

Aerospace Systems

Reaching greater heights in the domains of aviation and space through the integration of cutting-edge technologies

Hiro Yoshi Shimokawa

President, Aerospace Systems Company



Our Business

Since the launch of our aircraft manufacturing business in 1918, we have developed a broad product portfolio as one of Japan's leading manufacturers of aircraft and aircraft engines.

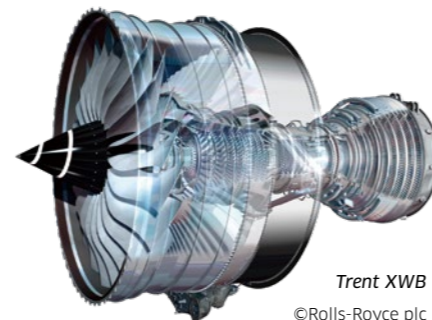
In addition to developing and manufacturing aircraft for the Ministry of Defense, including the P-1 maritime patrol aircraft and the C-2 transport aircraft, the Aerospace Systems segment has participated in international development and production projects for commercial aircraft, including the Boeing 787. We also do business in helicopters, including the best-selling BK117 model, as well as such space products as payload fairings for the H-IIA and H-IIB launch vehicles.

Our jet engine business started in 1954 with the overhauling of turbo jet engines. Since then, we have continued to develop our technological capabilities through, for example, the domestic production of helicopter engines and participation in the international collaborative development of commercial aircraft jet engines. By doing so, we are helping to increase energy efficiency and reduce environmental burden.

Main Products	• Aircraft for the Japan Ministry of Defense	• Parts for commercial aircraft	• Commercial helicopters
	• Missiles/Space equipment	• Jet engines	• Aerospace gearboxes

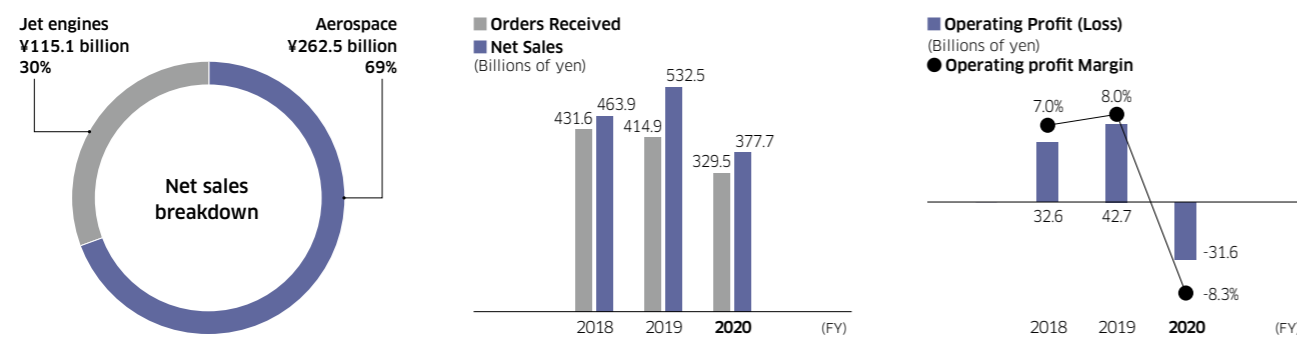


C-2 transport aircraft



Trent XWB ©Rolls-Royce plc

Performance Highlights



Orders received	Decreased due to declines in orders from Boeing and for jet engines for commercial aircraft, reflecting the impact of the COVID-19 pandemic, despite an increase in orders from the Ministry of Defense
Net sales	Decreased due to a fall in sales to the Ministry of Defense as well as declines in sales to Boeing and of jet engines for commercial aircraft, reflecting the impact of the COVID-19 pandemic
Operating profit	Deteriorated significantly due to the decrease in sales

SWOT Analysis by Business

Core Competence (Strengths)		Challenges (Weaknesses)	
Aerospace	<ul style="list-style-type: none"> Technological capabilities as a manufacturer of finished aircraft acquired through the defense aircraft business (system integration capabilities) Technological capabilities based on international joint development with Boeing, and sophisticated, large-scale production facilities High quality and productivity through the Kawasaki Production System (KPS) 	<ul style="list-style-type: none"> High degree of reliance on specific customers (high-volatility revenue structure) Businesses that require large volumes of invested capital 	
Jet Engines	<ul style="list-style-type: none"> Sophisticated technological capabilities built through international joint development projects and developing engines for defense aircraft High quality and productivity through leading-edge production technology 		
Opportunities		Risks (Threats)	
Defense Aircraft	<ul style="list-style-type: none"> Sustained domestic defense equipment development and production Prospects of defense equipment exports 	<ul style="list-style-type: none"> Reduced equipment prices due to defense budget streamlining 	
Commercial Aircraft	<ul style="list-style-type: none"> Medium- to long-term growth in air passenger and air freight volume in line with economic growth in emerging countries 	<ul style="list-style-type: none"> Decrease or slow recovery in passenger demand due to the COVID-19 pandemic Fiercely competitive environment, reflecting competition for market share between Boeing and Airbus 	
Jet Engines	<ul style="list-style-type: none"> Increase in demand as a result of long-term growth in the commercial aircraft market 	<ul style="list-style-type: none"> Rise of manufacturers in emerging countries 	
Shared	<ul style="list-style-type: none"> Decarbonization of the aircraft industry 	<ul style="list-style-type: none"> Decrease or slow recovery in passenger demand due to the COVID-19 pandemic Development risks related to introducing cutting-edge technologies 	

Based on our SWOT analysis, we will implement a variety of measures with the aim of sustained growth

Key Measures

Initiatives to Achieve Group Vision 2030

A safe and secure remotely-connected society	<ul style="list-style-type: none"> Expanding the PCR testing business (network use with customers involved in international travel, mainly airlines)
Near-future mobility	<ul style="list-style-type: none"> Developing VTOL* to link logistics bases and cover the last mile Realizing urban transportation that seamlessly connects people and freight <p>* Vertical take-off and landing aircraft</p>
Energy and environmental solutions	<ul style="list-style-type: none"> Studying CO₂-powered (hydrogen-fueled) air transportation systems

Other Concrete Initiatives

Securing stable revenue in core business	<ul style="list-style-type: none"> Reducing costs for existing orders for aircraft from Boeing and for jet engines for commercial aircraft to secure profit Steadily executing existing orders for the development and mass production of defense aircraft
Revising technology strategy in accordance with market changes	<ul style="list-style-type: none"> Rebuilding R&D in line with the future vision Launching environmental technology development aimed at achieving a carbon-neutral society
Strengthening the financial base	<ul style="list-style-type: none"> Reviewing the fixed cost structure Reducing inventories through production innovation

Rolling Stock

A railway systems manufacturer that meets customer needs by delivering the highest standard of technology

Hiroshi Murao

Representative Director, President and Executive Officer, Kawasaki Railcar Manufacturing Co., Ltd.



Our Business

Since commencing the manufacture of rolling stock in 1906, we have consistently applied leading-edge technology to help develop and modernize rolling stock as a leading Japanese manufacturer.

Kawasaki grew its business from manufacturing wooden commuter trains for Nankai Railway and expanded it to various rolling stock and railway systems, such as electric trains, freight cars, electric locomotives, and diesel locomotives. We now supply rolling stock to locations around the world from two plants in the United States and our specialized rolling stock plant Hyogo Works in Japan, which retains a wealth of technological knowledge accumulated over our 115-year history and a record of high productivity.

Kawasaki will continue to deliver the highest standard of technology to meet diverse customer needs and thereby contribute to society.

Main Products	<ul style="list-style-type: none"> Electric train cars, including Shinkansen (bullet trains) Passenger coaches Bogies Electric and diesel locomotives
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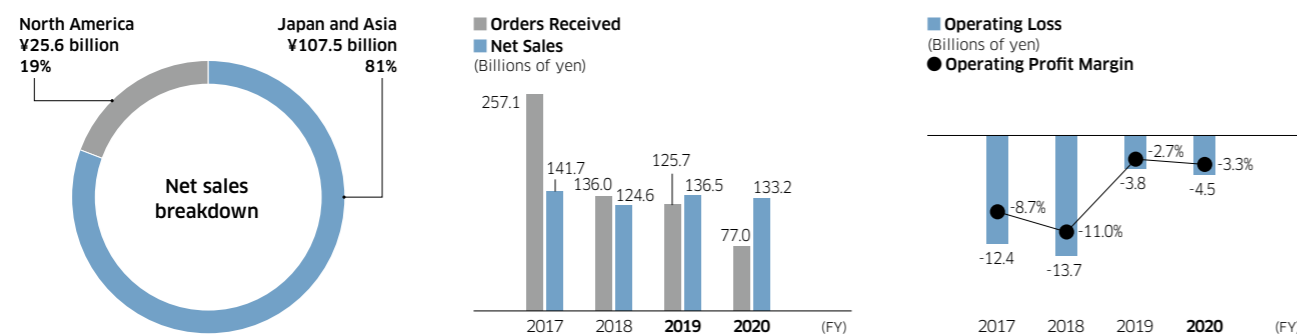


Dhaka MRT Line-6 cars for Dhaka Mass Transit Company Limited in Bangladesh



YC1 Series (hybrid) car for Kyushu Railway Company

Performance Highlights



Orders received	Decreased, reflecting the absence of major domestic orders recorded in the previous fiscal year
Net sales	Decreased due to a decrease in sales of rolling stock in the United States
Operating profit	Deteriorated due to the fall in sales as well as a decrease in profitability in overseas projects that reflected the impact of COVID-19

SWOT Analysis by Business

Core Competence (Strengths)	Challenges (Weaknesses)
<ul style="list-style-type: none"> High-tech expertise built on comprehensive heavy industry strengths leveraging synergies with other business areas Ability to fulfill contracts cultivated from extensive domestic and overseas track record Partnership capabilities with other companies in execution of overseas projects (Kawasaki Initiative) 	<ul style="list-style-type: none"> Small business scale in comparison with major overseas competitors Business model centered on supplying rolling stock (meeting railway system needs through external partnerships)
Opportunities	Risks (Threats)
<ul style="list-style-type: none"> Firm replacement demand in the domestic market Demand for urban transportation development in emerging countries in Asia Demand for subway and commuter train systems in the North American market Expanding recurring demand across markets, including that for components, maintenance, and repair and rebuild work 	<ul style="list-style-type: none"> Intensifying competition due to the North American market entry of competing manufacturers Country risk in new markets for Kawasaki Revisions to investment plans by railway companies due to the COVID-19 pandemic

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Key Measures

Initiatives to Achieve Group Vision 2030

A safe and secure remotely-connected society	<ul style="list-style-type: none"> Promoting monitoring businesses aimed at automation and labor saving in track inspection and other operations
Near-future mobility	<ul style="list-style-type: none"> Realizing urban transportation that seamlessly connects people and freight
Energy and environmental solutions	<ul style="list-style-type: none"> Shifting to hydrogen fuel Electrification

Other Concrete Initiatives

Adherence to delivery schedules for overseas projects	<ul style="list-style-type: none"> Dispatching human resources from head office divisions and the internal companies to streamline process and improve productivity and quality at U.S. works through the newly established North America Project Management Task Force
Achieving quality levels trusted by customers	<ul style="list-style-type: none"> Reducing spoilage and repair costs Continuing use of the Kawasaki Production System (KPS) and its application at U.S. works
Expansion of component and after-sales service sales and of maintenance businesses	<ul style="list-style-type: none"> Launch of remote track monitoring system for U.S. railways in the first quarter of fiscal 2021

Energy Solution & Marine Engineering

Responding to diverse needs with superior manufacturing and engineering expertise

Tatsuya Watanabe

President,
Energy Solution & Marine Engineering Company



Our Business

The Energy Solution & Marine Engineering Company carries out processes from development and design to manufacturing in four sectors: energy, plant, marine machinery, and ship & offshore structure. Firmly grounded in the Kawasaki Group's technological prowess, we provide products upholding the highest standards of engineering and manufacturing to accommodate customer needs and contribute to the enhancement of quality of life for people around the world.

Main Products	Energy	Gas turbine cogeneration systems	Gas and diesel engines for power generation	Steam turbines	
		Aerodynamic machinery	Boiler plants	Combined cycle power plants (CCPPs)	
	Plant	Industrial plants (cement, fertilizer, and others)	LNG tanks	Liquefied hydrogen tanks	
		Municipal waste incineration plants	Material handling systems	Tunnel boring machines	Crushing machines
	Marine machinery	Marine gas turbines/reduction gear	Marine reciprocating engines	Marine propulsion systems	
	Ship & offshore structure	Gas carriers	Liquefied hydrogen carriers	Jetfoils	Submarines



100 MW-class combined cycle power plant developed by Kawasaki

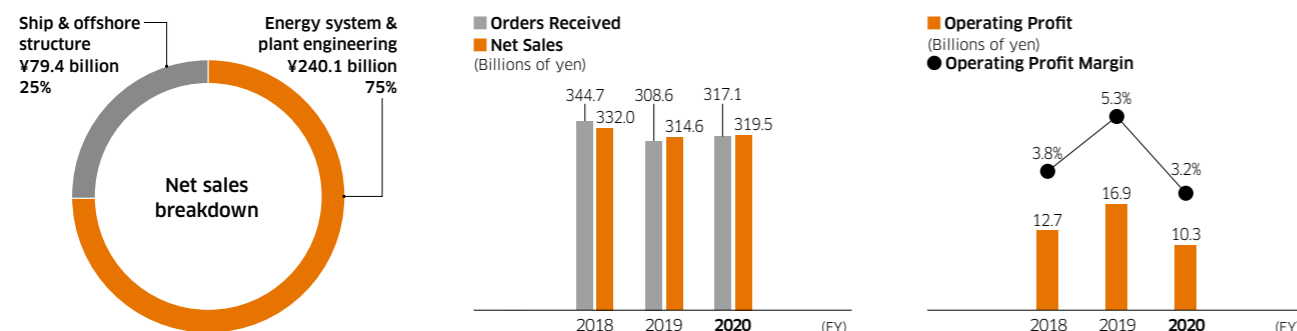


Municipal waste incineration plant



Liquefied hydrogen carrier

Performance Highlights



Orders received	Increased due in part to orders received for a submarine for the Ministry of Defense
Net sales	Increased mainly due to increased construction of municipal waste incineration plants in Japan and domestic combined cycle power plant (CCPP) sales as well as an increase in submarine construction for the Ministry of Defense
Operating profit	Decreased due in part to operation losses caused by the COVID-19 pandemic, despite the increase in sales

Note: On April 1, 2021, the Energy System & Plant Engineering Company and Ship & Offshore Structure Company merged to form the Energy Solution & Marine Engineering Company. Accordingly, performance for previous fiscal years has been restated according to the reportable segments after said reorganization.

SWOT Analysis by Business

Core Competence (Strengths)	Challenges (Weaknesses)
<ul style="list-style-type: none"> Ability to provide solutions leveraging synergy from combining Kawasaki-brand products, such as the CCPP standard package, which combines a gas turbine, steam turbine, and waste heat recovery boiler, as well as gas engine/gas turbine hybrid projects Environmentally friendly technologies and development capabilities in core products and systems as well as comprehensive engineering capabilities developed through wide-ranging projects Locally rooted sales system leveraging overseas sites Energy-saving, environmental burden-reducing technologies, and ability to develop new ship designs 	<ul style="list-style-type: none"> Energy: Recognition in overseas markets Ship & offshore structure: Cost competitiveness in commercial vessel building
Opportunities	Risks (Threats)
<ul style="list-style-type: none"> Growing demand for energy and infrastructure in emerging and resource-rich countries Growing demand for distributed gas-fueled power generation plants prompted by the growing need for low-carbon solutions Tightening environmental regulations Demand for CO₂-free power generation facilities for new installations and facility replacement Accelerating movement toward carbon neutrality 	<ul style="list-style-type: none"> Delayed projects due to a viral pandemic or prolonged slump in price of oil Weakening investment appetite paralleling economic slowdowns in emerging countries and resource-rich countries Changing energy policy in countries around the world (taxonomy policy, subsidy system changes, etc.) Rising global steel prices

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Key Measures

Initiatives to Achieve Group Vision 2030

A safe and secure remotely-connected society	<ul style="list-style-type: none"> Promoting the uptake of the Successor-G remotely-operated robotic system that enables diverse work styles Providing solutions for disaster response, such as stand-by gas turbines Promoting the automation of waste incinerator operation Developing AUVs* (SPICE) <p><small>*Autonomous underwater vehicles</small></p>
Near-future mobility	<ul style="list-style-type: none"> Promoting the uptake of hybrid propulsion systems for environmentally friendly vessels Demonstration testing of ship maneuvering management systems that include autonomous operations
Energy and environmental solutions	<ul style="list-style-type: none"> Quickly establishing a hydrogen supply chain (production, transportation, storage, utilization) Accelerating initiatives aimed at the realization of a hydrogen-powered society by working with stakeholders Installing gas turbines and gas engines for supply-demand balancing and distributed power generation to support the use of renewable energy Undertaking development aimed at the practical application of carbon recycling technology

Other Concrete Initiatives

Reinforce sales activities to pursue recovery in orders received	<ul style="list-style-type: none"> Aiming to steadily capture projects that have been temporarily suspended due to COVID-19 as well as new projects being implemented in anticipation of post-pandemic conditions
Establishing a leading position in the decarbonization field	<ul style="list-style-type: none"> Accelerating commercialization efforts in cooperation with the Hydrogen Strategy Division Establishing the Hydrogen Business Solutions Office to organically bring together hydrogen-related technologies, expertise, and human resources Group company Kawasaki Green Energy, Ltd. began operations on April 1, 2021, mainly selling CO₂-free energy, such as that generated by waste incineration plants built by Kawasaki. This company is supporting initiatives to spread the use of hydrogen energy, including the potential future use of electricity generated from hydrogen fuel.

Precision Machinery & Robot

Building a bright future through integrated solutions that use hydraulic systems and robots

Hidehiko Shimamura

President,
Precision Machinery & Robot Company



Our Business

Hydraulic machinery With unmatched scale and production facilities within the hydraulics industry, Kawasaki primarily supplies customers around the world with hydraulic machinery, such as swing motors and pumps for hydraulic excavators, which boast the top share in the global market, and a wide range of valves, including main control valves. We also offer various systems and hydraulic equipment for industrial machinery, including for forging and iron manufacture, as well as marine hydraulic equipment, such as hydraulic steering gears and deck machinery, all employing our advanced hydraulic and motion control technologies.

Robots Since 1969, Kawasaki has contributed as a pioneer in industrial robotics to the development of industry around the world by delivering spot welding, arc welding, assembling and handling, painting, palletizing, and many other kinds of robots for the automotive, electrical and electronics, and other industries. We will leverage our accumulated track record and system engineering technologies to pioneer new fields, such as collaborative robots and medical robots, to help create a harmonious society of humans and robots.

Main Products	<ul style="list-style-type: none"> Hydraulic components for construction machinery Hydraulic components for agricultural machinery Hydraulic components and systems for industrial machinery Hydraulic steering gears for marine products Hydraulic deck machinery for marine products Industrial robots Medical and pharmaceutical robots
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Hydraulic pump for construction machinery

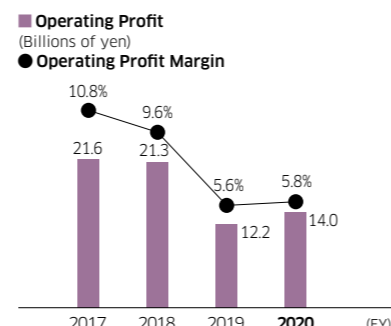
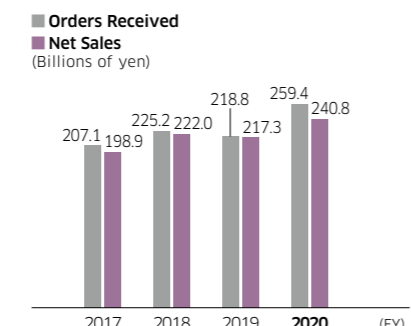
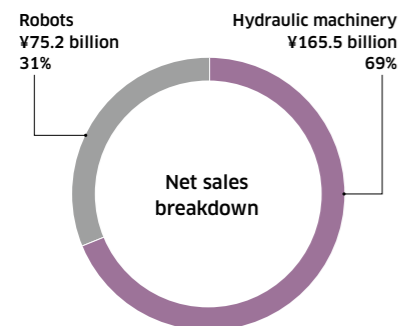


BX series spot welding robots for automobile body assembly lines



hinotori™ Surgical Robot System

Performance Highlights



Orders received	Increased thanks to the booming market hydraulic equipment for construction machinery and robots for semiconductor manufacturing and automobile body assembly
Net sales	Increased in accordance with orders received.
Operating profit	Increased in line with the expansion of sales.

SWOT Analysis by Business

Core Competence (Strengths)		Challenges (Weaknesses)	
Hydraulic Machinery	<ul style="list-style-type: none"> Accumulated world-class, leading-edge technology, systemization capabilities, and brand power in the area of excavator hydraulic machinery Ability to respond to customer requests 	Hydraulic Machinery	<ul style="list-style-type: none"> Need to expand sales in such fields as agricultural machinery and forestry machinery Need to reinforce the after-sales service structure
Robots	<ul style="list-style-type: none"> Ability to develop applications and make system proposals closely matched to specific customer needs Diverse production sites within the Group as a comprehensive heavy industries enterprise Ability to create new technologies and new fields in such areas as medicine and remote control technology 	Robots	<ul style="list-style-type: none"> Need to expand business to realize merits of scale
Shared	<ul style="list-style-type: none"> New product development capabilities in the field of motion control based on the integration of hydraulic technologies and robotics 		
Opportunities		Risks (Threats)	
Hydraulic Machinery	<ul style="list-style-type: none"> Expanding demand due to worldwide infrastructure building, mainly in emerging countries 	Hydraulic Machinery	<ul style="list-style-type: none"> Emergence of competing manufacturers and intensifying competition in the Chinese construction equipment market Delayed recovery and intensifying competition in the marine hydraulic machinery market
Robots	<ul style="list-style-type: none"> Increasing fields of application through the realization of collaboration between humans in work operations Rising demand aimed at preventing infection, eliminating labor shortages, and improving quality Progress in use of robots beyond industrial applications (such as medical treatment and nursing care) 	Robots	<ul style="list-style-type: none"> Increasingly fierce competition with rival companies Impact of U.S.-China trade friction on the semiconductor market
		Shared	<ul style="list-style-type: none"> Weakening investment appetite due to viral pandemic

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Key Measures

Initiatives to Achieve Group Vision 2030

A safe and secure remotely-connected society	<ul style="list-style-type: none"> Developing healthcare-related businesses, such as the <i>hinotori</i>™ surgical robot system and fully automated PCR testing robot system Building the remote robot platform business connecting people who want to work with businesses seeking labor
Near-future mobility	<ul style="list-style-type: none"> Creating delivery robots to link logistics bases and cover the last mile
Energy and environmental solutions	<ul style="list-style-type: none"> Developing hydrogen fuel-related products Increasing the efficiency of hydraulic machinery and systems

Other Concrete Initiatives

Developing electrification and automation technologies for construction machinery	<ul style="list-style-type: none"> Developing and supplying the latest hydraulic machinery and systems for electrification and automation to support customers' development of future-oriented construction machinery
Promotion of open innovation	<ul style="list-style-type: none"> Developing markets and complementing strengths through collaboration with other companies in the same and other industries so as to reinforce competitiveness and promote differentiation Accelerating the development and launch of new products through collaboration with start-ups Strengthening elemental technologies and accelerating new product development through collaboration with academia and government

Motorcycle & Engine

Let the good times roll
Kawasaki delivers the ultimate in excitement

Hiroshi Ito
Representative Director, President and Chief Executive Officer,
Kawasaki Motors, Ltd.



Our Business

Leveraging the sophisticated development technologies and production know-how honed in the air craft engine business, Kawasaki began producing motorcycle engines in 1953. Since then, we have developed and introduced technologies that were ahead of their time in the fields of power sports (motorcycles, off-road four-wheelers, and personal watercraft (PWC)) and general-purpose engines. By doing so, we have created numerous innovative products that have left their mark in history, such as the H1 (500SS Mach-III), Z1 (900 Super Four), Ninja (GPz900R), Ninja H2, Jet Ski, and MULE.

Keeping “Let the good times roll” as our company mission, we will continue to boldly take on any possibility we can to promote the happiness and joy of all those whose lives Kawasaki touches.

Main Products	<ul style="list-style-type: none"> Motorcycles Off-road four-wheelers (side by sides, all-terrain vehicles (ATVs)) Personal watercraft (PWC) General-purpose gasoline engines
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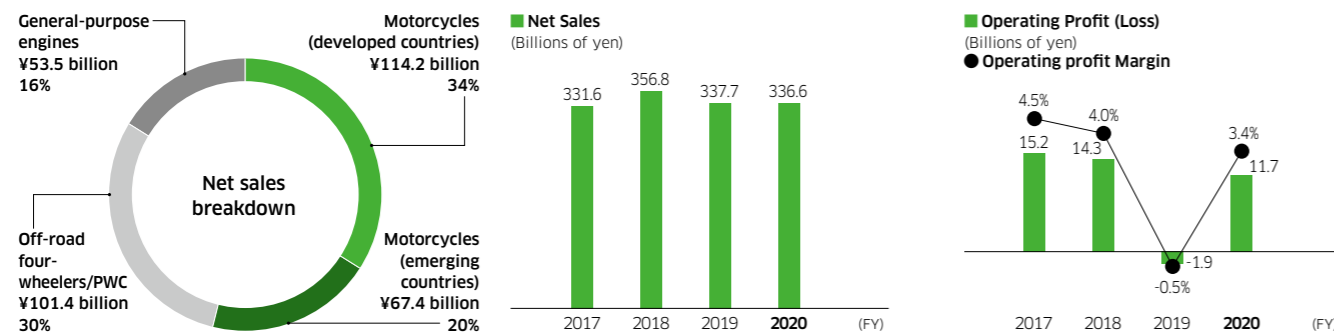


TERYX KRX 1000 TRAIL EDITION



Ninja ZX-10R

Performance Highlights



Net sales	→	Remained at the same level due to a decrease in sales of motorcycles in Southeast Asia, the year-on-year appreciation of the yen and other factors, despite increased sales of four-wheelers and other off-road models in North America
Operating profit	↗	Increased due in part to reductions in fixed costs and sales promotion costs

SWOT Analysis by Business

Core Competence (Strengths)		Challenges (Weaknesses)	
<ul style="list-style-type: none"> Sales and marketing capabilities that realize unique, premium brands Development, production, procurement, and quality assurance capabilities that create products embodying both heritage and innovation Global production, sales, and service structure Advanced technology expertise built on comprehensive heavy industry strengths leveraging synergies with other companies in the Kawasaki Group 		<ul style="list-style-type: none"> Securing production capacity to respond to rapidly rising demand Building agile organizational structures that can respond to rapid change 	
Opportunities		Risks (Threats)	
<p>Motorcycles</p> <ul style="list-style-type: none"> Stable demand in developed countries Medium- to long-term market expansion in emerging countries <p>Off-road four-wheelers/PWC</p> <ul style="list-style-type: none"> Market expansion in North America reflecting growing demand for outdoor leisure <p>General-purpose engines Shared</p> <ul style="list-style-type: none"> Firm growth, reflecting U.S. housing market expansion Collaborations and alliances with other companies Shift toward electrification 	<p>Motorcycles</p> <ul style="list-style-type: none"> Expansion into the leisure sector by brands from emerging markets, such as China and India Intensifying price competition in emerging markets <p>Off-road four-wheelers/PWC</p> <ul style="list-style-type: none"> Intensifying price competition in the North American market Rising materials prices and tariffs due to escalating U.S.-China trade war <p>General-purpose engines Shared</p> <ul style="list-style-type: none"> Rising materials prices Tightening environmental regulations Slump in consumption or economic recession due to a viral pandemic Supply chain disruptions due to external factors, such as natural disasters 		

Based on our SWOT analysis, we will implement a variety of measures with the aim of sustained growth

Key Measures

Initiatives to Achieve Group Vision 2030

A safe and secure remotely-connected society	<ul style="list-style-type: none"> Providing advanced rider and driver support Providing disaster response solutions
Near-future mobility	<ul style="list-style-type: none"> Realizing urban transportation that seamlessly connects people and freight Creating delivery robots to link logistics bases and that cover the last mile
Energy and environmental solutions	<ul style="list-style-type: none"> Making use of hydrogen fuel Shifting to battery electric vehicles/hybrid electric vehicles

Other Concrete Initiatives

Product supply to meet market demand as much as possible	<ul style="list-style-type: none"> Bringing all hands on deck to meet production plans Ensuring that if supply shortages like that in semiconductors or logistics disruptions impair production, production and sales plans can quickly adapt to the components available
Expansion of the off-road four-wheeler business and electrification	<ul style="list-style-type: none"> Focusing on development investment to increase off-road four-wheeler production and reduce carbon emissions Invest in plants in the United States and Mexico to establish new production facilities Accelerating development aimed at the mass production of battery electric and hybrid electric models
Strict control of fixed costs to slim down management	<ul style="list-style-type: none"> Maintaining the level of fixed cost ratio (reduced in fiscal 2020) while considering additional reductions Reinforcing R&D