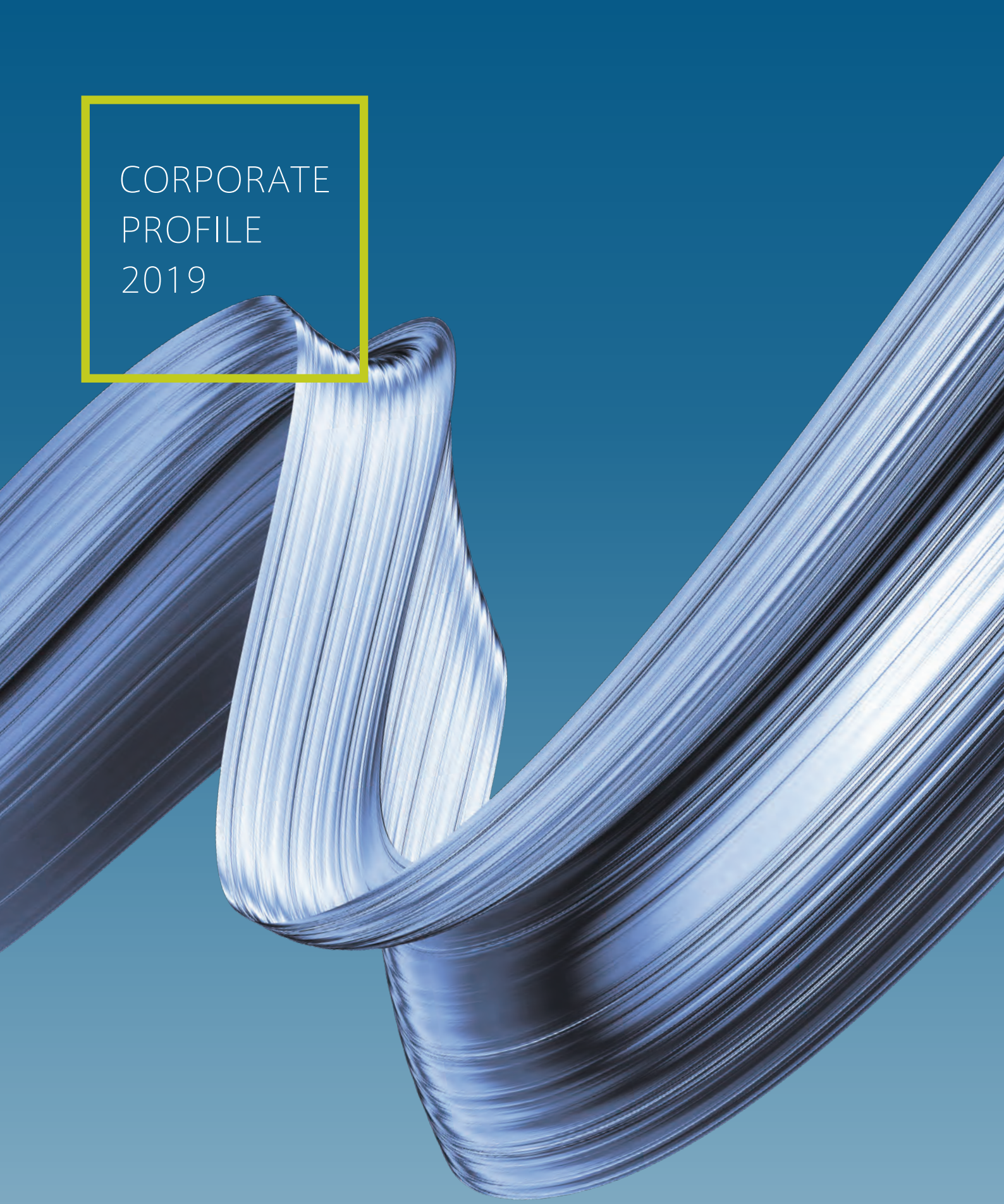
CORPORATE PROFILE 2019



ZUKEN

The Partner For Success

Shoulder-to-Shoulder with Customers, Ready for the Challenge

Dramatic advances in computing and network technologies are driving the emergence of numerous products and services that create innovative value by being “connected.” The reality for modern manufacturing companies, however, is that defining the development requirements of cutting-edge products at the conceptual stage is increasingly complex and demanding. Circumstances demand that companies seek the next revolution that will profoundly transform conventional design and engineering processes.

Zuken too, must constantly evolve and transform itself so as to stay one step ahead in meeting the challenges undertaken by its customers. We are committed to providing a comprehensive lineup of software and services that facilitate cutting-edge product development, starting at the conceptual stage—the phase most important to the future success of new products. Shoulder-to-shoulder with customers, Zuken is always ready for the challenge.

Makoto Kaneko
President and Representative Director, Zuken Inc.

Our Value

A Trusted Partner for Product Development

Zuken steps forward, smoothly linking conceptual design to detailed design

Design and Manufacturing Collaboration

Solutions and Services for MBSE and MBD*

Design and Engineering Data Management

Electric and Electronic (E/E) Design Automation

Consulting and Operation Support

Solutions for Customers

Expertise in Technology Integration

Resourcefulness

Acquisition of State-of-the-Art Technologies

Core Competencies

Solid Financial Base

Business Foundation

Globalized Operations and R&D

Customer Base in Broad Fields

* MBSE: Model-Based Systems Engineering; MBD: Model-Based Development

Zuken Inc. and Overseas Affiliates

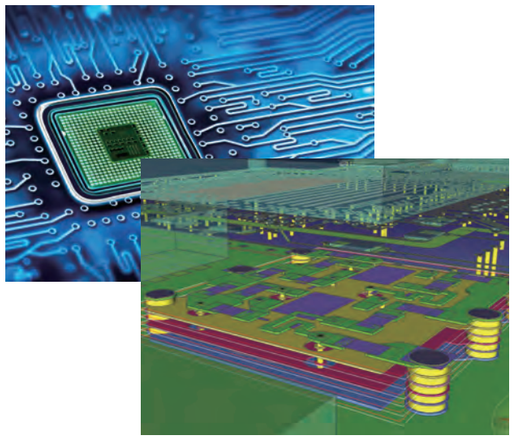
ZUKEN®

Zuken brings automation and efficiency to electrical and electronic design, supporting manufacturers across a broad range of industries in the quest for greater sophistication and optimization through the entire product development process.

Main Industries Served by Zuken Worldwide

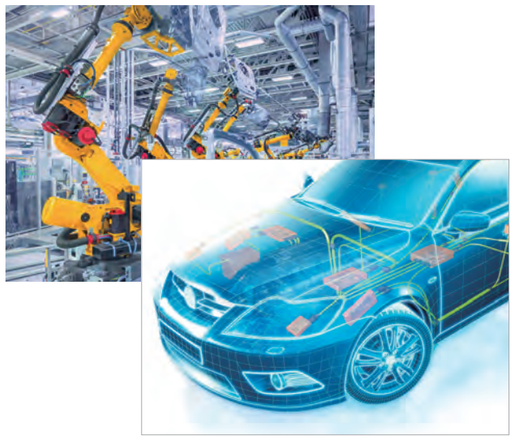
- Industrial Machinery
- Consumer Electronics
- Electronic Components
- Medical Devices
- Mobility, Special-Purpose Vehicles
- Rail Transport
- Aerospace

Zuken's Business Domains



Electronic Design Automation

Since its establishment, Zuken's core business has been the development and sale of the electronic design automation software needed to implement the advanced functions of today's ever-evolving electronics products. Zuken's design automation software is now used by electronics manufacturers worldwide, together with our unique solutions for managing electronic components and design data (PDM/PLM) based on extensive expertise in electronics design.



Automotive & Machinery Design Solutions

Today's automobiles employ a range of electrical and electronic systems that are becoming ever more complex. Zuken develops and sells the electrical wire harness design software that is the linchpin of their development, as well as electrical and electronic control and design software for industrial machinery and equipment. Our technology utilizes 3D data to model wiring at a facility-level scale, enabling various simulations for smart factories.

Group Companies in Japan

Zuken Tec Inc.

TEC

Zuken Tec provides consulting, on-site manager and engineer dispatch, as well as contracting services that support a broad range of design and development operations, including CAD installation, startup, and operation.

Zuken NetWave Inc.

NetWave もっと速く、もっと安全に

Zuken NetWave sells and supports state-of-the-art hardware and software for corporate networks, which are indispensable for today's business activities. These networks also include security and storage solutions.

Zuken Elmic Inc.

Elmic

Zuken Elmic focuses on communication as the key element in technologies. It develops, sells, and provides support for middleware IP libraries, software, and related hardware for the embedded systems that support the security, industrial, and in-vehicle network fields.

Zuken PreSight Inc.

まっ先に、めざす先。
PreSight

Zuken PreSight develops and markets creative products that support the manufacturing industry, including product lifecycle management (PLM) systems based on technology that coordinates lightweight 3D data and bill of materials (BOM). It also provides knowledge management solutions with a unique concept that reduces user burden.

DiverSync Corporation

DiverSync

DiverSync is devoted to planning and development of IT platforms to realize synchronized and bidirectional collaboration between design and manufacturing, which is the new normal in the age of the Internet of Things.

Zuken Alfatech Inc.

Alfatech

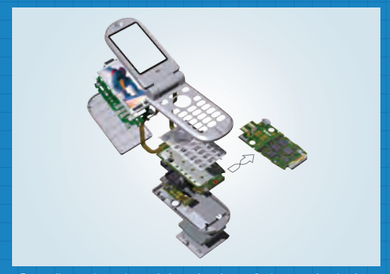
Zuken Alfatech provides a variety of solutions and services primarily to customers in the mechatronics industry, including development, sales, and support for electrical CAD. It sells and customizes 2D/3D general-purpose mechanical CAD and CAE systems. As a new business area, Zuken Alfatech is also developing 3D modeling applications for the construction field, which is a domain with excellent potential.

Our History A Steady Accumulation of Value

Founded in 1976, Zuken's story mirrors the growth of the electronics industry. Zuken has provided behind-the-scenes support for the development of a multitude of electronic devices that have made society a better place, and as the use of electronics has spread, so have Zuken's solutions and businesses. All around the world, customers take on the challenge of creating new technologies. Zuken continues to accept this challenge.

Create 2000 at its launch

Zuken opened the floodgates with Japan's first CAD/CAM system for PCB design in 1978.



Contributed to the miniaturization of electronic devices

Our CAD/CAM technology established an unshakable position amid growing demand for smaller, thinner, and lighter electronic devices.

Zuken SOZO Center established

We have cultivated a global R&D and business network.

Partner exhibition at Zuken Innovation World 2018

We continue to expand into new business fields and are pursuing an active partnership strategy.

The Evolution of Electronic Products

Personal computers

Portable audio players

Home game consoles

CD players

Mobile phones

LCD televisions

DVD players

Domestic robots

Laptop computers

Smartphones

Mass-produced electric vehicles

Wearable devices

Automated driving technology

Net Sales

1970s

Dec. 1976 Zukei Shori Gijutsu Kenkyusho Inc. established in Isogo-ku, Yokohama.

Jun. 1978 Japan's first full-scale CAD/CAM system Create 2000, for the design of printed circuit boards, developed.

1980s

Nov. 1983 Zuken America Inc. (now Zuken USA Inc.) established in California, United States.

Jan. 1988 CR-3000 (PWS), a printed circuit board CAE/CAD/CAM network workstation, developed.

1990 Sales surpass ¥10 billion

1990s

Oct. 1991 Registered on the Second Section of the Tokyo Stock Exchange as the first electronic design automation (EDA) corporation.

Jan. 1992 Zuken Europe GmbH (now Zuken GmbH) established in Germany.

Jan. 1992 Zuken Korea Inc. established in Seoul.

Aug. 1992 Zuken Singapore Pte. Ltd. established in Singapore.

Apr. 1994 EDA vertical integration solution CR-5000 developed.

Jun. 1994 Zuken acquired all the shares of Racal-Redac Ltd. of the United Kingdom.

Sep. 1994 Moved up to the First Section of the Tokyo Stock Exchange.

2000s

Mar. 2000 Zuken acquired the shares of INCASES Engineering GmbH.

Mar. 2002 Began providing wire harness design software for the automotive industry.

Jun. 2002 Zuken (Shanghai) Technical Center Co., Ltd. was established in China.

Feb. 2004 ePLM DS-2, a PLM solution specially designed for the electrical and electronics industries, announced.

Aug. 2005 Zuken Taiwan Inc. established in Taiwan.

May 2006 Zuken acquired Germany's CIM-TEAM (now Zuken E3 GmbH).

Jun. 2007 V54EE, a mechanical CAD system specially designed for the electronics industry, released.

Jun. 2009 Enterprise PLM Presight released.

2008 Sales surpass ¥20 billion

2010s

May 2010 Zuken acquired a 14% share in Lattice Technology Co., Ltd.

Jun. 2011 Visual BOM, a new generation engineering platform that merges bill of materials technology with the ultra lightweight 3D format XVL, released.

Oct. 2011 CR-8000, a next-generation electronic device design platform, released globally. Design Force launched, which completed Zuken's system level electronics design environment.

Sep. 2013 Zuken SOZO Center established in Silicon Valley, United States.

Aug. 2014 Global Automotive and Transportation Competence Center established in Erlangen, Germany.

Dec. 2014 Zuken and Toyo Business Engineering concluded an agreement on their capital and business alliance.

Feb. 2015 DiverSync Corporation established.

Mar. 2015 Zuken India Private Limited established in India.

Jul. 2015 Zuken took over YDC Corporation's CADVANCE business (CAD and PDM operations).

Apr. 2016 Zuken split off its PreSight Division to establish Zuken PreSight Inc.

Dec. 2017 Zuken acquired all issued shares of Alfatech Inc. and made it a subsidiary.

Aug. 2019 Zuken acquired Vitech Corporation of the United States.

Japan & Asia

Our head office is in Yokohama, the city where Zuken was founded. The head office oversees product and business development in Japan and worldwide.

The operating environment faced by manufacturing industries is increasingly global and borderless. Companies look to Asia as not only a manufacturing base, but as an important center for product development. We have therefore established subsidiaries in China, South Korea, Taiwan, Singapore, and India. We have built a system for accurately identifying the needs of customers in each region to offer the best possible solutions.

Americas

North America has many innovative companies that greatly influence manufacturing worldwide, and is also an important business development base for Zuken. In this market Zuken provides many leading U.S. high-tech companies with advanced solutions. In addition, to develop products and businesses for global markets, the Zuken SOZO Center promotes strategic partnerships with companies that own innovative technologies.

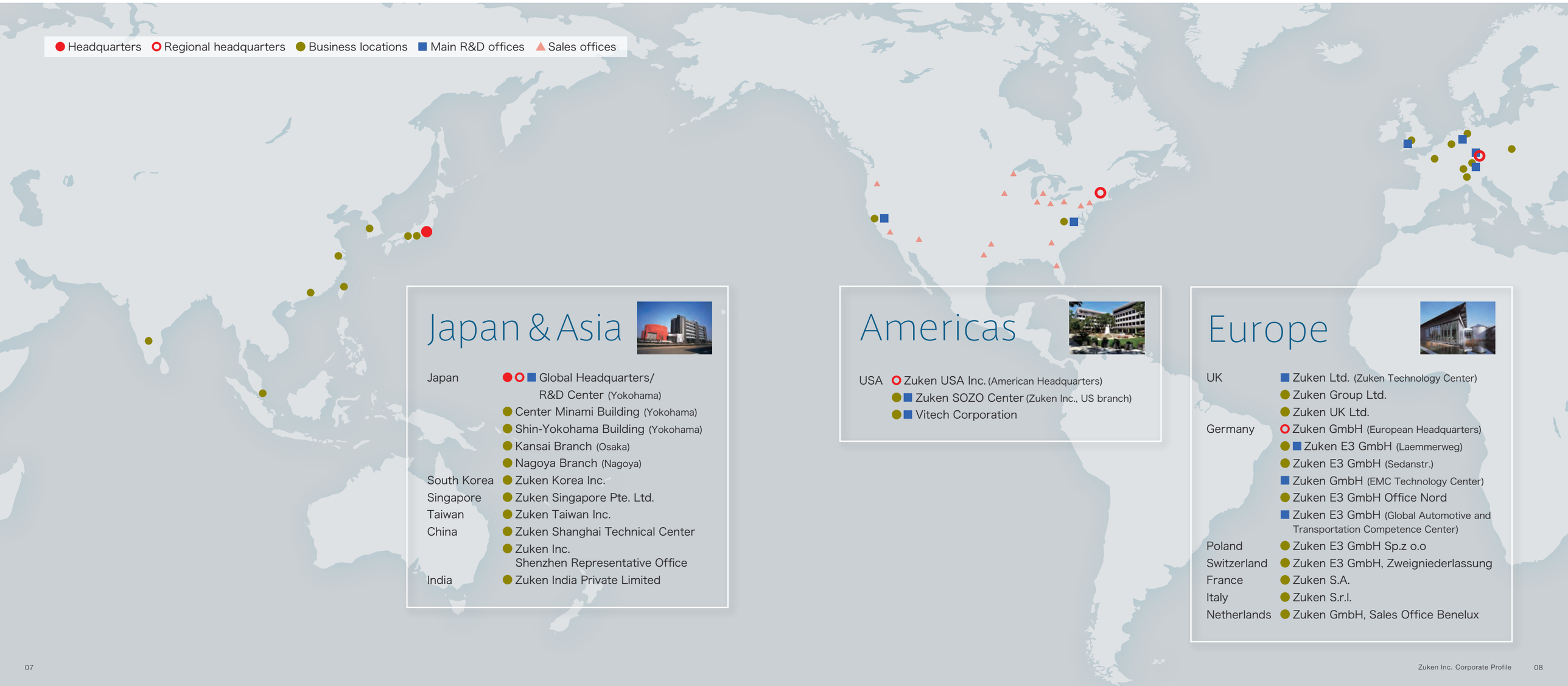
Europe

Zuken has a strong business foundation in Europe, a region that is home to many leading companies in global markets such as industrial machinery and automotive products. We complement our European sales network with bases that carry out core technology development. Our Global Automotive and Transportation Competence Center in Germany is part of Zuken's organization for developing next-generation automotive electronic and electrical design solutions for global markets.

Distribution of Personnel

(As of the End of March 2019)

*Excluding domestic affiliated companies and employees stationed overseas.



Japan & Asia

Japan	Global Headquarters/ R&D Center (Yokohama)
	Center Minami Building (Yokohama)
	Shin-Yokohama Building (Yokohama)
	Kansai Branch (Osaka)
	Nagoya Branch (Nagoya)
South Korea	Zuken Korea Inc.
Singapore	Zuken Singapore Pte. Ltd.
Taiwan	Zuken Taiwan Inc.
China	Zuken Shanghai Technical Center
	Zuken Inc. Shenzhen Representative Office
India	Zuken India Private Limited

Americas

USA	Zuken USA Inc. (American Headquarters)
	Zuken SOZO Center (Zuken Inc., US branch)
	Vitech Corporation

Europe

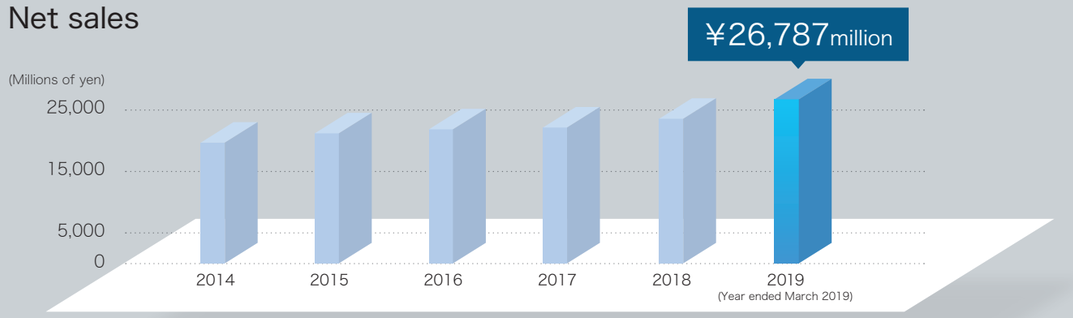
UK	Zuken Ltd. (Zuken Technology Center)
	Zuken Group Ltd.
	Zuken UK Ltd.
Germany	Zuken GmbH (European Headquarters)
	Zuken E3 GmbH (Laemmerweg)
	Zuken E3 GmbH (Sedanstr.)
	Zuken GmbH (EMC Technology Center)
	Zuken E3 GmbH Office Nord
	Zuken E3 GmbH (Global Automotive and Transportation Competence Center)
Poland	Zuken E3 GmbH Sp.z o.o
Switzerland	Zuken E3 GmbH, Zweigniederlassung
France	Zuken S.A.
Italy	Zuken S.r.l.
Netherlands	Zuken GmbH, Sales Office Benelux

Financial Information A Solid Financial Foundation

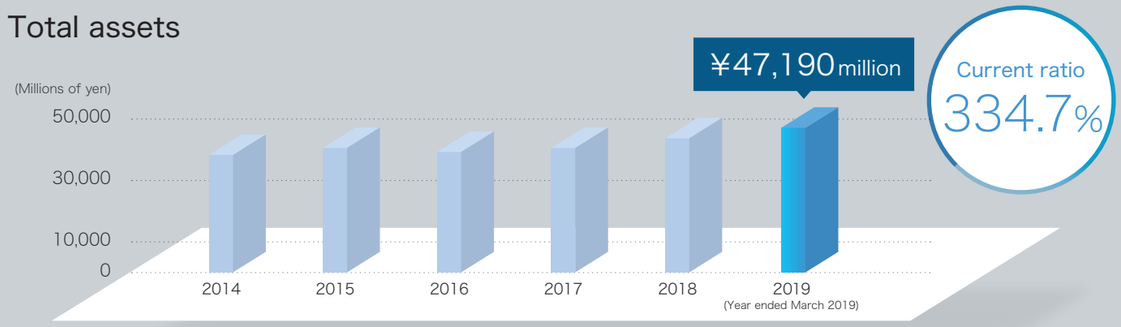
For the manufacturing industry, product development is an important, fundamental operation that determines future growth. Zuken provides solutions required for competitive product development. For us to support our customers' strategic product development and give them long-term confidence in our solutions, we must have solid financial foundations ourselves.

Also, in the world of information technology, where technological innovation is intense, we must invest flexibly in order to continue providing cutting-edge technology in a timely manner. For this reason, since our founding, we have established and maintained a solid financial foundation as one of our most important management strategies.

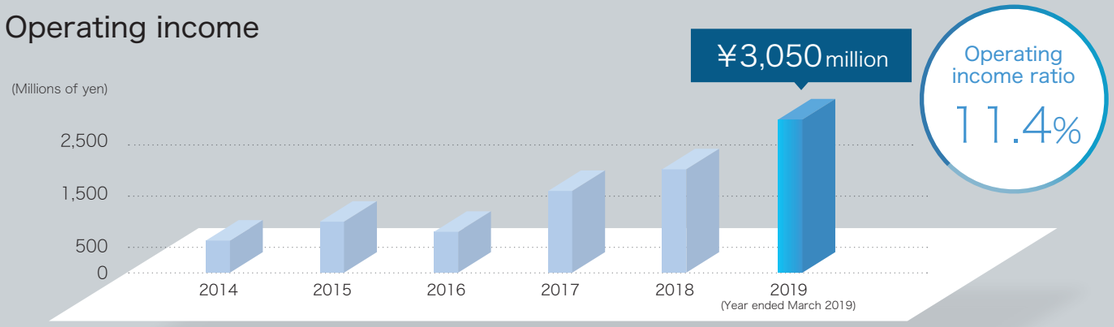
Net sales



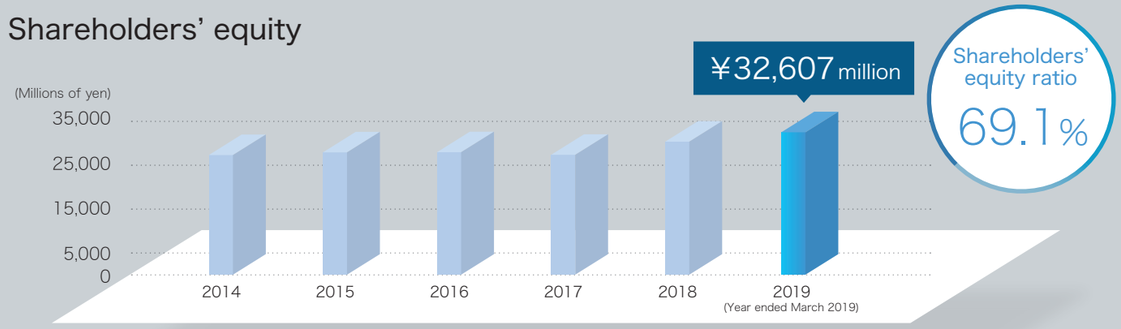
Total assets



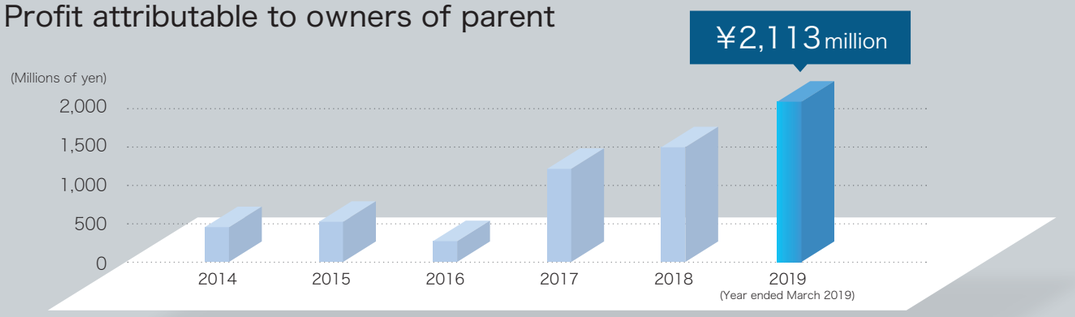
Operating income



Shareholders' equity

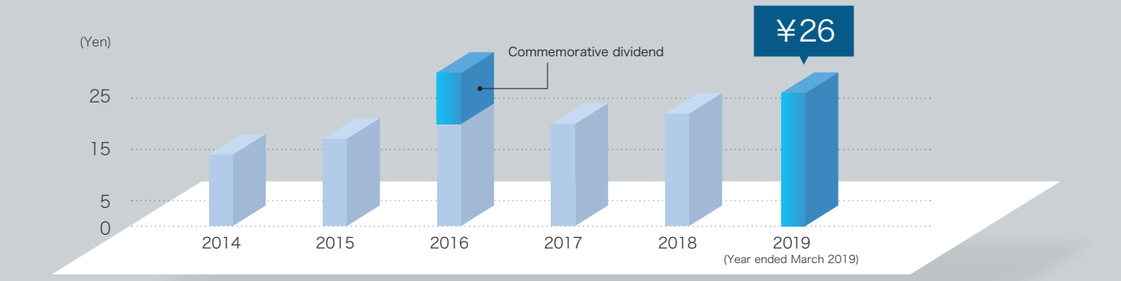


Profit attributable to owners of parent



Dividends

Note: The 2016 dividend includes a commemorative dividend of 10 yen.



Close up
01

Engineering for a Connected World

Vitech Joins Zuken

In August 2019, Zuken acquired U.S. company Vitech Corporation. Prior to the announcement of the acquisition, Vitech President David Long made the following comments at our October 2018 Zuken Innovation World 2018 annual corporate event:

"The engineering domain is now undergoing a transformation. A change is taking place in every industry, from automotive, rail transport and aerospace, to defense, energy and healthcare. The challenges we dealt with yesterday were complicated, but could be broken down into their component parts. The challenges we deal with today are complex, with highly interconnected component parts that are themselves complicated. Complexity demands a different approach—an evolution in the engineering lifecycle."

Mr. Long's comments are highly indicative of the value that Vitech brings to the Zuken Group.

The Evolution of Engineering toward Collision-Free Cars

Automotive manufacturers worldwide are racing to develop vehicles with autonomous driving functions. Various levels of driving autonomy have been defined, ranging from limited driving assistance to full driving automation under all conditions. The greatest leap is from Level 2 (partial driving automation) to Level 3 (conditional driving automation). Up to Level 2, a human makes driving decisions and is in control all the time, but at Level 3 or above, the system takes the wheel and controls steering, acceleration and braking as necessary. In other words, from Level 3 the car itself must be able to make the complex and advanced situational judgments that are usually made by humans. Systems must therefore be able to comprehensively evaluate a vast amount of data from sensors including onboard radar, cameras and accelerometers, to safely control the behavior of the car. An externally connected network is also a likely development, enabling vehicles to communicate with each other and with traffic infrastructure, including traffic lights and intersection cameras capable of detecting cars or pedestrians in the vehicle's blind spots.

For autonomous driving, onboard subsystems must not only operate correctly, but also interact with other subsystems as part of an interconnected whole. This is the "complexity" to which Mr. Long is referring. In product development, while the functional design of subsystems remains crucial for manufacturers, the importance of functional design for holistic systems has increased exponentially.

The Systems Engineering Approach

Developing complex products involves an increasingly vast number of conceptual stage requirements, types of data handled, technical fields and component elements. All interact in a complex manner, so the division of roles is predicated on linking multiple technical disciplines. Moreover, it can be difficult to verify that all elements are working in concert to deliver on functional specifications. The technical approach to resolving such issues is systems engineering, a field in which Vitech specializes. The emergence of systems engineering can be traced to the 1960s, starting with the U.S. aerospace industry and the Apollo program, where development was divided among specialists, teams and suppliers spanning a range of disciplines. Making refinements to spacecraft required trial and error in the field, beyond the capabilities of a standard engineering process. The idea behind systems engineering was to understand the system at a highly abstract level and then fill in details in stages during the design and engineering process. More than half a century later, this way of thinking and manufacturing is still the basis for developing the products people use every day.

Systems engineering deals with many technical elements and is difficult to execute through text-based documentation. Consequently, the use of system models has gained traction over the past decade. Model-Based Systems Engineering (MBSE) approaches describe the system as a whole using a language that defines exchange formats and rules. Successful use of system models enables iterative confirmation that the original intent is achieved at each design and validation stage, and also serves as a common language that forestalls misunderstandings when conveying key information to colleagues working on different parts of the project. System models are highly effective for developing complex products. Furthermore, through digital representation and the use of IT tools, system models can weed out conflicts when defining complex requirements, and allow respective parties to work efficiently during the development process while carrying out anytime validation of subsystem interconnections. MBSE is an excellent choice for efficient and effective systems engineering.

Manufacturing That Makes the Connected World Safe and Secure

Mr. Long said the following about joining the Zuken Group: "By blending Vitech's deep systems engineering and MBSE knowledge with Zuken's expertise across electronic product design, we can help clients respond to complex challenges efficiently and effectively. As part of the Zuken Group, Vitech hopes to play a key role in helping organizations as they respond quickly to complex challenges and deliver high-quality solutions."

Product development challenges that involve complexity and the need to meet demanding requirements from concept to validation reach far beyond the aerospace and automotive fields. Zuken's solutions have optimized quality, cost and development time for many electronic product developers. The focus of these solutions has been on optimization of the "how" of making a product. Development of connected products that create outstanding and unprecedented value will require equally unprecedented complexity and sophistication when considering "what" to make. By integrating its technology for optimizing production with Vitech's systems engineering and MBSE knowledge at the conceptual stage, Zuken will assist customers in efficiently providing the world with safe, secure, sophisticated products.

David Long, President, Vitech Corporation

David Long heads Vitech Corporation of the U.S., which specializes in MBSE, and has supported numerous customers in the aerospace and automotive industries for over 25 years. He is a leading expert in systems engineering and MBSE with experience as president of the International Council on Systems Engineering (INCOSE).

Speaking at Zuken Innovation World 2018

Summary of Levels of Driving Automation

Level	Narrative definition	OEDR[1]/DDT[2] fallback
Automated driving system (ADS) performs the entire DDT (while engaged)		
Level 5	■ **Full Driving Automation** The sustained and unconditional (i.e., not ODD[3]-specific) performance by an ADS of the entire DDT and DDT fallback without any expectation that a user will respond to a request to intervene.	System
Level 4	■ **High Driving Automation** The sustained and ODD-specific performance by an ADS of the entire DDT and DDT fallback without any expectation that a user will respond to a request to intervene.	
Level 3	■ **Conditional Driving Automation** The sustained and ODD-specific performance by an ADS of the entire DDT with the expectation that the DDT fallback-ready user is receptive to ADS-issued requests to intervene, as well as to DDT performance-relevant system failures in other vehicle systems, and will respond appropriately.	(Fallback-ready user (becomes the driver during fallback))
Driver performs part or all of the DDT		
Level 2	■ **Partial Driving Automation** The sustained and ODD-specific execution by a driving automation system of both the lateral and longitudinal vehicle motion control subtasks of the DDT with the expectation that the driver completes the OEDR subtask and supervises the driving automation system.	Driver
Level 1	■ **Driver Assistance** The sustained and ODD-specific execution by a driving automation system of either the lateral or the longitudinal vehicle motion control subtask of the DDT (but not both simultaneously) with the expectation that the driver performs the remainder of the DDT.	

(Source: Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles, SAE J3016_201609)

1. Object and event detection and response (OEDR): Subtasks including monitoring the driving environment and executing an appropriate response to objects and events.
2. Dynamic driving task (DDT): All of the real-time operational and tactical functions required to operate a vehicle in on-road traffic.
3. Operational design domain (ODD): Operating conditions under which a driving automation system is designed to function, including environmental, geographical, time-of-day restrictions and traffic or roadway characteristics.

Close up
02

Sharing Passion with the Super Engineers of Tomorrow

Zuken Supports Formula SAE Teams

Formula SAE Japan – Monozukuri Design Competition (FSAEJ) **(Photo 1)** is an event in which teams of students from Japan and around the world compete to build the best formula car. Zuken is a long-standing supporter of these teams through its local arms, as well as being a competition sponsor of the FSAEJ held in August 2019.

Assisting the next generation of engineers, in whose hands rests the future of mobility and the manufacturing industry, contributes to the betterment and sustainable evolution of society. It is a mission of great significance to Zuken.

Formula SAE®

Formula SAE is an engineering competition that challenges teams of undergraduate and postgraduate students to conceive, design and fabricate a single-seater formula car with open wheels and cockpit. Entries are judged on comprehensive criteria, including driving performance, design concept, mass-production cost estimates and sales strategy. Formula Student was first held in the U.S. in 1981, and following a standard format, subsequent competitions have been held around the world, including in the U.K., Italy, Australia, Austria, Germany, Japan and Brazil. Formula SAE Japan began in 2003, and this year around a hundred teams from Japan, Europe, China, India and other countries/regions competed.

With a focus on Europe, Zuken has actively supported students from various countries in Formula SAE. Among the teams supported by Zuken's European affiliates are the Firenze Race Team from the University of Florence in Italy **(Photo 2)**, the Formula Student Team from the University of Wolverhampton in the U.K., and several Formula Student race teams from the Ravensburg-Weingarten University of Applied Sciences in Germany. In Asia, Zuken India **(Photo 3)** supports the formula car building efforts of Team Chimera from RV College of Engineering in India.

Building a Formula Car Teaches the Essence of Manufacturing

Completing a formula car requires broad-ranging knowledge, from mechanical engineering, electronics and drive systems, to software control and production technologies. Formula SAE participants from various backgrounds must be ready to collaborate, have courage to share and reconcile opinions and ideas, and acquire diverse technical knowledge, in pursuit of optimal automotive design and fabrication outcomes. This competition teaches much more than how to build a car. It imparts the essence of manufacturing by exposing students to broad aspects of technology and production in the process of refining vehicle performance.

A Passion for Automotive Production Leads to New Challenges

Zuken delivers design solutions suited to the needs of manufacturers in countries at the forefront of the global automotive industry. We provide student teams with the same solutions that have evolved over the course of our relationships with these manufacturers, enabling students to advance their projects using state-of-the-art technology that is the culmination of industry trial and error. At the same time, students conceive outside-the-box ideas as they take on the challenge of building a car. Formula SAE is thus a confluence for advanced technology and innovative ideas, and a valuable experience for the supporting companies.

The shift to electric vehicles is gaining momentum, as evidenced by France's announcement in 2017 to ban the sale of new gasoline and diesel vehicles by 2040, along with several other major European and emerging economies following suit with plans to ban new gasoline vehicles. For companies in emerging economies that would otherwise face an uphill struggle to catch up with advanced internal combustion engine technology, this paradigm shift could be an opportunity to seize the lead in the global automotive market with electric vehicle technology. Automotive development was previously the domain of a limited number of companies in developed economies, but this is now changing dramatically. Likewise for Formula SAE, the competition can expect many more participants from emerging economies. It is a place where new automotive technologies can be conceived, and where the super engineers who pioneer the future of the automotive industry can cut their teeth.

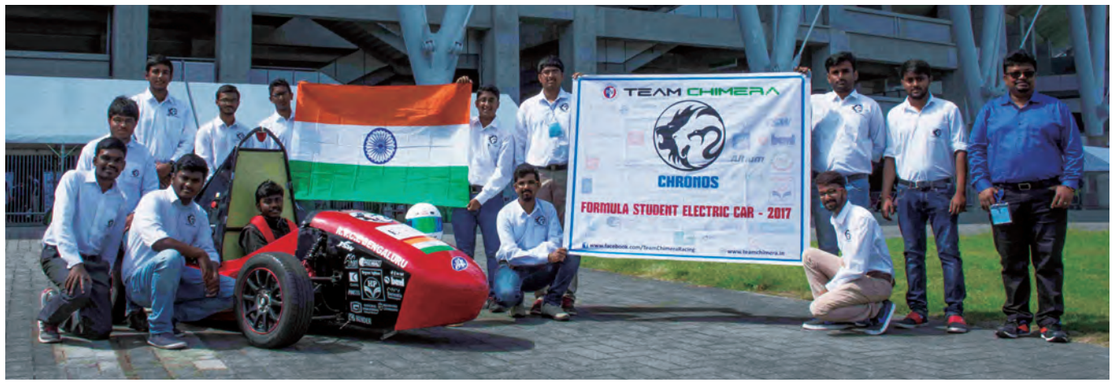
Zuken will continue to support the students taking on challenges, and thereby help nurture the engineers who will create the future of mobility and manufacturing.

Photo 2 Firenze Race Team from University of Florence in Italy

Photo 1 Formula SAE Japan – Monozukuri Design Competition

Note: Photographs show the 2018 Student Formula Japan competition

Photo 3 Team Chimera from RV College of Engineering in India participating in 2017 Student Formula Japan



ZUKEN

The Partner For Success

Company Name	Zuken Inc.
Foundation	December 17, 1976
Head Office Location	2-25-1, Edahigashi, Tsuzuki-ku, Yokohama, 224-8585 Japan
Paid-in Capital	JPY 10,117,065,000
Number of Employees	407 (consolidated: 1,328; as of the end of March 2019)
Stock Listing	Tokyo Stock Exchange, First Section
Business Areas	Research and development of a wide variety of software solutions that support the optimization of product design and engineering operations for manufacturing industries, and marketing of software solutions with expert consulting services.
Directors and Auditors	Makoto Kaneko, President and Representative Director Jinya Katsube, COO and Representative Director Kazuhiro Kariya, Managing Director Yoshikazu Soma, Managing Director Takeo Osawa, Director Koichi Saotome, Director Takashi Sano, Director * Yoichi Arai, Director * Fusao Wada, Full-time Audit & Supervisory Board Member Yasushi Ozaki, Audit & Supervisory Board Member * Takashi Handa, Audit & Supervisory Board Member * * Outside director or outside audit & supervisory board member.