activities.

We have already implemented production reforms at many of our domestic manufacturing sites, and there are some cases where we have achieved half in-process inventory and half lead time. In the future, we will standardize and horizontally expand the number of successful cases and promote activities with the goal of achieving an inventory turnover ratio of 4.1 times or more by the end of March 2024.

First, we will promote activities mainly on domestic manufacturing bases, and realize the new foundation of Monozukuri in "DRIVE NTN100" Phase 2 and then expand the content abroad.

Monozukuri using AI and IoT

The "NTN NAMERAKA Factory" has the vision of a "NAMERAKA Factory" that delivers "satisfaction" to customers "rapidly." We are also promoting DX (Digital Transformation) and smart factories that NTN aims for.

Coordination of information through installing equipment with intelligence

Using a new plant in Wakayama as a model, we will link manufacturing information and automate the "visualization, analysis, and response" cycle by improving the intelligence of plant introduced through the use of AI and IoT. We will improve customer satisfaction and create income by reforming our product lineup with emphasis on

quality (improved traceability, inspection automation, reduced defect rate), environment (saving energy, reduced CO2 emissions), facilities (failure prediction, preventive maintenance), and manufacturing (shortened lead times, reduced inventory, and visualized cost).

Built-in Quality

To maintain and improve quality, "Built-in Quality" is essential to incorporate quality into the production process, from the development stage through the manufacturing process to the delivery of products to customers, by building conditions and systems that ensure that quality is maintained at all times.

A new plant in Wakayama

A new plant in Wakayama will implement "Building in quality" by introducing IoT, thereby achieving even higher levels of quality control. Using IoT, we aim to create a system that ensures stable quality at all

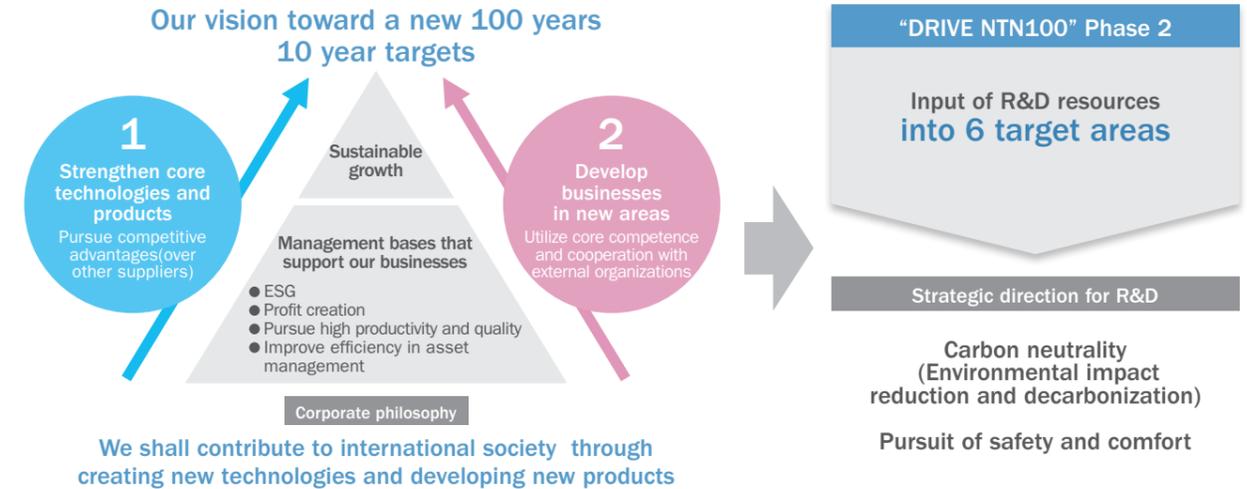
times and enables us to promptly identify the range of impact and implement countermeasures in the event of a problem.

NTN's basic approach to research and development

We are creating high-performance products for the realization of a carbon neutrality by strengthening our core technologies and developing our core technologies that we have cultivated into new area. NTN is actively promoting the use of external collaboration such as introducing next-generation technologies (like AI and IoT) acquired at NTN Next Generation Research Alliance Laboratory in Osaka University. In the new Medium-term Management Plan, we have newly identified 6 areas that go well with SDGs and growth strategies of the Japanese government and in which we can take advantage of our core technologies. We will accelerate our contribution to the international community through our developed products and services.



Executive Officer CTO (Chief Technology Officer) **Masaki Egami**

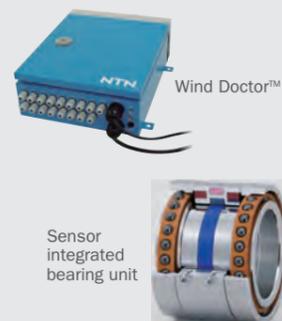


1 Service/solution

(Utilization of IoT and sensing technology, and condition monitoring service for predictive maintenance of bearings and equipment)

We developed the "Wind Doctor™" which monitors the conditions around bearings in the wind turbine, and this system has been adopted by many power producers. In the field of machine tools, we have improved the "Sensor Integrated Bearing Unit," which is produced by adding a sensing function to the bearing. We have made the unit wireless to create a product that has a built-in load detection sensor. The product has been launched into the market and it has been favorably evaluated for its function to monitor the load on the bearing and a change in the load in real time even when far from the actual operation site.

In the future, we will make further progress in AI analysis technology to enable prediction of the operating life of bearings. By utilizing our development products, we will expand our condition monitoring service business and transform from a "Manufacturing Company" into a "Company that Delivers Value to Customers through Products and Services."



2 Robot-related module

We market the i-WRIST™, a Wrist Joint Module for robots that applies the joint of driveshaft, one of our core products. Due to the decline in the working population caused by the decreasing birthrate and aging population, demand for manpower-saving measures is rising rapidly at manufacturing sites. As one of the alternatives to the manual work that has been done so far, we proposed a visual inspection system with a camera attached to the "i-WRIST™," which has been adopted by many production sites.

In the future, we will propose low-friction, lightweight, and compact modular products compatible with next-generation robots in addition to the "i-WRIST™" series, which will contribute to the promotion of automation at production sites, as well as the reduction of cycle time and the improvement of quality.



3 Next-generation mobility module

Responding to CASE, which is said to be a big change once every 100 years, and the realization of a carbon neutral society are urgently needed, and further saving energy and higher functionality are required.

Regarding the hub bearings of which we have the No. 1 market share, we have received a lot of orders for the "Low Friction Hub Bearing III" developed by using the strength of our core technology. In addition, we market the "eHUB" and "sHUB" multi-functional HUB modules, which combine HUBS with motors, actuators, controllers, and other components. "eHUB" is a product that contributes to a carbon neutral society by regenerating the energy generated when automotive slows down. "sHUB" and "Ra-sHUB," which applies technology of "sHUB" to the rear wheels enable steering angle of the wheels to be controlled separately for each of the left and right sides. "sHUB" and "Ra-sHUB" provide high driving performance and riding comfort, which we expect to contribute to automated driving in the future.

We will continue to utilize our core competencies, incorporate next-generation technologies, and further incorporate technologies on the market into our products in order to develop products responding to CASE in the automotive market and a carbon neutral society.



4 Renewable energy-related

Regarding core products, main shaft bearings for wind turbines are becoming larger as wind turbines becomes larger. It is essential to develop manufacturing technologies, such as higher efficient heat treatment technology. We have commercialized a product applying roller with DLC coating to enhance its robustness.

As new products, we have developed and sell the "Green Power Station (GPS)", which is an independent power supply using highly efficient original wings with the highest quietness and the "N3 N-CUBE" to supply mobile power in emergencies due to disasters. By developing these green energy products, we will contribute to the realization of a decarbonized society.



5 Hydrogen-related

Hydrogen is drawing attention as a next-generation energy source, and many peripheral devices are being studied and developed. Bearings and seals, which are used not only in fuel-cell vehicles (FCVs) but also in infrastructural system such as compressed pumps, are crucial for our company. Pressure in these devices is higher than that of conventional nitrogen. Higher reliability and higher durability are required for mechanical elements such as bearings and seals.

This is a field in which we can utilize our composite materials technologies in addition to rolling bearings, which is the core competence of our core products, so we are also developing module products, including those peripheral to bearings.



6 Life science-related

(Development of drug discovery support cell chip by micro-lamination technology utilizing iPS cells)

We are applying the technology of repair equipment to repair minute defects in liquid crystal panels and color filters to develop the application of microscopic coating applicator that can laminate high-viscosity fluids. As a part of these activities, we are developing the drug discovery support cell chip which features three-dimensional coating of human iPS-derived cells on the plate.

There is a possibility that it will be a substitute for animal experimentation using mice, etc., and the next-generation drug discovery is expected to become highly efficient.

