

Value Creation through Technological Innovation –The Kawasaki Group’s 120-Year History and Its Future–

Group founder Shozo Kawasaki established Kawasaki Tsukiji Shipyard in 1878 based on his philosophy of “contributing to the nation—to society—through expertise,” and later established Kawasaki Dockyard, an incorporated company, in 1896. Over the more than 120 years since, Kawasaki has leveraged innovative technologies to create numerous products that were the first of their kind in Japan. Building on this foundation, we are working today to develop new products and businesses with the aim of solving social issues and increasing enterprise value.

In developing new products and businesses, we are bringing together technologies from across the Group, looking to utilize technological synergies. In addition to further strengthening existing technologies, we are strategically and effectively utilizing outside technology to accelerate the development of new technologies that will help create new value for a rapidly changing society.

* For more information about technological development, please refer to page 22.

Expansion of technologies →

Founded in **1878**
Established in **1896**
● **Shipbuilding**



Cargo-passenger ship Iyomaru
Kawasaki Dockyard’s first vessel after becoming a publicly traded company



The 10th *Toyotamaru*, the first Japan-built pure car carrier



First Japan-built LNG carrier

Ship & Offshore Structure Company

1906
● **Rolling Stock**

Built on **know-how related to welding and internal combustion engines** to realize domestic production of steam locomotives



Business express train Kodama



Series 0 Shinkansen electric train

Rolling Stock Company

1918
● **Aircraft**

Introduced **technology from abroad along with structural technology used in shipbuilding to launch aircraft production**



1942
● **Jet Engines**
Japan’s first jet engine



First helicopter developed in Japan
BK117 helicopter

Aerospace Systems Company

1907
● **Marine Steam Turbines**

Began production of steam turbines for use as main engines of ships

1956 ● **Land-use Steam Turbines**

Marine-use turbine technology directed toward land-use applications to meet rapid increase in demand for power in the industrial sector

1969 ● **Industrial Gas Turbines**

Kawasaki GPS200
The first Japan-made gas turbine generator



1880
● **Boilers (marine-use)**
Began production of marine-use boilers

Land-use applications → Built on energy-related heat-transfer and combustion technologies to diversify into environmental plant engineering

1937 ● **Boilers (land-use)**

1960
● **Environmental Plants, Chemical Plants, LNG Tanks, and Shield Machines**



Cement plant for customer in Algeria



Tunnel boring machines used to excavate the Channel Tunnel, linking France and the United Kingdom

Energy System & Plant Engineering Company

1907 ● **Steel Structures**
Embarked on production of steel bridges, utilizing **construction and welding technology**

1932 ● **Cement Plants**
Built on **steel structure and engineering technology** to diversify range of industrial equipment, adding chemical plants, LNG tanks, shield machines, and other products derived from cement equipment

1949
● **Motorcycles (engines)**

KE-1 engine



1955
● **Motorcycles (finished)**

Launched initiatives after WWII, when production of aircraft was prohibited

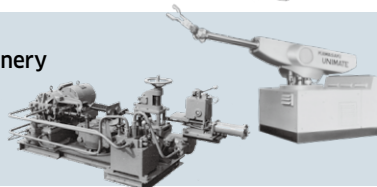
Began producing finished motorcycles
Meihatsu 125-500



Z1

Motorcycle & Engine Company

1916
● **Hydraulic machinery**
Began producing Hele-Shaw electro-hydraulic steering gears with technology acquired from England



1968
● **Robots**
Began domestic production of the first Japan-made industrial robot *Kawasaki-Unimate 2000* with technology introduced from Unimation Inc., a U.S. company



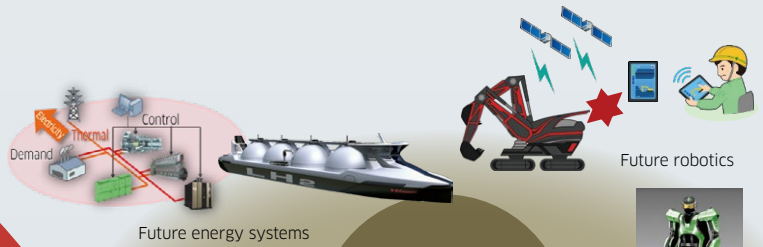
Dual-arm SCARA Robot
duAro

Precision Machinery & Robot Company

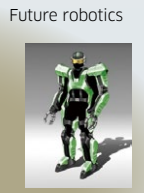
Appearance of New Values/Markets

- Rapidly changing social needs
- Destructive innovation

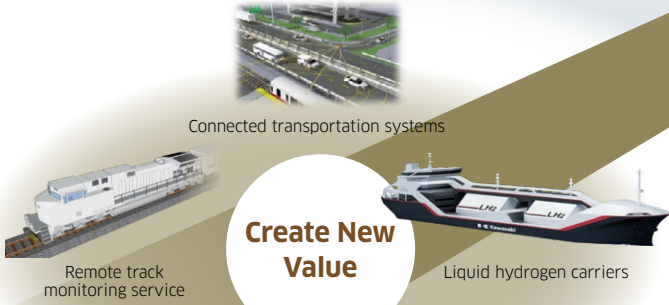
Diversification
Smart technologies
Services (MaaS)
Responding to labor shortages
Electrification



Addressing Future Social Issues



Create New Value

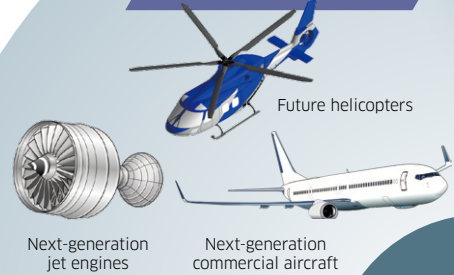


Dramatic Innovation

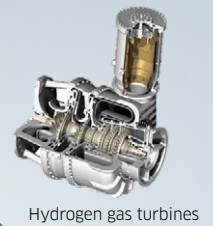
- Aim for low-carbon, then decarbonization
- Aim for automation, then autonomy
- Digital innovations



Aerospace Systems



Energy System & Plant Engineering



2030 Next-Generation Mainstay Products



Continuous growth

2020 More Competitive Products



Precision Machinery & Robot

Transportation