Leveraging the Strength of Our Diversity

ANNUAL REPORT 2018

English Version
Constantly Upholding Our Founding Spirit

Today’s TDK was founded in 1935 as Tokyo Denki Kagaku Kogyo K.K., with the goal of industrializing ferrite. Kenzo Saito, the Company’s first president, succeeded in commercializing ferrite, an unknown material at the time. Saito devoted his energy to examining technologies from the perspective of society’s future needs, pursuing the goal of creating value that does not yet exist in the world on a material level.

This founding spirit is incorporated in the TDK Corporate Motto, and continues to be faithfully passed down today.

Addressing future demand on a material level

Ferrite in the early years
A Never-Changing TDK, an Ever-Changing TDK

Since the invention of ferrite in 1930, 88 years ago, TDK has put the material to use in a constantly expanding range of ferrite products. Passive components and magnets that utilize TDK’s core technologies in ferrite-based materials and process technologies continue to be the foundation of Monozukuri (manufacturing excellence), for which TDK is known. We are constantly building upon this foundation and developing new innovations from the perspective of society’s future needs.

A Never-Changing TDK

We research the properties of materials at the atomic level and develop original electronic components and devices to meet advanced needs.

- Materials design technology
- Powder control technology
- Microstructure control technology

We create high-performance and function products with nanometer-order control technology.

- Forming technology
- Sintering technology
- Thick-film process technology
- Thin-film process technology

TDK, which positions ferrite as its foundation, has expanded the potential of innovation guided by the concept of “A Never-Changing TDK.”

Four Great World-Class Innovations by TDK

1935 INNOVATION 1
Ferrite
The invention of ferrite by the Tokyo Institute of Technology and the commercial development of ferrite cores by TDK was recognized in 2009 by the Institute of Electrical and Electronics Engineers as an IEEE Milestone—a historic achievement that has made significant contributions to society and the global electronics industry.

1968 INNOVATION 2
Music cassette tapes
TDK developed the world’s first cassette tape for music in response to demand from consumers to enjoy music easily. Our top-notch magnetic material and coating technologies later became the foundation for various innovations.

1980 INNOVATION 3
Fine multilayering technology
TDK developed the world’s first multilayer chip inductor by laminating a three-dimensional helical coil inside a chip. This technology has become the foundation for the miniaturization and weight reduction of electronic equipment.

1987 INNOVATION 4
Thin-film head technology
TDK has contributed to the astonishing high recording density of hard disk drives (HDDs) by utilizing nano-level thin-film process technology.

TDK Corporation

02

Annual Report 2018
TDK Evolves Constantly Based on a Never-Changing TDK

TDK has a solid foundation of passive components and ferrite-based products and core technologies, centering on materials and process technologies. While our core products continue to sell well, we are sowing seeds in anticipation of future demand from society based on a sustainable growth plan of nonlinear evolution that entails boldly replacing our core businesses.

Self-transformation ahead of demand from society

Increasing Globalization

- **Overseas production ratio**
  - 1995: 42%
  - 2018: 85%

- **Overseas sales ratio**
  - 1995: 57%
  - 2018: 91%

Strengthening governance

- **Number of Outside Officers (Directors and Audit & Supervisory Board Members)**
  - 2002: 1 person
  - 2018: 5 people

Growing in the automotive market

- **Sales in the automotive market**
  - 2010: About ¥97.0 billion
  - 2018: About ¥230.0 billion

Self-Transformation Is the Driving Force behind TDK’s Growth

TDK has transformed itself as a company in many ways, not merely in its business portfolio. We have achieved rapid globalization as a result of expanding our overseas sites to establish suitable production locations and by pursuing a dynamic M&A strategy. In addition, we continue to strengthen corporate governance—for example, by switching to global standards to match our global business structure—not in response to external demand, but to improve the chances of success of our strategies from a long-term perspective.
To Answer the Needs of a New World

Anticipating a transformation of social structures, TDK is breaking ground on another path of nonlinear evolution. Taking a long-term view, TDK has made many bold moves, including selling its high-frequency components business, which had been driving profitability, and focusing on M&As in the area of sensors.

Sale of high-frequency components business and deepening of collaboration with Qualcomm

TDK and Qualcomm established RF360 Holdings, a joint venture to supply high-frequency components, and the Company will complete the sale of all shares to Qualcomm in August 2019. The sale of the high-frequency components business, a driving force for earnings, is a manifestation of TDK’s strong will to transformation itself with a view toward the future of society.

Dynamic M&As focusing on sensors

TDK has changed its business portfolio through acquisitions focusing on sensors and has developed a new growth foundation for the future.

Main synergies from the collaboration

- Technical cooperation on a wide range of cutting-edge technologies in next-generation mobile communications, IoT, and automotive-related fields including passive components, batteries, wireless power transfer, sensors, and MEMS
- Enhanced reference design capabilities through Qualcomm

New “nonlinear evolution”

Prospective demand for sensors worldwide (non-optical) by product (U.S.$ millions)
Transforming Our Business Model with a View Toward the Future

TDK is proceeding to switch from a conventional business model involving production to order and single-item sales to a new business model. Going forward, we will be generating ideas from Kotozukuri (integrated solutions)—sensor solutions, power solutions, and package solutions—and converting them into products through Monozukuri (manufacturing excellence), the foundation of our business. This approach is nothing less than a reexamination of the origins of TDK stated in the corporate motto, “contribute to culture and industry through creativity.”

INTRODUCTION

Competitive advantages supporting the sustainability of our business model

01 Materials and Process Technologies
Creating “black boxes” to prevent imitation
Materials technology elicits raw materials suitable for the targeted properties in a product through advanced expertise in complex composition processes and control of additives. Process technology maximizes the properties of these materials while also expanding the scope of their application in products. Creating “black boxes” for techniques for controlling crystal particles at the atomic level, for intellectual property, and for other know-how makes them difficult to imitate overnight.

02 Customer Base
Enabling investment from a long-term perspective
TDK has built strong relationships with its customers in the automotive, ICT, industrial & energy markets, and other markets. This allows us to more accurately forecast future changes in technology trends, and reduces the risks involved in making aggressive R&D and capital investments.

03 Strength of Diversity
A spirit of equality leading to M&A success
TDK has built relationships with the companies it has acquired based not on controlling them but on positioning them as equal partners. This expertise in post-merger integration (PMI) is a powerful weapon in ensuring the success of our business portfolio.

04 Global Business Base
Overseas sales in excess of 90%
TDK’s global business base, with 84.5% of production outside of Japan and 91.1% of sales generated overseas, is a competitive advantage that will allow us to capture business opportunities in the IoT market, which is expected to expand worldwide.

05 Integrated Production
A powerful competitive advantage in the age of IoT
Integrated production, where everything from materials to the final product is handled in-house, allows TDK to improve its manufacturing excellence and increase productivity through the introduction of IoT and robots. Our ability to also control quality entirely in-house gives TDK a competitive advantage in areas where quality requirements are particularly high, including the automotive market.
Five Core Technologies as the Foundations of Growth

Since its inception, TDK has grown on the strength of five core technologies: materials technology based on ferrite; process technology used to realize materials’ characteristics; evaluation and simulation technology to promote development designs; product design technology for merging electronic components into advanced and multiple functions; and production technology to support mass output.

TDK continues to steadily polish this core know-how not to make defects during the production process. The goal is the Arubeki Sugata (ideal process) of Monozukuri through harmony between people and robots, moving to realize “Industry 4.0 + Zero Defect.”

Materials Technology
Researching the properties of materials at the atomic level and developing original electronic components and devices to meet advanced needs.

- Materials design technology
  - Realizing required characteristics through main materials blending and trace additive control.

- Powder control technology
  - Improving materials’ characteristics through crystal grain miniaturization and uniformity.

- Microstructure control technology
  - Realizing required characteristics through control of crystal grain internal composition and grain boundaries.

Process Technology
Creating high-performance and function products with nanometer-order control technology.

- Forming technology
  - Adding binding agents to material powder and forming small, slim and complex-shaped products.

- Sintering technology
  - Sintering to solidify and harden with precision control of temperature and atmosphere (gas components in the furnace).

- Thick-film process technology
  - Printing and multilayering electrodes and other elements to produce chip capacitors, chip inductors, and other layered electronic components.

- Thin-film process technology
  - Forming thin film to create electrodes, coils, and head elements to manufacture HDD magnetic heads and thin-film electronic components.

Production Technology
Stepping to further raise quality, cost, delivery, and service (QCDS) via speedy responses to market changes, together with increasing product capacity.

- Equipment technology
  - Superb products emerge from superb production equipment. Development of original engineering methods and in-house creation of production facilities are key TDK Monozukuri strengths.

- EMC countermeasure technology
  - Protecting electronic equipment from external noise penetration, as well as controlling noise released by such equipment.

- Semiconductor Embedded Substrate (SESUB) technology
  - Embedding ICs, components, wiring, and other elements in substrate thickness to achieve modularization.

- Low temperature cofired ceramic (LTCC) technology
  - Printing and laminating capacitors, inductors, and numerous other elements on dielectric sheets.

- Packaging technology
  - Pursuing smaller size and higher performance with component final assembly, binding, sealing, advanced structural design, configuration design, and other expertise.

- Circuit technology
  - Using optimum component selection, wiring, radiant heat design, and other simulation to advance circuit designs.

- Simulation technology
  - Visualizing heat distribution released from circuits, distribution of noise-causing magnetic fields, among others.

- Evaluation and analysis technology
  - Conducting microstructure observations, atom distribution visualization, and other advanced processes.

- Evaluation and Simulation Technology
  - Initiating such as material analysis, simulation of product structure, heat and magnetic fields, and noise measurements and countermeasures to raise product functions.

- Product Design Technology
  - Integrating electronic components to realize high-performance/multiple-function electronic devices and optimum combination modules.

- Researching the properties of materials at the atomic level and developing original electronic components and devices to meet advanced needs.

- Process Technology
  - Creating high-performance and function products with nanometer-order control technology.

- Production Technology
  - Stepping to further raise quality, cost, delivery, and service (QCDS) via speedy responses to market changes, together with increasing product capacity.

- Equipment technology
  - Superb products emerge from superb production equipment. Development of original engineering methods and in-house creation of production facilities are key TDK Monozukuri strengths.

- EMC countermeasure technology
  - Protecting electronic equipment from external noise penetration, as well as controlling noise released by such equipment.

- Semiconductor Embedded Substrate (SESUB) technology
  - Embedding ICs, components, wiring, and other elements in substrate thickness to achieve modularization.

- Low temperature cofired ceramic (LTCC) technology
  - Printing and laminating capacitors, inductors, and numerous other elements on dielectric sheets.

- Packaging technology
  - Pursuing smaller size and higher performance with component final assembly, binding, sealing, advanced structural design, configuration design, and other expertise.

- Circuit technology
  - Using optimum component selection, wiring, radiant heat design, and other simulation to advance circuit designs.

- Simulation technology
  - Visualizing heat distribution released from circuits, distribution of noise-causing magnetic fields, among others.

- Evaluation and analysis technology
  - Conducting microstructure observations, atom distribution visualization, and other advanced processes.

- Evaluation and Simulation Technology
  - Initiating such as material analysis, simulation of product structure, heat and magnetic fields, and noise measurements and countermeasures to raise product functions.

- Product Design Technology
  - Integrating electronic components to realize high-performance/multiple-function electronic devices and optimum combination modules.

- Researching the properties of materials at the atomic level and developing original electronic components and devices to meet advanced needs.

- Process Technology
  - Creating high-performance and function products with nanometer-order control technology.

- Production Technology
  - Stepping to further raise quality, cost, delivery, and service (QCDS) via speedy responses to market changes, together with increasing product capacity.

- Equipment technology
  - Superb products emerge from superb production equipment. Development of original engineering methods and in-house creation of production facilities are key TDK Monozukuri strengths.

- EMC countermeasure technology
  - Protecting electronic equipment from external noise penetration, as well as controlling noise released by such equipment.

- Semiconductor Embedded Substrate (SESUB) technology
  - Embedding ICs, components, wiring, and other elements in substrate thickness to achieve modularization.

- Low temperature cofired ceramic (LTCC) technology
  - Printing and laminating capacitors, inductors, and numerous other elements on dielectric sheets.

- Packaging technology
  - Pursuing smaller size and higher performance with component final assembly, binding, sealing, advanced structural design, configuration design, and other expertise.

- Circuit technology
  - Using optimum component selection, wiring, radiant heat design, and other simulation to advance circuit designs.

- Simulation technology
  - Visualizing heat distribution released from circuits, distribution of noise-causing magnetic fields, among others.

- Evaluation and analysis technology
  - Conducting microstructure observations, atom distribution visualization, and other advanced processes.

- Evaluation and Simulation Technology
  - Initiating such as material analysis, simulation of product structure, heat and magnetic fields, and noise measurements and countermeasures to raise product functions.

- Product Design Technology
  - Integrating electronic components to realize high-performance/multiple-function electronic devices and optimum combination modules.

- Researching the properties of materials at the atomic level and developing original electronic components and devices to meet advanced needs.

- Process Technology
  - Creating high-performance and function products with nanometer-order control technology.

- Production Technology
  - Stepping to further raise quality, cost, delivery, and service (QCDS) via speedy responses to market changes, together with increasing product capacity.

- Equipment technology
  - Superb products emerge from superb production equipment. Development of original engineering methods and in-house creation of production facilities are key TDK Monozukuri strengths.

- EMC countermeasure technology
  - Protecting electronic equipment from external noise penetration, as well as controlling noise released by such equipment.

- Semiconductor Embedded Substrate (SESUB) technology
  - Embedding ICs, components, wiring, and other elements in substrate thickness to achieve modularization.

- Low temperature cofired ceramic (LTCC) technology
  - Printing and laminating capacitors, inductors, and numerous other elements on dielectric sheets.

- Packaging technology
  - Pursuing smaller size and higher performance with component final assembly, binding, sealing, advanced structural design, configuration design, and other expertise.

- Circuit technology
  - Using optimum component selection, wiring, radiant heat design, and other simulation to advance circuit designs.

- Simulation technology
  - Visualizing heat distribution released from circuits, distribution of noise-causing magnetic fields, among others.

- Evaluation and analysis technology
  - Conducting microstructure observations, atom distribution visualization, and other advanced processes.

- Evaluation and Simulation Technology
  - Initiating such as material analysis, simulation of product structure, heat and magnetic fields, and noise measurements and countermeasures to raise product functions.

- Product Design Technology
  - Integrating electronic components to realize high-performance/multiple-function electronic devices and optimum combination modules.
The Impressive TDK Electronic Component Lineup

INTRODUCTION

TDK contributes to society with a wide-ranging electronic component lineup created with core technologies and "Monozukuri power." The list includes passive components indispensable for advanced functions in ICs and other active components; a broad selection of non-optical sensors; the core product of magnets since the Company’s foundation; HDD magnetic heads leading the world; batteries earning global top-class shares for use in mobile devices; and other offerings.

Passive components

We supply a wide range of passive components such as multilayer ceramic chip capacitors (MLCCs), for which over 1,000 units are used in high-end smartphones, inductors, piezo actuators, aluminum electrolytic capacitors, and other items.

Ceramic capacitors

Inductive devices

Piezoelectric material components, circuit protection components

Aluminum electrolytic capacitors, film capacitors

Sensors

TDK fields a top world-ranking array of non-optical sensors. The lineup includes magnetic, temperature, pressure, gas, microphone, gyroscope, acceleration, barometric pressure, ultrasonic, and other sensor types.

Power supplies

Focused on industrial equipment models, the TDK power supply lineup spans AC-DC switching power supplies, DC-DC converters, and storage battery chargers, along with models for use in xEVs as well.

HDD magnetic heads

TDK is the world’s only specialized manufacturer of HDD magnetic heads. Thermal assisted magnetic recording (TAMR) and other cutting-edge technologies play key roles in the continuing quest to expand HDD memory capacity.

Batteries

Rechargeable lithium polymer batteries for smartphones and other smart devices from ATL have earned TDK the world’s leading position in this domain, with the mission to pioneer even more powerful models ongoing.

Magnets

TDK magnets support energy and resource saving and higher efficiency in automobiles, infrastructure, industrial equipment, and other vital sectors.

Fertile resources to address diversified needs

TDK contributes to society with a wide-ranging electronic component lineup created with core technologies and "Monozukuri power." The list includes passive components indispensable for advanced functions in ICs and other active components; a broad selection of non-optical sensors; the core product of magnets since the Company’s foundation; HDD magnetic heads leading the world; batteries earning global top-class shares for use in mobile devices; and other offerings.

Five Core Technologies Contributing to Society

Behind the Scenes

ICT

Automotive

Industrial & Energy
With its founding spirit as an immutable guidepost, TDK will achieve sustained improvement in corporate value.

Under its new Medium-Term Plan, TDK will contribute to a more affluent society through electronics, offering solutions based on Konozukuri (integrated solutions) and realized through Monozukuri (manufacturing excellence).

A never-changing TDK, an ever-changing TDK

About 88 years ago, a black substance was invented; this was the magnetic material ferrite, a product of research conducted by Dr. Yogoro Kato and Dr. Takeshi Takei of the Tokyo Institute of Technology. Tokyo Denki Kagaku Kogyo K.K. (today’s TDK), founded in 1935 by Kenzo Saito, was the first to commercialize this previously unknown material with the development of its so-called “ferrite core.” Since its pioneering application in wireless telecommunications equipment in 1937, the uses of ferrite have expanded to include radio, television, microwave ovens, and more. Ferrite continues to play a role as an essential magnetic material across a wide array of fields, from flat-screen televisions to components in automobiles, as they rely increasingly on electronics. As TDK’s core technologies, materials technology that is derived from ferrite and the process technology that maximizes the properties of materials have brought the world a variety of new products. From ceramic capacitors, to passive components that have continued to evolve through technical refinements, to magnets, they serve as the foundation of the electronics industry to this day. Throughout its long history, the Company has kept its focus on this kind of Monozukuri as the base for a never-changing TDK.

Kenzo Saito continuously took on new challenges, considering his own mission from the perspective of society’s future needs. That management philosophy is reflected in TDK’s corporate mottos, “Contribute to culture and industry through creativity,” and in its corporate principles of “Vision,” “Courage,” and “Trust.” Having inherited this founding spirit, TDK has always been quick to respond to the future needs of society. Starting with the commercialization of ferrite, TDK’s electronic components, along with its four great world-class innovations, have been nurtured by uses beneficial to society, from the cassette tapes that answered the desire to listen to music on-the-go, to multilayer electronic components that even today contribute to more compact electronic devices, to the HDD magnetic heads that supported the explosive expansion in memory capacity.

This ability to continue to anticipate society’s future needs and translate those needs into products through Monozukuri is what has allowed us to transform our product portfolio before our mainstay products enter a decline, leading to our sustainable growth.

To Our Stakeholders
To Our Stakeholders

Self-transformation with an eye on the future

Going into the new millennium, TDK was confident that the spread of mobile phones and smartphones pointed to one trend representing the future needs of society. In 2005, we acquired Amperex Technology Limited (ATL), a manufacturer of rechargeable lithium polymer batteries. In 2008, we made our full-scale entry into the high-frequency components business through our acquisition of EPCOS AG (EPCOS). Taking advantage of our proprietary fine processing, module, and other technologies, we went on to contribute to the global spread of mobile devices. During our previous Medium-Term Plan (from fiscal 2016 to fiscal 2018), these smartphone components continued to deliver strong earnings growth, but by then we had already begun turning our thoughts to the next thing that would represent the future needs of society.

In smartphones, the anticipated start of commercial fifth-generation mobile communications system (5G) services will require components to be more highly integrated and highly functional. These technical requirements will be taken to an even higher dimension in more compact IoT devices. Intelligent components utilizing AI are also developing, going beyond automobiles and industrial equipment to play a role throughout our daily lives, and representing the formation of a new ecosystem for an industry structure built around integrated circuits.

It made sense, then, that TDK should ask how it can provide its customers with timely solutions not by insisting on self-sufficiency, but by comparing and adjusting its technology to that of the semiconductor manufacturers. These factors were behind the management decision to carve out a portion of our high-frequency components business through a joint venture with Qualcomm Incorporated (Qualcomm).

In the two years since I was appointed president in 2016, we have worked to build a new pillar for growth that would replace our high-frequency components; the right path, however, was already in front of us.

Our founding spirit as a guidepost

In an advanced “smart” society created by IoT, where everything around us—from electronic devices to automobiles and production equipment—is connected through the internet and capable of exchanging information and operating autonomously, I believe the potential for electronic components will see limitless expansion. Among those components, sensors are one area in which we are confident TDK can contribute to society by leveraging our core technologies. By taking advantage of our materials technology, we can greatly improve quality and performance, and our process technology, including thin-film and fine processing technologies, will ensure we can respond to advanced requirements for precision.

TDK has been active in pursuing M&A as a means of building a lineup of sensor technologies that offer potential synergies with the magnetic sensors and temperature and pressure sensors it has worked on until now. We have worked to expand our offerings in non-optical sensors, targeting companies that contribute to the development of the MEMS sensor market, which is expected to see enormous growth going forward.

Power electronics is another area we have positioned as a pillar of our business. Society’s shift from fossil fuels to renewable energy, in automobiles and a wide variety of other fields, is expected to quickly accelerate, and the efficient use of energy will become an issue. With rechargeable lithium polymer batteries from ATL, power supplies provided by TDK-Lambda Corporation (TDK-Lambda), and the magnets built into generators and motors, TDK can contribute to resolving these issues across a wide range of fields.

Conventional electronic components were a build-to-order industry, with products developed and manufactured according to customer specifications, and were essentially sold on an individual basis. Today, however, a succession of completely new services, products, and functions are being created that are not simply an extension of existing offerings, and that take advantage of dramatically evolving technology. By, for instance, combining multiple sensors with different functions, a communication module to send the collected data, along with batteries, processing circuits, and software, TDK could offer a solution in the form of a packaged, modularized product, thus greatly expanding its business opportunities. What will require is Kotozukuri that dovetails with a founding spirit that originates in an understanding of society’s future needs.

Under Value Creation 2020, its new Medium-Term Plan covering the period from fiscal 2019 through fiscal 2021, TDK will turn to its founding spirit as a guidepost in offering a timely response to society’s requirements, utilizing Monozukuri to realize solutions based on the Kotozukuri concept—solutions, power solutions, and package solutions—while continuing to follow a cycle that ties Kotozukuri to the further evolution of Monozukuri.

Improving corporate value through the pursuit of three types of value

Under Value Creation 2020, our new Medium-Term Plan, we have broken down corporate value into three components—Commercial Value (execution of growth strategy), Asset Value (improving asset efficiency), and Social Value (enhancing enterprise value)—and have established targets and specific measures for each of these.

The target set for Commercial Value calls for achieving net sales of ¥1.65 trillion in fiscal 2021, or growth of about 30% over fiscal 2018, and a compound annual growth rate (CAGR) of 9%. Regarding Asset Value, we have established a target of operating income ratio above 10% with an ROE of more than 14%. Plans call for capital investments totaling ¥500 billion over three years, the same level as the previous Medium-Term Plan. In terms of operating income, we now see a clear trend toward profit growth in the Passive Components segment, where demand is strong in the automotive and industrial equipment markets, and in the Energy Application Products segment, primarily batteries. The Sensor Application Products segment, which has reached a stage that requires a certain level of development investment in addition to acquisition-related expenses, will also be developed into a business that will contribute to profit during the term of this Medium-Term Plan.

Regarding Asset Value, we have established a

Under Value Creation 2020, its new Medium-Term Plan, we have broken down corporate value into three components—Commercial Value (execution of growth strategy), Asset Value (improving asset efficiency), and Social Value (enhancing enterprise value)—and have established targets and specific measures for each of these.

The target set for Commercial Value calls for achieving net sales of ¥1.65 trillion in fiscal 2021, or growth of about 30% over fiscal 2018, and a compound annual growth rate (CAGR) of 9%.

Regarding Asset Value, we have established a target of operating income ratio above 10% with an ROE of more than 14%. Plans call for capital investments totaling ¥500 billion over three years, the same level as the previous Medium-Term Plan. In terms of operating income, we now see a clear trend toward profit growth in the Passive Components segment, where demand is strong in the automotive and industrial equipment markets, and in the Energy Application Products segment, primarily batteries. The Sensor Application Products segment, which has reached a stage that requires a certain level of development investment in addition to acquisition-related expenses, will also be developed into a business that will contribute to profit during the term of this Medium-Term Plan.
To Our Stakeholders

To enhance the effectiveness of our strategy and increase the likelihood of achieving the Plan’s targets, we will design and manage a logic tree that takes the three types of value down to the level of specific measures for each business and work site. We will place particular emphasis on business speed. The greatest reason ATL enjoys the support of so many customers is its unrivaled ability to respond quickly in the prototype development process and production. That kind of speed is a differentiating component in advancing Kotozukuri and, through enhanced added value and an improved cash conversion cycle, is also a factor affecting profitability. TDK will establish a “First-to-Market product ratio” as a key performance indicator (KPI) and accelerate the business cycle across all of its organizations.

Providing solutions across a wide range of fields

2017 was a year in which we sensed a clear global trend toward electric vehicles. As use of xEV spreads, and in the evolutionary process from there to connected cars and advanced driving assistance systems (ADAS), we believe the role of electronic components will expand further, serving as the interface between IC algorithms and the real world. Further, the trend is toward society-altering, cutting-edge technologies to first be adopted in smartphones, before then being applied to automobiles and industrial equipment, and we sense a similar progression taking place with wireless power supplies, biometric authentication, and other technologies. In batteries, as well as in passive components—where we transferred a portion of our high-frequency components business—we do not plan to intentionally reduce the ratio of products for smartphones. We will continue to take on that market while keeping a close eye on 5G and other future communication standards. With the addition of other fields, including the industrial equipment and energy sector—where innovation, backed by Industry 4.0, is progressing—home appliances, and others, we will offer sensor solutions, power solutions, and package solutions. In the medical sector, we hope to sow the seeds across a wide range of fields in which we have determined we can make a contribution to society.

To do that, all of our organizations—from TDK Group operating companies and sales, our customer contact point, to the front lines of Monozukuri and our R&D sites—will be joined organically and autonomously to create a stream of Kotozukuri architecture. Essential to that effort will be open collaboration with partners having technology that TDK does not, with a particular focus on close cooperation with IC manufacturers.

With Qualcomm, we are now working together on high-frequency solutions across a wide range of areas, including next-generation mobile communications, IoT, and automotive-related fields. We are also engaged in a variety of joint development projects, including sensor reference design. In addition to IC manufacturers, we will work with IoT solution partners, and press forward in cooperating with industries and organizations with which TDK may not have had direct contact in the past.

In May 2018, TDK acquired Faraday Semi LLC (Faraday Sem), a venture company. The company’s Point of Load (POL) power semiconductor µPOL™, among the world’s smallest, has enormous potential as a solution for reducing power supply space, offering greater system functionality, and shortening design time. The power solution realized through the combination of Faraday Sem’s semiconductor with TDK’s SESUB (Semiconductor Embedded Substrate) packaging technology is one such example. We are also first in the world to begin mass production of a rechargeable solid-state battery. Taking advantage of this so-called “battery componentization,” enabling a complete solution on the substrate, we plan to seek its potential across all types of IoT devices.  

Achieving growth across all segments

1. Passive Components

We will target a CAGR of 7%. We will offer customized, optimal solutions in GPUs, CPUs, power supplies, interfaces, and a broad range of other areas, pursuing the high reliability and large capacity required in automobiles. For smartphones, we will achieve growth centered on ceramic passive components. We will expand applications for and our customer base in other fields as well, with the goal of achieving stable growth.

2. Sensor Application Products

In anticipation of reaching $200 billion in net sales, our plans call for steady growth in sensors for automobiles and for expanding sensors for consumer products, achieving major growth with a target CAGR of 35%. Through M&A activity since 2016, TDK has acquired a world-class arsenal of technology in non-optical sensors, including temperature and pressure sensors, magnetic sensors, and MEMS sensors. This will allow for a growth rate of about 10% per year as we focus our target on the entire non-optical sensor market, which is expected to grow to US$12 billion by 2021.

We will steadily expand sales of automotive sensors through organic growth. TDK is currently considering development of a sensor that offers redundancy, combining tunnel magnetoresistance (TMR) sensors that apply HDD magnetic head technology cultivated by TDK with Hall sensors. In addition, since the temperature and pressure sensors installed in gas-powered vehicles will also be needed in xEVs, we expect demand to continue growing.

We will also expand applications for automotive use, including acceleration sensors, gyroscope sensors, TOF sensors, and other MEMS sensors.

We anticipate enormous growth in sensors for consumer products, exceeding that for automotive sensors. In the magnetic sensor field, progress is being made in replacing them with TMR sensors, which feature high accuracy and low power consumption. We will also move forward with development of new applications for microphones, ultrasonic sensors, and other MEMS sensors for use in smart speakers, fingerprint authentication, and other areas.

3. Magnetic Application Products

Rather than assuming any great growth in HDD magnetic heads, our policy is to grow sales of power-related magnetic products, including magnets, while ensuring a CAGR of 2%. By providing technology to meet the needs of the high capacity storage age, we will contribute to the HDD industry as the only manufacturer specializing in HDD magnetic heads. We will also attempt to apply HDD suspension technology from Hutchinson Technology Incorporated (Hutchinson) to areas such as the ICT market and medical field. Profitability in magnets has improved, with losses halved in fiscal 2018, and during the current medium-term, we plan to shift toward a structure that can generate profit.

One particularly promising area is magnets for in-vehicle motors. Leveraging our core technology to realize innovations in configuration and performance, we hope to contribute to maximizing motor and generator efficiency.
To Our Stakeholders

4. Energy Application Products

Here, we will aim for stable growth with a CAGR of 8%. Rather than assuming major growth in batteries for smartphones, we will move forward with a horizontal deployment of ATL’s “First-to-Market” success model by expanding our applications and customer base. We will also push to develop the small cell market, including wearable devices, while also developing the market for use in more high-powered devices such as e-scooters, automated guided vehicles (AGVs), drones, and others. In power supply products, our efforts will center on TDK-Lambda, providing customized power supply solutions for medical devices, robotics, and other uses through vertical integration from materials to finished products. In automotive power supply, we will pursue smaller, lighter, and more highly efficient products while offering solutions through redundant, reliable design with an eye toward the full-scale expansion of the xEV market.

Areas where refinements should continue for sustainable growth

TDK has worked to strengthen its ability to develop its own candidates for acquisition while gaining insight into each company’s technology and corporate culture. Rather than adapting these companies to TDK’s way of doing things following an acquisition, we have engaged in different approaches and cultures, handing them leadership over their own businesses. Cultivating the strength of diversity by allowing our varied human resources to maximize the potential of their individual capabilities has become the driver of nonlinear self-transformation.

Pushing forward with Kotozukuri will require bringing the approximately 140 companies of the TDK Group together, heading in the same direction even as we reinforce the dynamism of diversity. While progress is already being made toward collaboration among Group companies in a variety of areas, including product development and quality control, we intend to introduce cross-functional cooperation as a means of further strengthening these organic linkages. As part of that effort, Andreas Keller, our general manager of the Human Resources HQ, is building a global human resource system. Going forward, enhancing the mobility of our human resources globally will help further reinforce our base for long-term sustainable growth.

As the globalization of TDK has progressed further through M&A in recent years, diversity management has become an important issue. This is why, under the Human Resources HQ, we are pushing ahead with programs to discover and foster outstanding human resources worldwide to serve as management candidates. With more than 90% of our personnel consisting of non-Japanese employees, we believe HQ functions do not necessarily need to be located in Japan, or led by Japanese managers.

We also will not compromise when it comes to refining Monozukuri, the foundation of our sustainable growth. In the automotive field, where TDK hopes to continue expanding its business, a single incidence of a product defect that leads to the loss of human life could threaten our very survival as a company. This is why we continue to press forward with Monozukuri Innovation, which combines Industry 4.0 concepts with a zero-defect approach to quality. For the past several years, our factories in Akita Prefecture, where TDK was founded, have engaged in Monozukuri activities based on our concept of Arubeki Sugata (ideal process). At its most basic, the Arubeki Sugata behind improved reliability should involve preventing defects during the production process, rather than the conventional approach of sifting out defective products. With this in mind, we are undertaking a fundamental review of Monozukuri. We have already completed and are working to test a model line that prevents defects before they happen, by ensuring optimal coordination between robots and human workers, using sensors to monitor every step of the production process, and detecting signs of potentially defective products. In the common language of TDK, this activity has become known as Arubeki Sugata, and is being utilized in front-line improvements at our sites around the world.

The aspirations embodied in Social Value

I would like to close by talking about my aspirations for Social Value, the last of the three types of value highlighted in our new Medium-Term Plan. When I joined TDK 36 years ago, our business in the automotive industry involved only very limited fields, such as car radios. Today, though, we have entered an era in which automobiles cannot move without electronics. The things that electronic components can do to benefit society will likely expand even further going forward. Advanced technology is not merely for the select few. It can contribute to resolving issues in ultra-aging society, and can enrich the lives of even society’s most vulnerable. Even further going forward, technology also has the power to solve issues on a global scale, including tightened energy supply and demand and global warming. Sustainable development goals (SDGs) and other worldwide trends emphasize that profit is not the goal, but the result of contributions to society. Social Value embodies my determination to return us to our founding spirit, which has something in common with this concept.

The road we are to follow will not necessarily be an easy one. A variety of competition exists in growth markets, and the megatrends bringing major changes to the structure of industry make it impossible to clearly foresee the future of our business environment. Still, encouraged by the beliefs of our founder, we will not be led astray by these uncertainties, and will continue moving forward with our corporate motto “Contribute to culture and industry through creativity.”

October 2018

President & CEO
Management Strategies:
Guided by Its Unchanging Founding Spirit, TDK Continues to March On

An Ever-Changing TDK

Automotive
Pursuing automotive quality in reliability and energy efficiency, TDK will contribute to the electrification of automobiles and the popularization of EVs.

ICT
Targeting the fifth-generation mobile communications system (5G) and beyond, TDK will provide solutions including increased component miniaturization and space saving and high-efficiency electric power management.

Industrial & Energy
Working to supply answers true to the concept of Konzakuri (integrated solutions), TDK will contribute to the solution of social issues linked to industrial equipment and energy sectors.

Infinite Possibilities
By no means limited to the “Automotive,” “ICT,” and “Industrial & Energy” markets, TDK will steadily expand the infinite possibilities of electronic components to a diverse range of domains.
World shares of main products (TDK research)

### Passive Components

**Capacitors**
- Soft-termination multilayer ceramic chip capacitors, aluminum electrolytic capacitors, etc.

**Inductive devices**
- SMD inductors with guaranteed high temperature ratings, common mode filters for automotive-use LAN, etc.

**Other passive components**
- Piezo actuators

#### Capacitors
- 3-terminal feed-through capacitors, etc.

#### Inductive devices
- SMD inductors, thin-film common-mode filters, etc.

#### Other passive components
- Ceramic high-frequency components, VCML/OISs, multilayer chip varistors, etc.

#### Capacitors
- Film capacitors, aluminum electrolytic capacitors, etc.

#### Inductive devices
- Transformers, EMC filters, etc.

#### Other passive components
- Varistors, arresters, etc.

#### Capacitors
- Ceramic capacitors for automobiles

#### Inductive devices
- Inductors

#### Other passive components
- Ceramic high-frequency components
- Varistors
- Gas arresters

### Sensor Application Products

**Sensors**
- Sensors (gear tooth, pressure, angle, current, temperature, etc.)

**Inductive devices**
- Sensors (barometric pressure, gyroscope, acceleration, MEMS microphone, etc.)

**Other passive components**
- Sensors (pressure, gyroscope, acceleration, current, etc.)

#### Capacitors
- Temperature sensors (NTC thermistors)

#### Other sensors: Currently undisclosed

### Magnetic Application Products

**Magnets**
- Magnets for motors (cooling fan, door lock), magnets for xEV drive motors, etc.

**Recording devices**
- HDD magnetic heads, HDD suspensions, etc.

**Other passive components**
- Magnets for industrial equipment, etc.

#### Magnetic heads:
- Seagate Technology (USA), Western Digital Technologies (USA)

#### HDD suspensions:
- NHK SPRING, etc.

#### Magnets:
- Shin-Etsu Chemical, Hitachi Metals, ZHONG KE SAN HUAN (China), etc.

### Energy Application Products

**Power supplies**
- DC-DC converters, on-board chargers

**Energy devices**
- Rechargeable lithium polymer batteries (for smartphones, tablet devices, notebook computers, wearable devices, game consoles)

**Power supplies**
- High current digital PDL converters

#### Energy devices
- Rechargeable lithium polymer batteries (for drones, AGVs)

#### Power supplies
- Bidirectional DC-DC converters, AC-DC power modules

#### Energy devices
- Rechargeable lithium polymer batteries

#### Power supplies
- Power supplies for industrial equipment

### Competitors

**Capacitors:** Murata Manufacturing, TAIYO YUDEN, SEMCO (Korea), Yageo (Taiwan), etc.

**Inductive devices:** Murata Manufacturing, TAIYO YUDEN, SEMCO (Korea), Cyntec (Taiwan), etc.

**Other passive components:** Murata Manufacturing, ALPS ELECTRIC, Panasonic, AMOTEC (Korea), etc.

**Sensors:** Murata Manufacturing, ALPS ELECTRIC, TAIYO YUDEN, Bosch (Germany), STMicroelectronics (Switzerland), Infineon (Germany), Asahi Kasei Microdevices, Allegro (USA), Shibaura Electronics, etc.

**Magnets:** Shin-Etsu Chemical, Hitachi Metals, ZHONG KE SAN HUAN (China), etc.

**Energy devices:** Samsung SDI (Korea), LG Chemical (Korea), Murata Manufacturing, Panasonic, Maxell, etc.

**Power supplies:** XP Power (Singapore), MEAN WELL (Taiwan), Delta Electronics (Taiwan), Cosel, etc.

**HDD magnetic heads:** Seagate Technology (USA), Western Digital Technologies (USA)

**HDD suspensions:** NHK SPRING, etc.

**Magnets:** Shin-Etsu Chemical, Hitachi Metals, ZHONG KE SAN HUAN (China), etc.

*TDK is the world’s only specialized manufacturer of HDD magnetic heads. HDD magnetic head production is currently concentrated at three companies—TDK, Seagate Technology, and Western Digital Technologies.*
Management Strategies Guided by Its Unchanging Founding Spirit, TDK Continues to March On

Summary of the Previous Medium-Term Plan

Through fiscal 2015
Sowing seeds to grow with the expanding smartphone market

In 2005, TDK acquired ATL of Hong Kong, an entity possessing original technology in rechargeable lithium polymer batteries. Purchased in 2008 was EPCOS, which used competence in high-frequency components and modules technologies to forge a powerful presence in European automobile and industrial equipment markets. Combining their technologies with our own expertise in components and production technologies, we strategically moved to tap into the expanding markets for cellphones, smartphones, and other products.

Promoting large-scale structural reform

The swift decline with the global financial crisis triggered by the September 2008 collapse of Lehman Brothers, the Great East Japan Earthquake of 2011, flooding in Thailand, appreciation of the Japanese yen to peak at ¥75 to the US dollar, and other developments harshly impacted our business environment. Moving to shore up its earnings framework, TDK advanced sweeping structural reforms from fiscal 2012. This included withdrawal from recording media and other non-core businesses, concentrating management resources in core units, consolidation of domestic and overseas business sites, optimizing personnel and business sites, and other strategies. Our performance figures shifted into a rapid recovery mode from fiscal 2013.

Structural reforms to bolster integrated production

In Japan, we closed aging passive component manufacturing bases and concentrated business sites while adopting in-house production processes previously outsourced to collaborating plants. Overseas, we acted to simplify complex supply chains. These initiatives, focused on restoring Monozukuri power through “integrated production,” proved potent not only in lowering the group’s fixed costs, but also in cutting lead time and distribution costs. This laid the foundation for today’s Monozukuri Innovation concept known as Arubeki Sugata (ideal process).

New strategic positioning to meet the next stage of social needs

Against the backdrop of redoubled demand for customization and modularization in the smartphone market, needs have grown for coordination of the various electronic components mounted in those products. To constantly supply customers with optimum solutions, TDK accurately predicted market needs and focused M&A as a means to field a wide-ranging arsenal of technology to be ready for the next stage of evolution.

Fiscal 2016 to fiscal 2018
Harvesting and fruits of structural reform

Reviewing the results of the previous Medium-Term Plan (fiscal 2016 to fiscal 2018), sales set all-time record highs each term, with structural reforms proving effective in strengthening the earnings structure and operating income also gaining ground. TDK cultivated ATL’s rechargeable lithium polymer batteries and EPCOS’s high-frequency components, riding the tailwind of the global expansion of the smartphone market. This stance was accompanied by solid efforts to address demands for component miniaturization and modularization to keep pace with the steady move to higher smartphone function, polishing our underlying technology to be ready for the next stage of evolution.

Smartphone market trends (unit shipments)

<table>
<thead>
<tr>
<th>Year</th>
<th>Feature phones</th>
<th>Smartphones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>100 million</td>
<td>100 million</td>
</tr>
<tr>
<td>2014</td>
<td>90 million</td>
<td>100 million</td>
</tr>
<tr>
<td>2015</td>
<td>100 million</td>
<td>100 million</td>
</tr>
<tr>
<td>2016</td>
<td>110 million</td>
<td>100 million</td>
</tr>
<tr>
<td>2017</td>
<td>90 million</td>
<td>100 million</td>
</tr>
</tbody>
</table>

Operating income ratio

<table>
<thead>
<tr>
<th>Year</th>
<th>Operating income ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/3</td>
<td>2.6%</td>
</tr>
<tr>
<td>2018/3</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

Sales to the automotive market

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales (¥ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/3</td>
<td>142.7</td>
</tr>
<tr>
<td>2018/3</td>
<td>231.4</td>
</tr>
</tbody>
</table>

Growth investment targeting the future

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Capital expenditures (¥ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal 2015</td>
<td>188.0</td>
</tr>
<tr>
<td>Fiscal 2016</td>
<td>256.7</td>
</tr>
<tr>
<td>Fiscal 2017</td>
<td>506.9</td>
</tr>
</tbody>
</table>

2018
M&A

- Micronas
- Hall sensors
- Hutchinson
- H2O suspensions
- Tronics
- MEMS inertial sensors

2017

ICsense

ASIC design and development

InvenSense

Acceleration sensors, gyroscope sensors

2015

EPCOS

Full lineup of electronic components, modules, and systems

Lambda Power Group

Power supplies for industrial equipment

EPCOS

HDD suspensions

2008

EPCOS

Full lineup of electronic components, modules, and systems

Riding the tailwind of the global smartphone boom, EPCOS high-frequency components have been a pivotal driving force behind the growth of TDK revenues.

Structural reform

<table>
<thead>
<tr>
<th>Year</th>
<th>Business portfolio slimming</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Withdrawal from organic EL displays, Linear Tape-Open (LTO), Blu-ray, and other non-core businesses</td>
</tr>
<tr>
<td></td>
<td>Product-specific reassessment</td>
</tr>
<tr>
<td></td>
<td>Groupwide business efficiency improvements</td>
</tr>
<tr>
<td></td>
<td>Promotion of domestic and overseas business site consolidation</td>
</tr>
<tr>
<td></td>
<td>Sales of idle properties</td>
</tr>
<tr>
<td></td>
<td>Optimization of personnel and business sites</td>
</tr>
<tr>
<td></td>
<td>Simplification of organization and business processes</td>
</tr>
<tr>
<td></td>
<td>Management resource concentration in growth sectors and core businesses</td>
</tr>
<tr>
<td></td>
<td>Expansion of the thin-film components business utilizing magnetic and magnetic head technologies</td>
</tr>
<tr>
<td></td>
<td>Strengthening of core technologies such as materials and process technologies, development of micro-size, high-function passive components</td>
</tr>
</tbody>
</table>

2005

ATL

Rechargeable lithium polymer batteries

With its acquisition of ATL, TDK emerged as one of the leading corporate forces in the production of rechargeable lithium polymer batteries for use in smartphones and other mobile devices.

2007

Magnavox

HDD suspensions

2008

EPCOS

Full lineup of electronic components, modules, and systems

In Japan, we closed aging passive component manufacturing bases and concentrated business sites while adopting in-house production processes previously outsourced to collaborating plants. Overseas, we acted to simplify complex supply chains.

Enhanced integrated production

- Manufacturing base closings and business site concentration
- Shift to in-house production processes
- Fine tuning of supply chains

Strategic alliances

- EPCOS
- ATL

In 2005, TDK acquired ATL of Hong Kong, an entity possessing original technology in rechargeable lithium polymer batteries. Purchased in 2008 was EPCOS, which used competence in high-frequency components and modules technologies to forge a powerful presence in European automobile and industrial equipment markets. Combining their technologies with our own expertise in components and production technologies, we strategically moved to tap into the expanding markets for cellphones, smartphones, and other products.

TDK Corporation
Management Environment

Within the Automotive, ICT, and Industrial & Energy markets targeted by TDK, major structural changes are unfolding to reflect today’s technological evolution. This trend is also instrumental in boosting innovation in terms of Industry 4.0 and other forms of Monozukuri.

**Market Environment**

<table>
<thead>
<tr>
<th>Automotive</th>
<th>ICT</th>
<th>Industrial &amp; Energy</th>
<th>Monozukuri</th>
<th>ESG</th>
</tr>
</thead>
</table>

- **Increased on-board use of electronic components powered by the evolution in advanced driving assistance systems (ADAS) and autonomous driving**
- **Full-fledged surge in the xEV market**
- **Greater demand for safety designs in vehicle components**
- **Slowed growth in markets of developed nations**
- **Expanding demand in India and other emerging markets**
- **Advances toward slimming and multiple higher functions in mobile terminals**
- **Expanding modularization demands**
- **Commercialization of fifth-generation mobile communications system (5G)**
- **Expansion of “smart cities” in which “smart grids” (next-generation power distribution network) being built in various regions serve as energy infrastructure**
- **Growing demand for wind power generation, solar power generation, and other renewable energy**
- **Rising need for improved power generation efficiency**
- **“Industry 4.0” and other production innovations utilizing cutting-edge technologies such as the IoT**
- **Growing need for increased quality with increased mounting of electronic components in automobiles, medical devices, and other domains demanding high reliability**
- **Surging labor costs in China**
- **Projections for a steady decrease in Japan’s working-age population**
- **Heightened role of companies in achieving sustainable development goals (SDGs)**
- **Expanding interest in environmental, social, and governance (ESG) investment**

---

**Megatrend 1**

**Full-fledged surge in the xEV market**

With tightened environmental regulations in major countries, the shift to xEV by major manufacturers, entries into the market by newly emerging makers, and lower costs sparked by technological advances and increased volume, the move toward electric vehicles is set to become irreversible. This trend is forecast to increase demand for passive components, sensors, on-board power supplies, motor-use magnets, and other components.

**Spread of electric vehicles (HV, PHEV, EV)**

- **xEV unit expansion**
- **Component unit expansion**

**Megatrend 2**

**Dawning of the one-trillion-sensor age**

Sensor demand in the IoT society, in which all things will come to be linked on the Internet, is estimated at several trillion units.

**Forecast of worldwide demand for rechargeable batteries (non-ICT market)**

- **Approx. 2.999 billion units in 2016**
- **Increase of approx. 49%**

**Megatrend 3**

**Expanding demand for safer and highly efficient rechargeable batteries**

The IoT age is forecast to generate demand for safer, smaller, and thinner batteries.

**Forecast of worldwide demand for rechargeable batteries (non-ICT market)**

- **Approx. 4.470 billion units in 2025**

---

**Megatrend 4**

**Evolution of IC-focused ecosystems**

Along with the electrification of automobiles, higher functions in smart devices, and the move to smarter capacity in various areas, the evolution of industrial ecosystems is advancing with the focus on semiconductor manufacturers as enterprises shouldering the burden of those core functions.
Medium-Term Plan “Value Creation 2020”

Working from the future-focused growth foundation developed to date as a solid foothold, TDK has unveiled its newest three-year Medium-Term Plan, set to run from fiscal 2019 through fiscal 2021. This vision has been launched with the aim of forging sustainable improvements in corporate value.

Based on the new Medium-Term Plan “Value Creation 2020,” TDK is aiming to generate three types of “value” aimed at raising its corporate worth—Commercial Value (execution of growth strategy), Asset Value (improving asset efficiency), and Social Value (enhancing enterprise value)—while serving society and growing its business in the wake of that progress. Toward this end, the essential focus will be firmly placed on the electronic components business that has excelled as the cornerstone of TDK growth since its foundation, while vigorously advancing collaboration with IC manufacturers and IoT solution partners as well. By combining the solutions stemming from the concept of Kotozukuri (integrated solutions) with our traditional Monozukuri (manufacturing excellence), we will supply the values sought by our customers.

Commercial Value
Management targets in the medium term: Sales by segment

<table>
<thead>
<tr>
<th>Net sales</th>
<th>CAGR by segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue (fiscal 2018): ¥1,271.7 billion</td>
<td>Passive Components: 7%</td>
</tr>
<tr>
<td>Target (fiscal 2021): ¥1,650.0 billion</td>
<td>Sensor Application Products: 35%</td>
</tr>
<tr>
<td>CAGR: 9%</td>
<td>Magnetic Application Products: 2%</td>
</tr>
<tr>
<td></td>
<td>Energy Application Products: 8%</td>
</tr>
</tbody>
</table>

Well-balanced capital allocation
• Growth investments
• Shareholder returns
• Repayment of interest-bearing debt

Asset Value
Medium-term financial strategy

- To execute growth strategies and promote the improvement of our financial condition, we aim to achieve positive free cash flow while executing well-balanced capital allocation to investments, shareholder returns, and the reduction of interest-bearing debts.
- Aiming for the steady recovery of previous investments
- Pursuing the enhancement of Companywide asset efficiency
- Steadily recover growth investments executed toward transforming business earnings structure
- Execute further growth investments based on a well-balanced capital allocation

Negative free cash flow
Positive free cash flow

Social Value
Aiming for a sustainable society and enterprise

- TDK will realize greater happiness and well-being in society through cutting-edge technologies
- TDK will effectively utilize finite resources
- TDK will be a global and diversified enterprise
Message from the Corporate Officer of Corporate Planning

Seiji Osaka
General Manager of the Corporate Strategy HQ
Executive Vice President
Director

Integrating the TDK Group’s diverse management resources in an autonomous and organic manner and contributing to the innovative society unfolding before us

Key points of Value Creation 2020

Autonomous and organic integration of management resources

Ever since its foundation, TDK has cherished its corporate motto of “Contribute to culture and industry through creativity.” On the basis of ferrite, we have developed various material and component technologies. Even after eight decades, this great ferrite tree continues to grow. In addition, to respond to the requirements of customers, rather than always going it alone, we have cooperated with partners around the world and boldly engaged in mergers and acquisitions so as to obtain the technologies and management resources required.

In the previous Medium-Term Plan period, because the smartphone market was growing rapidly and the demand for modularization further increasing, we carved out part of our high-frequency components business to establish a joint enterprise with Qualcomm and embarked in technical cooperation with them.

In our new Medium-Term Plan, Value Creation 2020, our main vision is to seize business opportunities in the xEV and IoT markets through a combination of Kotosukuri (integrated solutions) in cooperation with IC makers and a wide range of other partners and Monozukuri (manufacturing excellence) using TDK’s own outstanding material and process technologies. TDK has the most wide-ranging product and technology portfolio in the electronic components industry. In the automotive field, for example, we have various passive components for autonomous driving and electric vehicles, as well as magnetic application products such as magnets used in motors, DC-DC converters, and on-board chargers and other energy application products. As well through aggressive M&As in recent years, we have built an impressive lineup of sensor application products. TDK’s wide-ranging component technologies will also be essential in continuing technological evolutions such as the IoT, fifth-generation mobile communications system (5G), and renewable energy.

Furthermore, TDK’s management resources, including our outstanding human resources, extend around the globe. The key point of Value Creation 2020 is to autonomously and organically integrate these resources and create a single mighty force that can supply timely solutions to customers.

Logic tree toward the realization of Value Creation 2020

All measures linked in consideration of each business’s characteristics

TDK has 4 business companies, 20 business groups, and numerous cash-flow business units. Each unit has a leader with responsibility for invested capital and profit/loss and a team consisting of professional human resources. We have built a logic tree of management strategy so as to autonomously and organically integrate these units and realize our Medium-Term Plan. There are common reasons for the success of competitive products, such as passive components, rechargeable lithium polymer batteries, and HDD magnetic heads. These include the fostering of distinctive core technologies, which are essential for business growth, the setting of strategic applications, the identification of priority customers and value-chain partners, the building of a roadmap for product design; and efforts to synchronize product design and the manufacturing process in the best possible way. Since market structures and competition factors differ by product and strategic business, the structure of the strategic logic tree will also differ for each business. We established Value Creation 2020 after clarifying the direction of growth for each business (priority markets and technology differentiation) and repeating the task of checking whether all work was being properly conducted in line with this direction. We will share specific visions and key performance indicators among the teams as a whole and link their work so as to steadily realize our targets.

Logic tree of management strategy

“Value Creation 2020”
Leap to new heights by providing market-needed solutions based on our electronic components business

Aiming to be a company that will continue to grow even after 100 years

It is said that when a company gets bigger, cracks begin to appear. TDK has grown into an enterprise with net sales of more than ¥1 trillion, but we will continue to cherish the corporate principles proclaimed at the time of our founding in 1935 of “Vision,” “Courage,” and “Trust.” Throughout TDK’s history of eight decades, while constantly innovating our core businesses, we have maintained a venture spirit with our multilateral businesses and global human resources acquired through M&As and more, creating a positive chemical reaction. Our aim is to be a company that is aware of the future affluent society awaiting the electronic components business, directly confronts the challenges of diverse customers, difficult technologies, and fierce competition, and will continue to grow and evolve even after 100 years. We have encapsulated these feelings in the words “Attracting Tomorrow,” which we are using as a communication message to our stakeholders.

* Attracting Tomorrow: TDK created this communication message in 2015, when the Company marked its 80th anniversary. It implies an attitude of making deliberate efforts continue to attract the future, rather than just waiting for the future to come.
Building a foothold for the next stage based on support from existing businesses

In fiscal 2018, using funds obtained from the partial transfer of its high-frequency components business, TDK made efforts to change its business portfolio through M&As, mainly involving sensor companies, and also implemented aggressive capital investment toward the further growth of existing businesses. Although TDK recorded losses due to the transfer of its high-frequency components business, net sales registered a record high for the fifth consecutive term. Operating income declined 59.0% from fiscal 2017 to ¥85.6 billion. However, when temporary profits and losses, including ¥144.4 billion in transfer gains and ¥21.2 billion in structural reform expenses included in the previous term’s operating income are subtracted, the figure still came to ¥85.5 billion, showing that the operating income in fiscal 2018 was actually up over the previous term. Registering a real increase in operating income mainly through our existing businesses, even when ¥10.9 billion spent on the acquisition of InvenSense, was a major achievement.

However, our return on equity (ROE) and operating income ratio were only 7.8% and 6.7%, respectively, so the improvement of earning capacity is another important theme. The basic policy of our financial and capital strategy is to aim to put our free cash flow in the black, because of achieving a sound financial condition is another important theme. The basic policy of our financial and capital strategy is to aim to put our free cash flow in the black, by channeling cash equally to investments, shareholder returns, and the reduction of interest-bearing debts. For this purpose, it is important to improve the capital efficiency of TDK as a whole. That is the reason why we identified financial and capital strategy as our Asset Value, one of the three components in improving corporate value, in Value Creation 2020.

Reaping the benefits of completed investment and aggressively implementing growth investment

In fiscal 2018, cash outflow took precedence with a view to the next Medium-Term Plan. As well as establishing a foothold for medium-term business growth and reaping the benefits of investments made so far, it is necessary for us to continue aggressively implementing growth investment so as to respond to vigorous demand. Achieving a sound financial condition is another important theme. The basic policy of our financial and capital strategy is to aim to put our free cash flow in the black by channeling cash equally to investments, shareholder returns, and the reduction of interest-bearing debts. For this purpose, it is important to improve the capital efficiency of TDK as a whole. That is the reason why we identified financial and capital strategy as our Asset Value, one of the three components in improving corporate value, in Value Creation 2020.

Building a framework by which front line policies lead to improvements in capital efficiency

Our aim is to steadily execute measures through the operation of a logic tree connecting key performance indicators in business operations—such as earning capacity and cash acquisition capability, based on the TDK Value Added (TVA) indicator comparing earnings to cost of capital (weighted average cost of capital multiplied by invested capital). We will endeavor to improve the asset efficiency of TDK as a whole by not only raising business efficiency but also accelerating the entire business cycle by sales and marketing, development, manufacturing, and headquarters functions. Our aim is to steadily execute measures through the operation of a logic tree connecting key performance indicators in business operations—such as earning capacity and cash acquisition capability, based on the TDK Value Added (TVA) indicator comparing earnings to cost of capital (weighted average cost of capital multiplied by invested capital). We will endeavor to improve the asset efficiency of TDK as a whole by not only raising business efficiency but also accelerating the entire business cycle by sales and marketing, development, manufacturing, and headquarters functions.

Financial and operation logic tree

Build a framework by which front line policies lead to improvements in capital efficiency

Pursuit of Asset Value

Enhancing efficiency in all business activities as well as investment

Of the capital investment of about ¥500 billion, we expect to channel about 40% to the bolstering of production capacity to meet the increased quantitative demand for batteries. Our plan is to have the most investment in the first fiscal year of the plan and then gradually reduce the amount in the second and third years. In the case of batteries, investment has run ahead in recent years, but at last this sector is beginning to generate a positive free cash flow. About 30% of the remaining capital investment will go to passive components and about 20% to other businesses, including magnets. Regarding M&As, we will implement small-scale investments to supplement necessary technologies so as to respond to needs, but since we have established a foothold for business growth, we do not expect any large-scale investments. With regard to investments, we will endeavor to pursue efficiency more than ever before. Our policy is to further strengthen investment appraisal, such as earning capacity and cash acquisition capability, based on the TDK Value Added (TVA) indicator comparing earnings to cost of capital (weighted average cost of capital multiplied by invested capital).
Executing Growth Strategies

TDK is targeting consolidated net sales of ¥1.650 billion in its new Medium-Term Plan. In order to achieve this goal, we are leveraging our advanced materials and process technologies and our product lineup of sophisticated electronic components to offer Kotozukuri solutions that solve the true needs of society in a timely manner.

Potential Growing xEV Market

The category of xEV (which includes HEVs, PHEVs, and EVs) is poised to experience explosive growth on a global scale. The spread of advanced driving assistance systems (ADAS) is progressing, and the race toward practical implementation of autonomous driving is heating up. As a result of these developments, electronic components for use in xEV must possess the following qualities.

1. Reliability
   Because the malfunction or breakdown of an automotive component can lead to serious accidents with loss of life, the ratio of defective parts must be resolutely driven toward zero, and redundancy must be built in to guard against failure. This means that all components used in systems for automotive use must meet stringent performance requirements. When used in combustion engines or electric motors as well as in other parts of the power train, high heat resistance and vibration resistance are absolutely essential.

2. Light weight and high efficiency
   In order to realize low power consumption, electronic components must become smaller, lighter, and more efficient.

3. Suitable for realizing new driving experiences
   Electronic control, networking, and other techniques not only serve to achieve more convenience and higher levels of operability but are also expected to enable new kinds of driving experiences.

Improved energy efficiency

Key aspects for widespread acceptance of xEVs are improved fuel economy and lower charging costs. TDK has successfully introduced more compact and efficient DC-DC converters and power supply units for on-board chargers. Neodymium magnets from TDK contribute to make drive motors more efficient, and its TMR sensors enable more precise control for further enhanced efficiency. Through a variety of products, we are helping realize more energy-efficient driving.

Linking the algorithms of IC manufacturers to the real world

Engine control units (ECUs) for use in cars often incorporate a GPU for handling three-dimensional image data as well as chips to process various information. Passive components serve to link such microprocessors to real-world conditions. In close cooperation with IC manufacturers, we are heightening demand for ECUs.

Number of ECUs

For power train, body, safety, multimedia applications, etc.

Between 10 to as many as 50

In total, the electric and electronic equipment in a car is made up of as many as twenty to thirty thousand individual components, including some 3,000 or more multilayer ceramic chip capacitors.

Solution

What TDK delivers

Meeting specific automotive needs

Since entering the field of automotive electronic components, TDK has accumulated extensive know-how that enables it to provide products and solutions that are optimally suited to the requirements of xEVs.

Reliability

Pursuit of high-quality automotive components

Electronic components for use in automobiles are critical for safety. To withstand the extreme environmental conditions in which they must operate, passive components such as multilayer ceramic chip capacitors (MLCCs) and inductors as well as all other components need to be highly resistant to vibrations and shocks and possess high levels of heat and humidity resistance. TDK is currently engaged in Monozukuri Innovation aimed at achieving zero-defect quality.

Improved energy efficiency

Key aspects for widespread acceptance of xEVs are improved fuel economy and lower charging costs. TDK has successfully introduced more compact and efficient DC-DC converters and power supply units for on-board chargers. Neodymium magnets from TDK contribute to make drive motors more efficient, and its TMR sensors enable more precise control for further enhanced efficiency. Through a variety of products, we are helping realize more energy-efficient driving.

Linking the algorithms of IC manufacturers to the real world

Engine control units (ECUs) for use in cars often incorporate a GPU for handling three-dimensional image data as well as chips to process various information. Passive components serve to link such microprocessors to real-world conditions. In close cooperation with IC manufacturers, we are heightening demand for ECUs.
Sensors made possible by higher accuracy of materials technology

Modern automobiles employ a large number of TDK sensors for power train, body, safety, and communication applications. Development of such high-performance sensors was made possible by improving the accuracy of our materials technology. Enhanced safety, increased driving comfort, better fuel economy, and reduced power consumption are the result. Advanced driving assistance systems (ADAS) rely on sophisticated sensing technology to provide accurate information about the vehicle as well as its surroundings.

Enhanced safety, increased driving comfort, better fuel economy, and reduced power consumption are the result. Advanced driving assistance systems (ADAS) rely on sophisticated sensing technology to provide accurate information about the vehicle as well as its surroundings.

The industry’s largest lineup of non-optical sensors

Wireless power transfer

In addition to the electromagnetic induction method that is increasingly found in practical applications, TDK is working on systems for transferring power to moving objects using the magnetic resonance method. We understood the potential of this approach at an early stage and are promoting development aimed at practical realization. Once wireless power transfer has become a reality, making it possible, for example, to safely recharge an eVTOL by simply parking it on a designated space, significant changes in industrial and social infrastructure are bound to happen.

Haptics

Harnessing haptic technology that utilizes vibrations has enabled us to create the PiezoHapt™ actuator and PowerHap™ products with extremely fast response times. This will prove useful for navigation system displays, console switches, and other automotive applications. In the future, we intend to expand the product range to growth markets including home appliances and electronic equipment, robots and industrial equipment, medical devices, and more.

Capturing demand stimulated by 5G

We are actively engaged in further advancing the state of the art in a range of fields. This includes ceramic filters and other ceramic electronic components, the development of packaged modules in technical cooperation with IC manufacturers, and rechargeable lithium polymer batteries. We also expect IoT devices to further evolve toward smaller footprints, lower profiles, and higher integration. TDK’s involvement in this area is exemplified by its semiconductor embedded substrate (SESUB) technology, which enables the creation of highly competitive modules with small size and low profile. The next generation of electronic components and modules is currently being created in our labs. SESUB technology

Rather than simply mounting chips on a substrate, this unique technology enables three-dimensional embedding of chips whose thickness has been reduced to as little as 100 μm directly in the substrate. Ultra-compact power supply modules as well as Bluetooth and other similar modules created with this technology contribute to even thinner and smaller mobile devices. Further advances in integration density and application to a wide range of IoT devices are on the cards.

Advanced technology first implemented in smartphones tends to migrate to the automotive sector and other applications as well. While closely watching progress in the area of 5G and subsequent communication standards, TDK continues to push the technological boundaries in the ICT market.

Solution

Realizing smaller dimensions and higher performance

Advanced technology first implemented in smartphones tends to migrate to the automotive sector and other applications as well. While closely watching progress in the area of 5G and subsequent communication standards, TDK continues to push the technological boundaries in the ICT market.

Potential

5G & Beyond

Maximum transfer rate of 5G (Downlink logical value)

5G

20
Gbps

Needs

Commercial services using fifth-generation mobile communications system (5G) are expected to begin operation in Japan in 2019. This will be accompanied by another leap in smartphone performance and a growing number of IoT terminals. However, circuit complexity will also increase further, making space savings through component miniaturization as well as effective power management more important than ever.

Solution

Realizing smaller dimensions and higher performance

Advanced technology first implemented in smartphones tends to migrate to the automotive sector and other applications as well. While closely watching progress in the area of 5G and subsequent communication standards, TDK continues to push the technological boundaries in the ICT market.

Capturing demand stimulated by 5G

We are actively engaged in further advancing the state of the art in a range of fields. This includes ceramic filters and other ceramic electronic components, the development of packaged modules in technical cooperation with IC manufacturers, and rechargeable lithium polymer batteries. We also expect IoT devices to further evolve toward smaller footprints, lower profiles, and higher integration. TDK’s involvement in this area is exemplified by its semiconductor embedded substrate (SESUB) technology, which enables the creation of highly competitive modules with small size and low profile. The next generation of electronic components and modules is currently being created in our labs.

SESUB technology

Rather than simply mounting chips on a substrate, this unique technology enables three-dimensional embedding of chips whose thickness has been reduced to as little as 100 μm directly in the substrate. Ultra-compact power supply modules as well as Bluetooth and other similar modules created with this technology contribute to even thinner and smaller mobile devices. Further advances in integration density and application to a wide range of IoT devices are on the cards.
Potential Industry 4.0 & Society 5.0

Expanding market for consumer-use sensors

Our extensive lineup includes magnetic sensors, MEMS sensors, advanced high-accuracy motion sensors with three-, six-, or nine-axis, and various other types. These sensors are being increasingly used not only in smartphones and other mobile devices but also in various other consumer product applications.

Kotozukuri in the medical and nursing care field

The fusion of sensor technology and software technology in wearable devices makes it possible to measure and store vital data, supporting Kotozukuri solutions in the fields of medicine and caregiving. In cooperation with TOKAI Corporation, a company known for its involvement in hospital and nursing care facilities, we are working to achieve the early realization of 24-hour remote monitoring. Another remote monitoring system to detect wandering of dementia patients is being developed in collaboration with the Oita University Faculty of Medicine.

Enhancing the power efficiency of things that drive the IoT society

In 2025, it is expected that IT-related power consumption will account for about 15% of the world’s electricity consumption. Building energy systems with high efficiency and low power consumption is therefore crucial for the IoT society.

TDK has its roots in a revolutionary magnetic material called ferrite, and developed magnetics expertise into one of its core technologies. Now, TDK has somewhat shifted its focus from traditional component sales to modular solutions that combine hardware and software aspects. We are offering a versatile lineup of power solutions, focused on the three areas of energy conversion, energy storage, and energy control. In all of these areas, we are able to provide high added value through sophisticated synergy.

Needs What electronic components must offer

Industry 4.0 is a concept for thorough innovation of industrial production that is being realized in various countries around the globe. In Japan, work is progressing on a system that integrates IoT, AI, robots, autonomous driving, and more in a high-level fusion of cyberspace and physical space. The aim of this so-called “Society 5.0” concept is to combine economic advancement with finding solutions for social issues, through cooperation by the public and private sectors. Sensors and other electronic components incorporated in a multitude of different objects must deliver unprecedented levels of durability and safety.

Solution What TDK delivers

Industry 4.0 & Society 5.0

Enriching society with state-of-the-art technology

While forging ahead with production innovation, TDK is also engaged in efforts to improve energy efficiency, boost the spread of renewable energy, and reduce the burden of medical treatment and care providers, among others, through the supply of solutions based on the concept of Kotozukuri.

Drones and TDK

The use of industrial drones is expanding beyond agriculture, logistics, surveying, and disaster countermeasures to other fields as well, and further market growth is expected. TDK is contributing to the evolution of drones by supplying a seven-axis sensor (three-axis gyroscope, three-axis acceleration, and barometric pressure) as well as batteries and other parts.

Robotics and TDK

In smart factories, multiple industrial robots are connected to the cloud to share data collected by sensors, enabling AI-based analysis for an enormous improvement in production efficiency. TDK is able to provide the various non-optical sensors required for this type of application. Furthermore, the robot joints use a large number of electric motors. TDK magnets for such motors also contribute to the evolution of robotics.

Enhancing the power efficiency of things that drive the IoT society

In 2025, it is expected that IT-related power consumption will account for about 15% of the world’s electricity consumption. Building energy systems with high efficiency and low power consumption is therefore crucial for the IoT society.

TDK has its roots in a revolutionary magnetic material called ferrite, and developed magnetics expertise into one of its core technologies. Now, TDK has somewhat shifted its focus from traditional component sales to modular solutions that combine hardware and software aspects. We are offering a versatile lineup of power solutions, focused on the three areas of energy conversion, energy storage, and energy control. In all of these areas, we are able to provide high added value through sophisticated synergy.
Monozukuri Innovation

Strengthening the Monozukuri power that drives Kotozukuri solutions

The Kotozukuri solutions offered by TDK are based on a thorough mastery of materials technology, process technology, and integrated production that results in highly competitive electronic components. In market sectors that are expected to see further growth, improved reliability is a major requirement. TDK is therefore pursuing Monozukuri Innovation that combines the Industry 4.0 concept with its zero-defect quality policy.

Toward that end, the Akita Plant has come up with a special manufacturing concept on its own called Arubeki Sugata (ideal process quality). If one relentlessly improves quality and reliability, the end result will be a production line that does not make defective products, which in effect is what the production process should be like. This is the aim of the drastic Monozukuri Innovation that we are implementing. Automation, the use of robots, and other measures all serve to achieve this goal. We are building a model line in which each process conforms to the Arubeki Sugata principle. After thorough testing and evaluation, this will be applied to existing lines. Arubeki Sugata has become the watchword of the TDK Group as we engage in Monozukuri Innovation at a global level.

PMI expertise taken to the next level

In keeping with efforts to reform our business structure, we embarked on a full-scale M&A strategy. More than 10 years before the turn of the century, we made our first move by acquiring the magnetic heads manufacturer SAE Magnetics (H.K.) Ltd. in 1996. This was followed by the acquisition of Headway Technologies Inc. in 2000, another manufacturer in the same field. In 2005, we acquired the Lambda Power Group (now TDK-Lambda), a leader in industrial power supplies, and the rechargeable lithium polymer battery manufacturer ATL. In 2008, the passive component manufacturer EPCOS with a forte in high-frequency components became part of the TDK Group. These M&As provided a clear boost to our corporate value and have become the drivers for TDK’s evolution in recent years. In the electronic component sector, an acquisition or merger requires careful assessment of complex technological factors. As a result, we have accumulated extensive know-how in making our own judgments and decisions regarding target companies. When we determine that a business excels in regard to management, strategy, technology, and operation, we go ahead with the acquisition, but that does not mean that we try to impose the TDK way. Rather, we want to maintain the dynamism of the acquired company. This approach involves respect for various cultures and business philosophies. Leveraging our strength of diversity adds to the strength of Group companies.

InvenSense, of which I am the CEO, is a pioneer in motion sensors. We began working on six- and nine-axis sensors ahead of the entire industry. Our broad portfolio is made possible by a solid grounding in microphone, inertial, pressure, and ultrasonic sensor technology. We have grown at a rapid pace, offering solutions for many consumer products including smartphones, drones, wearables, game consoles, virtual reality (VR) and augmented reality (AR) devices, inertial navigation systems, and image stabilization for cameras.

Just as decision making in humans relies on a combination of sensory input for seeing, hearing, smelling, and touching, the future will require complex sensor combinations. InvenSense will blaze a path into this future together with TDK. InvenSense has the capability to create solutions on a single system chip that integrate MEMS sensors with firmware and proprietary algorithms. By merging this strength with TDK’s powerful materials technology and semiconductor embedded substrate (SESUB) technology, and by fusing the Group’s management resources, a highly unique business model has been created (P.44–P.45 Synergies Behind the Sensor Business). Our access to markets and our scope of activities have expanded, responding to increasing demand in the area of advanced driving assistance systems (ADAS), along with ICT, IoT, industrial equipment, and the automotive sector. We are truly thrilled by these developments.
Synergies Behind the Sensor Business

Bold M&A strategy dramatically expands the sensor portfolio. Impressive product lineup comprises all kinds of non-optical sensors.

Addition of Hall sensors strengthens magnetic sensor technology

TDK’s magnetic sensor technology comprising TMR and other similar sensors has been further strengthened by the addition of Hall sensors from Micronas, which have earned high acclaim in the automotive industry. Products that integrate TMR sensors and Hall sensors have also been developed. Targeting the automotive and industrial equipment markets, we are growing the business with a wide lineup of sensor solutions.

Temperature and pressure sensors drive electronic ceramics technology

Temperature sensors with NTC thermistors and pressure sensors utilizing piezo-ceramic technology are just a few examples of the versatile product portfolio developed by TDK and EPCOS through advanced electronic ceramics technology. We are also pursuing the technological synergy that arises from the integration of different sensors. Tangible results include the development of integrated temperature/humidity/barometric pressure sensor modules made possible by MEMS technology.

Various MEMS sensors significantly expand the add-on portfolio

The MEMS sensor product and technology of the TDK Group received a significant boost by the addition of gyroscope sensors and acceleration sensors from InvenSense, a company with extensive design expertise, along with inertial sensors from Tronics and ultrasonic sensors from Chirp. The MEMS sensor platform suitable for advanced sensor fusion has also been strengthened. We are expanding our MEMS sensor solutions not only for the ICT market but also for the automotive market and others.

Securing IC design technology indispensable for sensor systems

The integrated circuit chips that process the signals obtained through sensing are an indispensable part of any sensor system. The addition of ICsense, Europe’s premier Application Specific Integrated Circuit (ASIC) design company, to the TDK Group has further elevated our capability to provide high-performance, high-value-added sensor products and solutions.

High-level sensor fusion powered by sophisticated software technology

In systems that comprise a large number of sensors, dedicated software makes it possible to realize integrated control of sensor-derived information, enhance functionality and expandability, and create new solutions along with intricate power management. InvenSense and other TDK Group companies possess the required software technology and expertise that forms the basis for high-level sensor fusion in the age of IoT.

Three business groups unified in the Sensor Systems Business Company* create a strong sensor business formation

* Sensor Systems Business Company: Newly created entity that encompasses the TDK sensor divisions and sensor-related Group companies

Sensor Application
Products segment targets a CAGR of 35%
Global Human Resource Strategies Bolstered by Strength of Diversity

Strength of diversity built through TDK-style post-merger integration (PMI)

Since the 1960s when the Company began expanding overseas, TDK has led the movement toward globalization among Japanese companies. In the 2000s, we began pursuing the bold reform of our business structure through M&As. Starting with Hong Kong-based ATL in 2005 and Germany-based EPCOS in 2008, companies that have joined the TDK fold are significantly driving TDK’s earnings many years on. The secret to our integrative approach is to not control companies through capital but to delegate authority on an equal partnership basis. We take this approach because we understand that electronic components are a highly distinctive business field, and that every region has its own needs, business practices, systems, and other unique characteristics. Because the corporate managers of the companies we have acquired are familiar with those specifics, we feel they are the ones best qualified to execute management strategies. Meanwhile, we concentrate on maximizing the corporate value of the TDK Group as a whole by creating synergies through the integration of management resources such as materials technology, process technology, and the customer base.

A culture that encourages and harnesses diverse value systems to promote innovation is a hidden competitive advantage of TDK’s strength-of-diversity approach.

The growing need for an HR strategies adaptive to business globalization

Since 2016, we have been aggressively pursuing an M&A strategy primarily in the area of sensors, and have been creating a new business structure. TDK has expanded its business to more than 30 countries and regions around the world, and in fiscal 2018 the overseas sales ratio was 91.1% and the overseas employee ratio 90.7%. In order to provide optimal solutions to customers in a market that is becoming more globalized, we must further increase our strength of diversity while at the same time maximizing Group synergies by reaching beyond limitations imposed by time, geography, and culture. Against this backdrop, we feel the growing importance of further promoting management diversity, and discovering, developing, and utilizing human resources across international borders.

Initiating a global HR strategies

In fiscal 2019, TDK began the full-scale implementation of its global human resources strategy aimed at discovering and developing borderless global talent. To promote this initiative, the Human Resources HQ has been established in Munich, Germany. It is headed by TDK corporate officer and general manager Andreas Keller. With the Human Resources HQ located outside of Japan and with non-Japanese in top management roles, TDK is a rare example among Japanese companies.

Due to aggressive M&A in recent years, there has been a sharp increase in the globalization of human resources and diversification of specializations in the TDK Group. Accompanying these developments, to ensure more objective personnel evaluations, we are establishing common global standards. We will promote the proper placement of talented people beyond the boundaries of country or division, carefully select management candidates, and work to further increase our strength of diversity. We are already working on establishing a consolidated human resource database and expanding the scope of its use, and will go all out to develop global leaders.

Territorial career development program

A territorial career development program is being implemented to find individuals within the Group who have strong, untapped capabilities, to train a new generation of candidates for all key positions, and to develop global leaders who will play an active role in a wide range of fields, thereby raising the management skills of the entire organization. Candidates will participate in the program five times a year in their region. During the program, practical issues will be addressed through group work with members gathered from various regions and divisions.
TDK’s Workstyle Innovation

Diversification of workstyles to suit various stages in life

TDK introduced three schemes in October 2017 with the aim of enabling employees to choose workstyles suited to various stages in life and to continue working with peace of mind.

The Spouse Domestic Transfer Accompaniment Scheme provides support to employees accompanying spouses who undergo a domestic transfer requiring a change of residence by, for example, investigating whether acceptance by a TDK site in the employee’s desired area is possible. The Spouse Overseas Transfer Leave Scheme enables employees wishing to accompany spouses who are transferred overseas to take a leave of up to three years. After the leave ends, in principle, the employee returns to the same workplace as before the leave. The Welcome Back Scheme assists the return to work as regular employees of former employees who have quit their jobs because of marriage, childbirth, child-rearing, nursing care, spouse transfer, among other circumstances.

Introduction of schemes to diversify workstyles

<table>
<thead>
<tr>
<th>Domestic transfer of spouse</th>
<th>Overseas transfer of spouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spouse Domestic Transfer Accompaniment Scheme</td>
<td>Spouse Overseas Transfer Leave Scheme</td>
</tr>
<tr>
<td>Transfer Accompaniment Scheme</td>
<td>Welcome Back Scheme (Former Employee Reemployment Scheme)</td>
</tr>
<tr>
<td>Resignation</td>
<td></td>
</tr>
</tbody>
</table>

Introduction of Second Career Scheme

TDK has also introduced the Second Career Scheme, which, when an employee reaches mandatory retirement age, extends the employment contract to the age of 65. The aim of this scheme is to fulfill TDK’s social responsibility of responding to the revised Act Concerning Stabilization of Employment of Older Persons and to effectively utilize the knowledge, skills, and experience of elderly employees for the further growth of the Company.

Toward the realization of work-life balance

In April 2018, TDK introduced a Work-at-Home Scheme and a Super Flextime Scheme. The aim of these schemes is to support a work-life balance by providing employees who have child-rearing and nursing-care responsibilities with opportunities to work at home and by applying a flextime system that does not have any core time. By making use of these schemes, more employees can improve their work-life balance.

Unlike the usual flextime system, the Super Flextime Scheme does not set any core time. Employees can choose their working hours flexibly anytime from 6 a.m. to 10 p.m.
The TDK Group's Materiality

TDK believes it is important to promote CSR activities that respond to changes among stakeholders and in the social and business environment surrounding the Group. Since fiscal 2014, TDK has promoted the study of materiality in accordance with the fourth edition of the Global Reporting Initiative guidelines (GRI-G4), and in fiscal 2016, we finalized our materiality*. With regard to the designated important CSR issues of "Contribute to the World through Technology," "Develop Human Resources," "Consider the Societal and Environmental Impact of the Supply Chain," and "Develop and Prosper in Harmony with the Global Environment," we are continuing to promote activities.

The materiality finalization process

GRI-G4 made a revision from requiring comprehensive information disclosure to requiring information disclosure with the focus on materiality. The objective of this revision was to encourage companies to determine their reporting content purposefully by getting management to be more deeply involved in CSR. TDK held discussions with stakeholders outside the Company, implemented a dialogue with management, and finalized materiality through the following process.

Finalization of the materiality

The prioritization in Steps 2 and 3 was conducted on the basis of 46 items chosen in consideration of items required by GRI-G4, and 19 material issues were identified. These issues were further sorted and classified and finally condensed into the following 11 important CSR issues and 13 important themes. The prioritization in Steps 2 and 3 was conducted on the basis of 46 items chosen in consideration of items required by GRI-G4, and 19 material issues were identified. These issues were further sorted and classified and finally condensed into the following 11 important CSR issues and 13 important themes.

<table>
<thead>
<tr>
<th>Important CSR Issues</th>
<th>Important Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribute to the World through Technology</td>
<td>Addressing social issues by developing new kinds of products the world has not yet seen</td>
</tr>
<tr>
<td>Develop Human Resources</td>
<td>Pursue zero-defect quality</td>
</tr>
<tr>
<td>Consider the Societal and Environmental Impact of the Supply Chain</td>
<td>Consider the work environment at manufacturing sites</td>
</tr>
<tr>
<td>Develop and Prosper in Harmony with the Global Environment</td>
<td>Reduce environmental load throughout life cycle stages</td>
</tr>
<tr>
<td>Management</td>
<td>Ensure corporate governance and compliance</td>
</tr>
</tbody>
</table>

* For details of the materiality finalization process, please refer to the following website: https://www.global.tdk.com/corp/en/environmental_responsibility/03200.htm

<table>
<thead>
<tr>
<th>Important CSR Issues</th>
<th>Important Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribute to the World through Technology</td>
<td>Addressing social issues by developing new kinds of products the world has not yet seen</td>
</tr>
<tr>
<td>Develop Human Resources</td>
<td>Pursue zero-defect quality</td>
</tr>
<tr>
<td>Consider the Societal and Environmental Impact of the Supply Chain</td>
<td>Consider the work environment at manufacturing sites</td>
</tr>
<tr>
<td>Develop and Prosper in Harmony with the Global Environment</td>
<td>Reduce environmental load throughout life cycle stages</td>
</tr>
<tr>
<td>Management</td>
<td>Ensure corporate governance and compliance</td>
</tr>
</tbody>
</table>

* For details of the goals and achievements of environmental activities, please refer to the following website: https://www.global.tdk.com/corp/en/environmental_responsibility/03200.htm
Optimization of the Value Chain

**Value Chain**

<table>
<thead>
<tr>
<th>Procurement</th>
<th>Development and design</th>
<th>Manufacturing</th>
<th>Logistics</th>
<th>Sales</th>
</tr>
</thead>
</table>

**Strategic Fit** (Optimization of value chain to promote strategy)

**Overall value chain**
- Pursuit of integrated production from materials to finished products
- Creation of “black boxes” in core domains to ensure firm control of technological advantage
- Backflow of customer needs upstream
- Enhancement of profitability by accelerating the business cycle across all processes

- Stable procurement of magnetic materials
- Assurance of the quality of raw materials
- Procurement of rare-metal alternatives, etc.
- Acceleration of the development cycle
- Development of demand areas through our global 4-pole network
- Concentration on strategic areas of development resources
- New product development based on long-term road map
- Fusion of intellectual property within Group
- Collaboration with IC manufacturers
- Management and utilization of intellectual property
- Development of products not using rare metals
- Pursuit of location free to realize uniform quality worldwide
- Pursuit of zero defects through source management
- Pursuit of production efficiency through utilization of IoT
- Reduction of inventories through shortening of lead times
- Assurance of logistics quality (contribution to “Just In Time”)
- Strengthened relations with customers
- Improvement of cash flows
- Effective utilization of information systems

**ESG**

**Overall value chain**
- Development of human resources to promote Monozukuri Innovation
- Development of global human resources
- Cultivation of a corporate culture that respects diversity
- Reduction of environmental load throughout lifecycle perspective
- Creation of a framework for gauging product contributions
- Assurance of procured product quality
- Implementation of CSR check sheets/audits
- Green procurement
- Response to conflict minerals
- Consideration of work environment of suppliers
- Development of products contributing to the environment
- Product assessment
- Reduction of environment load at plants
- Improvement of energy efficiency
- Consideration of work environment at production sites
- Reduction of environmental load of logistics
- Reduction of environmental load of products
- Strengthening of quality assurance setup
- Promotion of sales of products contributing to the environment

**CSR-compliant supplier ratio** 91.2%

**Implementation of CSR self-checks at manufacturing sites** 100%

**Reduction of CO₂ emissions through products** 2,041 thousand t-CO₂
Optimization of the Value Chain
Moving to Improve Sustainable Corporate Value

Reduction of procurement risk relating to magnetic materials and strengthening of materials technology

For TDK, whose core technology is magnetics, the stable procurement of magnetic materials is an important issue in the promotion of medium- and long-term management strategy. In particular, the dysprosium added to neodymium magnets, which boast the strongest magnetic force, is a rare-earth element. As well as ensuring the stable supply of magnetic materials, TDK is making efforts to reduce business risks, such as the development of neodymium magnets that do not rely on rare-earth elements. We are also tackling the continuous evolution of materials technology. In July 2018, TDK concluded a capital and business tie-up contract with Toda Kogyo Corp. and agreed to turn it into an equity-method affiliated company. TDK’s active involvement in new material development based on Toda’s forte in magnetic materials and material synthesis technology will lead to a strengthening of the competitiveness of our electronic components.

Acceleration of cycle time

TDK is making efforts to accelerate the business cycle in all processes, including sales, manufacturing, and development. In addition to accelerating the supply of samples and improving development speed, we have set specific KPIs, such as the reduction of inventories, the shortening of production lead times, and the launch of products with top market shares, so as to strengthen our competitiveness and improve our earnings.

R&D at global sites with differing regional features

TDK is tackling innovations utilizing its strength of diversity. For example, while TDK itself is strong in the development of materials technology and production technology, there are companies that are strong in the pursuit of state-of-the-art technology, companies that are strong in the development of applications, and companies that are strong in the development of environment-friendly products, especially in Europe, where environmental awareness is deep-rooted. Companies with expertise in different fields, due to national or regional characteristics or the like, are promoting R&D utilizing their respective strengths. Through mutually complementary development, we are endeavoring to enhance our competitiveness on a global scale.

Promotion of innovations

utilizing TDK’s strength of diversity

TDK Environmental Vision 2035

At TDK, we believe that long-term environmental action plays a key role in the effort to achieve sustainable development in society. TDK Environmental Vision 2035, launched in fiscal 2016, sets the goal of “having the CO2 emissions basic-unit in a life-cycle perspective by 2035,” based on operating businesses with low enough environmental loads to not disturb natural cycles. This stance stems from the belief that minimizing the environmental load in business activities, and revitalizing the natural environment, is the duty of companies that supply products designed to contribute to its customers and the society. Moreover, modeled on the United Nations Climate Change Conference (COP 21) Paris Agreement, which seeks to curb global warming by achieving a balance between greenhouse gas emissions and absorption sources, TDK pursues the ideal corporate posture.

Image
### Consolidated Business Results Highlights

#### Years ended March 31

<table>
<thead>
<tr>
<th>Year</th>
<th>Net sales (¥)</th>
<th>Selling, general and administrative expenses (¥)</th>
<th>Operating income (¥)</th>
<th>Research and development expenses (¥)</th>
<th>Net income (¥)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>¥667,285</td>
<td>¥272,100</td>
<td>¥395,185</td>
<td>¥105,587</td>
<td>¥81,600</td>
</tr>
<tr>
<td>2009</td>
<td>¥768,497</td>
<td>¥356,768</td>
<td>¥411,730</td>
<td>¥121,757</td>
<td>¥96,471</td>
</tr>
<tr>
<td>2010</td>
<td>¥812,500</td>
<td>¥424,825</td>
<td>¥387,675</td>
<td>¥127,675</td>
<td>¥101,130</td>
</tr>
<tr>
<td>2011</td>
<td>¥800,500</td>
<td>¥402,975</td>
<td>¥397,525</td>
<td>¥107,525</td>
<td>¥93,175</td>
</tr>
<tr>
<td>2012</td>
<td>¥834,500</td>
<td>¥486,950</td>
<td>¥347,550</td>
<td>¥91,545</td>
<td>¥99,975</td>
</tr>
<tr>
<td>2013</td>
<td>¥890,500</td>
<td>¥430,540</td>
<td>¥459,960</td>
<td>¥110,960</td>
<td>¥109,540</td>
</tr>
</tbody>
</table>

#### Key Financial Ratios

<table>
<thead>
<tr>
<th>Year</th>
<th>Overseas sales ratio (%)</th>
<th>SG&amp;A ratio (%)</th>
<th>ROE (%)</th>
<th>ROA (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>82.4</td>
<td>6.7</td>
<td>9.7</td>
<td>7.4</td>
</tr>
<tr>
<td>2009</td>
<td>84.0</td>
<td>7.2</td>
<td>9.1</td>
<td>7.4</td>
</tr>
<tr>
<td>2010</td>
<td>86.9</td>
<td>8.0</td>
<td>8.8</td>
<td>8.3</td>
</tr>
<tr>
<td>2011</td>
<td>88.7</td>
<td>9.1</td>
<td>8.7</td>
<td>9.1</td>
</tr>
<tr>
<td>2012</td>
<td>87.5</td>
<td>9.8</td>
<td>11.8</td>
<td>11.8</td>
</tr>
<tr>
<td>2013</td>
<td>87.5</td>
<td>11.2</td>
<td>11.8</td>
<td>11.8</td>
</tr>
</tbody>
</table>

#### Non-Financial Indicators

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of employees</th>
<th>Overseas employees ratio (%)</th>
<th>CO2 emissions in production activities (t-CO2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>50,212</td>
<td>66.429</td>
<td>926,695</td>
</tr>
<tr>
<td>2009</td>
<td>51,090</td>
<td>68.990</td>
<td>909,747</td>
</tr>
<tr>
<td>2010</td>
<td>52,890</td>
<td>70.890</td>
<td>878,303</td>
</tr>
<tr>
<td>2011</td>
<td>54,690</td>
<td>72.890</td>
<td>1,095,460</td>
</tr>
<tr>
<td>2012</td>
<td>56,490</td>
<td>74.890</td>
<td>1,109,926</td>
</tr>
<tr>
<td>2013</td>
<td>58,290</td>
<td>76.890</td>
<td>1,122,989</td>
</tr>
</tbody>
</table>

---

1. In accordance with the provisions of ASC No. 205-20, “Presentation of Financial Statements—Discontinued Operations,” operating results related to the data tape business and the liquid crystal lens business are separately presented as discontinued operations in the consolidated statements of operations for the year ended March 31, 2010, to conform to the presentation used for the year ended March 31, 2014. Also, reclassifications are made to the consolidated statements of operations after the year ended March 31, 2010, to conform to the presentation used for the year ended March 31, 2014.

2. Because the TDK Environmental Action 2020 Plan came into effect from fiscal 2011, the “CO2 emissions through products” (environmental contributions) (t-CO2) figures are for fiscal 2012 onward.

3. Benefits from restructuring

---

### Breakdown of Operating Income Changes

#### Years ended March 31

<table>
<thead>
<tr>
<th>Year</th>
<th>Breakdown of Operating Income Changes (¥)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>¥120.4 billion</td>
</tr>
<tr>
<td>2009</td>
<td>¥132.8 billion</td>
</tr>
<tr>
<td>2010</td>
<td>¥145.5 billion</td>
</tr>
<tr>
<td>2011</td>
<td>¥154.8 billion</td>
</tr>
<tr>
<td>2012</td>
<td>¥161.5 billion</td>
</tr>
<tr>
<td>2013</td>
<td>¥170.8 billion</td>
</tr>
</tbody>
</table>

---

### Breakdown of Free Cash Flow

#### Years ended March 31

<table>
<thead>
<tr>
<th>Year</th>
<th>Breakdown of Free Cash Flow (¥)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>¥120.4 billion</td>
</tr>
<tr>
<td>2009</td>
<td>¥132.8 billion</td>
</tr>
<tr>
<td>2010</td>
<td>¥145.5 billion</td>
</tr>
<tr>
<td>2011</td>
<td>¥154.8 billion</td>
</tr>
<tr>
<td>2012</td>
<td>¥161.5 billion</td>
</tr>
<tr>
<td>2013</td>
<td>¥170.8 billion</td>
</tr>
</tbody>
</table>

---

4. Breakdown of Free Cash Flow

---

5. Payroll tax (Yen)
Performance was sluggish from fiscal 2009 due in part to reduced demand for electronic components resulting from the global economic slowdown and the impact of the Great East Japan Earthquake. After structural reforms were implemented beginning in fiscal 2012, however, results drastically improved. As a result of the counteraction to special factors that resulted in reporting gains on the transfer of business to Qualcomm in fiscal 2017, ROE was down 12.0 percentage points year on year to 7.8%, and ROA fell 5.7 percentage points, to 3.8%, in fiscal 2018. ROE and ROA declined sharply in fiscal 2009 following the global economic downturn, but after structural reforms were implemented from fiscal 2012, both have improved as a result of higher net income and other factors. As a result of the three-year Medium-Term Plan covering the period from fiscal 2016 to fiscal 2018. Sales have increased over the past 11 years, particularly in the United States and Asia, and in fiscal 2018, sales outside Japan accounted for 91.1% of total net sales.

Total assets as of fiscal 2018 of ¥79.9 billion year on year, short-term debt increased ¥46.9 billion, and trade payables increased ¥90.1 billion, but income was up in real terms due to higher income from existing businesses.

R&D expenses have continuously increased since fiscal 2012, and TDK invested ¥103.5 billion in R&D in fiscal 2018, a record high, so that it can respond to rapid technological innovation in electronics markets and maintain high competitiveness. Going forward, we will continue to actively invest in the development of new technology and further reinforce our R&D structure.

TDK implemented personal optimization measures as a part of the structural reforms conducted since fiscal 2012, but has been increasing the number of employees to raise competitiveness since fiscal 2016, the first year of the previous Medium-Term Plan, and the number reached 102,883 as of the end of fiscal 2018. In addition, the overseas employees ratio has been increasing and was 90.7% as of the end of fiscal 2018.

The figures below show the financial results for fiscal 2018. The figures before adjustment are shown.

The business transfer to Qualcomm in fiscal 2017 resulted in a significant improvement in free cash flow. Funds obtained as compensation for the business transfer are being utilized in new R&D in accordance with our growth strategy, and we are working to further strengthen our earnings structure. In fiscal 2018, net cash used in investing activities increased significantly as we engaged in active capital investment, R&D, and M&A, and as a result, free cash flow was negative ¥154.8 billion.

## Total Assets

| Yen billions | 12/31/2018 | 30/31/2017 | Change
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stockholders' equity</td>
<td>1,485.2</td>
<td>1,290.3</td>
<td>+194.9</td>
</tr>
<tr>
<td>Total assets</td>
<td>6,090.5</td>
<td>5,874.6</td>
<td>+215.9</td>
</tr>
</tbody>
</table>

Total assets as of the end of fiscal 2018 increased ¥215.9 billion. Liquidity on hand (cash and cash equivalents, short-term investments, and securities) decreased ¥96.2 billion year on year, but goodwill increased ¥98.5 billion, tangible fixed assets increased ¥81.0 billion, inventories increased ¥53.0 billion, and net trade receivables were up ¥46.1 billion. The primary cause of the increase in goodwill was the acquisition of InvenSense.

Stockholders' equity was up 3.9% year on year, to ¥1,290.3 billion, as of the end of fiscal 2018. For active capital investment, R&D, and M&A, long-term debt was up ¥79.9 billion year on year, short-term debt increased ¥46.9 billion, and trade payables increased ¥90.1 billion, and as a result, the stockholders' equity ratio decreased 4.4 percentage points year on year, to 43.3%.

R&D expenses have increased year on year and are on active business results for fiscal 2018, which was reported on April 27, 2018—operating income, research and development expenses, cost of sales, and selling, general and administrative expenses increased operating income: ¥94.634 billion to ¥99.650 billion (revised), research and development expenses: ¥103.457 billion to ¥102.641 billion. The disclosure of revised sales and earnings, general and administrative expenses as a result of the amendment of fiscal results for fiscal 2018. The figures before adjustment are shown.

## Stockholders’ Equity / Stockholders’ Equity Ratio

<table>
<thead>
<tr>
<th>Yen billions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stockholders' equity</td>
<td>1,290.3</td>
</tr>
<tr>
<td>Total assets</td>
<td>5,874.6</td>
</tr>
</tbody>
</table>

Stockholders’ equity was up 3.9% year on year, to ¥1,290.3 billion, as of the end of fiscal 2018. For active capital investment, R&D, and M&A, long-term debt was up ¥79.9 billion year on year, short-term debt increased ¥46.9 billion, and trade payables increased ¥90.1 billion, and as a result, the stockholders’ equity ratio decreased 4.4 percentage points year on year, to 43.3%.

## Operating Income (Loss) / Operating Income Ratio*

<table>
<thead>
<tr>
<th>Yen billions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating income (loss)</td>
<td>303.6</td>
</tr>
<tr>
<td>Operating income ratio (right)</td>
<td>4.5 &amp; 6.7</td>
</tr>
</tbody>
</table>

Operating income (loss) and operating income ratio (right) are shown.

## ROE / ROA

<table>
<thead>
<tr>
<th>Yen billions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE</td>
<td>93.1</td>
</tr>
<tr>
<td>ROA</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

ROE and ROA, shown above, are 93.1% as of the end of fiscal 2018.

## ROE and ROA

<table>
<thead>
<tr>
<th>Yen billions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE (left)</td>
<td>93.1</td>
</tr>
<tr>
<td>ROA (right)</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

ROE and ROA, shown above, are 93.1% as of the end of fiscal 2018.
Overview of Business Conditions by Segment

**Note:** Reporting segments were changed in fiscal 2019, but results for fiscal 2018 are reported based on the former segments.

### Changes in Reporting Segments

The following four segments—Passive Components, Sensor Application Products, Magnetic Application Products, and Film Application Products—were changed into the following segments as of fiscal 2019: Passive Components, Sensor Application Products, Magnetic Application Products, and Energy Application Products, as well as Other, which includes products not included in these four reporting segments. 

#### Previous reporting segments (through fiscal 2018):

- Passive Components
- Sensor Application Products
- Magnetic Application Products
- Film Application Products
- Other

#### New reporting segments (starting in fiscal 2019):

- Passive Components
- Sensor Application Products
- Magnetic Application Products
- Energy Application Products
- Other

#### Changes in Reporting Segments

The previous four segments—Passive Components, Sensor Application Products, Magnetic Application Products, and Film Application Products—were changed into the following segments as of fiscal 2019: Passive Components, Sensor Application Products, Magnetic Application Products, and Energy Application Products, as well as Other, which includes products not included in these four reporting segments. 

#### Magnetic Application Products Segment

- **Net Sales**: ¥333,235 million (up 1.0% year on year)
- **Operating Income**: ¥20,877 million (up 115.1% year on year)

In fiscal 2018, net sales were ¥333.2 billion, up 1.0% year on year, operating income increased 2.2 times to ¥20.9 billion, and the operating income ratio was 6.3%. When the structural reform expenses reported in the prior fiscal year are taken into account, the effective increase in income was ¥1.2 billion, or 6.1%. Average prices for HDD magnetic heads increased as a result of a favorable product mix, resulting in stable profitability even though the sales volume was down. Power supplies were able to respond to robust demand in the industrial equipment market, pushing both sales and income higher. As for magnets, sales of HDD magnets were down, but sales of magnets for industrial equipment and motors increased, resulting in a substantial decrease in losses despite lower sales revenues.

#### Film Application Products Segment

- **Net Sales**: ¥370,953 million (up 49.8% year on year)
- **Operating Income**: ¥70,384 million (up 70.8% year on year)

In fiscal 2018, net sales were ¥371.0 billion, up 1.5 times year on year, and operating income was ¥70.4 billion, up substantially by 1.7 times, and as a result, both net sales and operating income hit new record highs for the third consecutive year. The operating income ratio was 19.0%, and profitability was up sharply. In the smartphone market, demand fluctuated substantially throughout the year, but as a result of timely optimization of production capacity and reliable responses to market needs, sales increased. In addition, the expansion of products for applications other than smartphones increased steadily, and synergistic effects between higher volumes and increased productivity pushed up income.

---

**Passed Components Segment**

- **Net Sales**: ¥437,639 million (down 17.1% year on year)
- **Operating Income**: ¥46,278 million (down 76.9% year on year)

In fiscal 2018, net sales were ¥437.6 billion, down 17.1% year on year, operating income was ¥46.3 billion, down 76.9%, and the operating income ratio was 10.6%. Income fell due to effects in conjunction with the transfer of a portion of the high-frequency components business and did not recover on an amount basis, but profitability was nearly flat. Demand remains strong in the automotive market, and sales of capacitors increased at a steady pace. Sales of MLCC products grew in particular due to highly reliable products with redundant features for automotive use, contributing significantly to higher profitability in the Passive Components segment overall.

**Sensor Application Products Segment**

- **Net Sales**: ¥77,578 million (up 81.0% year on year)
- **Operating Loss**: ¥19,381 million

In fiscal 2018, net sales were ¥77.6 billion, up 1.8 times from the previous fiscal year, in part due to effects from the acquisition of InvenSense. Operating losses were ¥19.4 billion, which included ¥10.9 billion in expenses related to the InvenSense acquisition. Sales in the automotive and ICT markets were up sharply, with automotive sales accounting for a little under 50% of the total, the ICT market slightly over 20%, and the industrial and energy market just under 30%, achieving a well-balanced sales structure. Expansion of the product portfolio and customer base is proceeding through acquisitions.

---

**Breakdown of Operating Income**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Yen billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Income</td>
<td>¥85.6 billion</td>
</tr>
<tr>
<td>Passive Components</td>
<td></td>
</tr>
<tr>
<td>Capacitors</td>
<td>15%</td>
</tr>
<tr>
<td>Inductive Devices</td>
<td>12%</td>
</tr>
<tr>
<td>Other Passive Components</td>
<td>13%</td>
</tr>
<tr>
<td>Sensor Application Products</td>
<td>8%</td>
</tr>
<tr>
<td>Magnetic Application Products</td>
<td>4%</td>
</tr>
<tr>
<td>Power Systems</td>
<td></td>
</tr>
<tr>
<td>Corporate and Elimination</td>
<td></td>
</tr>
</tbody>
</table>

* To comply with the U.S. Financial Accounting Standards Board’s Accounting Standards Update No. 2017-07, Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost, we are revising our business results for fiscal 2018, which were reported on April 27, 2018—operating income, research and development expenses, cost of sales, and selling, general and administrative expenses (revised operating income: ¥85,633 million to ¥89,692 million; revised research and development expenses: ¥103,457 million to ¥102,641 million). The disclosure of revised cost of sales and selling, general and administrative expenses will be made at the announcement of financial results for fiscal 2019. The figures before adjustment are shown.
Passive components support electronics society
Electronic components include ICs, LSIs, and other active components, as well as capacitors, inductors, and other passive components that store, discharge, and consume electric power. Active components only function with help from passive components. On the circuit boards of mobile devices, electrical home appliances, office equipment, automobiles, robots, industrial equipment, and other devices, a wide variety of passive components are installed together with memories and CPUs consisting of an aggregation of many semiconductor devices. TDK’s passive components have their roots in a material called ferrite, originally invented in 1930 and certified as an IEEE Milestone in 2009. Ever since its beginnings, the Company has consistently blazed a path of innovation, making products smaller, lighter, and thinner and integrating them into modules, thereby contributing to the progress of electronic devices.

Passive Components Segment

The business strategy in Value Creation 2020
As electronic components are being incorporated in more and more equipment and devices, TDK is expanding its client base beyond the automotive and ICT markets, as well as widening the scope of applications, thereby creating a solid earnings base. We are also engaged in a program of Monozukuri Innovation (Monozukuri Innovation), which implements forward-looking measures to meet the quality requirements of today’s and tomorrow’s industry. In fiscal 2019, we expect net sales to grow by 3%–6%. Trends in the automotive market, such as the progress of xEVs, advanced driving assistance systems (ADAS), and autonomous driving, are expected to result in further expansion of the already strong demand for capacitors and inductors, which will be drivers of growth.

Commercial Value

Achieve steady and sustainable growth by expanding target markets and applications

- Refine automotive components
  - Product development matched to automotive needs
  - Reference activities for automotive ECUs
  - Monozukuri to enhance quality and reliability
- Capture communications demand for 5G & Beyond
- Develop optimal millimeter-wave ceramic materials
- Develop various LTCC-based products
- Upgrade and expand power-related components and propose new solutions
  - High-reliability power inductors
  - Wireless power transfer
  - POL™
  - Develop all-solid state rechargeable batteries
- Develop PZT applications
  - PZT for next-gen Haptic™ and PowerHap™
  - Medical & Hygienic Application
- Mount timely production responses to growing demand
  - Invest in ramping up production
  - Continue to drive Monozukuri Innovation

Passive components for automotive applications
Passive components, intended for use in xEVs (HEVs/PHEVs/EVs) and other operating conditions, while maintaining complete reliability to guard against malfunction. TDK is continuously developing products that offer outstanding performance and meet the needs of automotive electrical equipment.

- Expanding applications of automotive components
  - As cars increasingly rely on electric and electronic systems and xEVs become more widespread, the formation of eco-systems centered on semiconductors is progressing. We will continue to strengthen reference activities for automotive ECUs, whose numbers are expected to grow further. Furthermore, we will promote the development of products that meet automotive needs by offering customization and ensuring excellent reliability under harsh operating conditions with vibrations, shocks, and high temperatures. Our portfolio of automotive-grade MLCCs is further expanded, including resin electrode products with high vibration and bending stress resistance, and redundancy design products such as Mega Caps, as well as large-capacitance MLCCs that meet the needs of smaller size, higher voltage, and larger capacity in connection with higher functionality of ECUs for drive applications.

- Upgrading and expanding power-related components
  - As demand for 5G & Beyond semiconductors is progressing. We will continue to strengthen reference activities for automotive ECUs, whose numbers are expected to grow further. Furthermore, we will promote the development of products that meet automotive needs by offering customization and ensuring excellent reliability under harsh operating conditions with vibrations, shocks, and high temperatures. Our portfolio of automotive-grade MLCCs is further expanded, including resin electrode products with high vibration and bending stress resistance, and redundancy design products such as Mega Caps, as well as large-capacitance MLCCs that meet the needs of smaller size, higher voltage, and larger capacity in connection with higher functionality of ECUs for drive applications.

Faraday Semi LLC (USA), which we acquired in May 2018, is a fast-growing semiconductor developer specializing in power management solutions, including point-of-load (POL) type DC-DC converters. By combining Faraday Semi’s high-performance semiconductors with TDK’s advanced packaging technology SESUB and latest component technology using 3D mounting technology, we have created a POL product (μPOL™) that leads the industry in terms of small dimensions and high power density. This will enable us to offer ultra-compact power solutions for which demand is increasing in the global ICT, industrial equipment, and automotive markets.
The business strategy in Value Creation 2020

The Sensor Systems Business Company was established by consolidating the sensor-related business activities of the TDK Group. We are cooperating with IC manufacturers to develop modular products that integrate a combination of sensors. With the industry’s best non-optical sensor lineup, we are poised to capture the growing sensing needs. Our steadily expanding range of automotive sensors is centered on Hall sensors and TMR sensors, and we are also expanding MEMS sensor applications for consumer use.

In fiscal 2019 we expect an increase in net sales of 29%–32%, mainly in the areas of MEMS sensors, which are positioned as growth drivers, and magnetic sensors for the ICT market.

Steadily expanding automotive sensors

In the area of TMR sensors, where mass production began in 2015, we are engaged in projects for various applications, including electric power steering systems, wipers, clutch and gearbox positioning devices, and pedal and throttle valve opening detection. TMR sensors are combined with Hall sensors from Micronas to enhance redundancy, and Application Specific Integrated Circuits (ASICs) from ICsense serve to improve accuracy. By differentiating ourselves through such products, we are further expanding our customer base and range of applications.

A large potential for growth exists for MEMS sensors, including gyroscope sensors, acceleration sensors, and microphones, as well as temperature and pressure sensors. As such concepts as ADAS and autonomous driving become a reality, the number of required sensors is bound to increase. Development of 6-axis sensors from InvenSense and other MEMS sensors that fully meet customer needs is making progress.

Cultivating and expanding markets through Group synergies

We are in a position to offer high-level solutions, creating products with high redundancy by integrating Micronas Hall sensors and TMR sensors, or fusing MEMS technology and software expertise from Tronics and InvenSense with materials technology and thin-film technology from TDK. TDK’s long-standing relationships with customers are creating new opportunities for InvenSense products, moving beyond the consumer sector to the automotive and industrial equipment markets.

The acquisition of InvenSense, which develops ASICs for signal processing of sensing data, has enabled the vertical integration of our value chain from materials technology to sensor elements, signal processing, and software design. In 2018 we acquired Chip, a pioneering company in the field of ultrasonic 3D sensing technology that holds high promise for a wide range of applications, including augmented reality (AR) and virtual reality (VR) devices. Our Sensor Systems Business Company brings together these companies under a single umbrella for offering Katozukuri solutions.

Commercial Value

Appropriately capture diversifying and growing sensing needs and expand this field into one of TDK’s future core businesses

Steady expansion of automotive sensors

- Commence full-scale production of various TMR sensor projects (including redundancy design products)
- Develop higher-performance Hall sensors (2-axis/3-axis sensors)
- Develop new applications for temperature and pressure sensors
- Expand automotive applications of MEMS sensors (acceleration, gyroscope, TIF sensors)

Expansion of sensors for consumer applications

- Develop higher-performance 6-axis sensors and expand customer base
- Expand consumer applications of TMR sensors (camera module actuators, e-Compass)
- Expand applications of MEMS sensors (microphones, fingerprint recognition, gas detection)
Magnetic Application Products Segment

A brief guide to magnets

Modern people would be helpless without them
Magnets, which retain their magnetic force without any supply of energy, are fundamental to sustaining modern society. For example, automobiles are equipped with about 100 compact motors that use ferrite magnets. Powerful neodymium magnets are also used in EV drive motors.

Going forward, demand for high-performance magnets is expected to grow even further, including magnets for industrial equipment, robot motors, and power generators used in wind power generating systems. Since its founding, TDK has spent more than 60 years refining the magnetic materials technology that is part of its DNA and will contribute to society by continuing to refine that technology.

The business strategy in Value Creation 2020

Although the use of HDDs in PCs is declining, data centers are expected to stimulate further growth in demand for HDD magnetic heads. In this sector, TDK will continue to enhance cost competitiveness and introduce leading-edge products with large capacity. By developing advanced technologies, such as thermal assisted magnetic recording (TAMR), microwave assisted magnetic recording (MAMR), and dual stage actuators, TDK is contributing to the industry as the world’s only specialized magnetic head manufacturer. While continuing to reform our profit structure, we will pioneer needs for automotive applications by tackling new technological developments.

In fiscal 2019 we expect net sales to decline by about 4%–7%. While sales quantities of HDD magnetic heads are seen to decline by about 6%, the application of HDD suspension technology developed by Hutchinson to new market sectors is expected to grow. We also anticipate sales of magnets to the automotive and industrial equipment and energy markets to remain firm.

Commercial Value (HDD magnetic heads & HDD suspensions)

Survive as the world’s only specialized magnetic head manufacturer by introducing technologies catering to the needs of the era of large-capacity storage

- Contribution to attaining higher density of HDDs
  - TAMR
  - MAMR
  - Dual stage actuator

- Application of suspension technology
  - Additive metal deposition components

Commercial Value (Magnets)

Restore growth and profitability by steadily capturing growing demand for motors and generators

- Achieve the design, prototyping, and mass production of magnets that optimize the efficiency of motors and generators (shape, magnetization, material)

- Implement Monozukuri Innovation to realize TDK’s Arubeki Sugata (ideal process) that will minimize losses

Contributing to further increasing storage density of HDDs

Thermal assisted magnetic recording (TAMR) heads
The evolution of HDDs toward higher storage densities was made possible by sophisticated miniaturization of the magnetic heads. Conventional technology in this area has its limits, but a solution to the problem lies in TAMR heads. The thermal fluctuation of magnetic particles increases as the temperature rises, making magnetization reversal (rewriting) easier even with a weak magnetic field at the head. The TAMR technology utilizes this effect by irradiating the recording layer with a laser spot to instantly heat it up while performing magnetic recording.

Microwave assisted magnetic recording (MAMR) heads
A spin-torque oscillator (STO) incorporated in the head generates a microwave field that is directed at the magnetic particles on the recording layer of the hard disk platter while recording. This intensifies the magnetic fluctuation of magnetic particles, which resembles the swinging motion of a spinning top, thereby facilitating magnetization reversal (rewriting) even with a weak magnetic field at the head. The advantage of this method lies in the fact that, unlike TAMR, there is no heating up of the recording layer.

Dual stage actuator
In addition to a swing scan around a pivot, the dual stage actuator uses a second swing structure located for instance on the suspension of the magnetic head. This greatly increases the positioning accuracy of the head. While the main actuator is driven as usual with a magnet and coil, the second swing structure employs a piezoelectric element that expands and contracts in response to a voltage.

Innovation in HDD magnetic heads and suspension

1959
Entering the magnetics business through ferrite application
The ferrite magnet material FB1A, developed in 1959, set TDK on the path to refining magnetic technology for many years.

2018
Pioneering the evolution of magnets for half a century
TDK has been pursuing the evolution of magnets for over half a century, right up to the latest neodymium magnets and lanthanum-cobalt-free ferrite magnets. Through the application of technology, we have produced various innovations, such as HDD magnetic heads.

TREY Corporation
Annual Report 2018
Energy Application Products Segment

**TDK energy application products have great potential**

Lithium-ion rechargeable batteries are widely used in mobile devices. A special type of this kind of battery is the rechargeable lithium polymer battery, which uses a polymer electrolyte in gel form. In addition to offering compact dimensions and light weight, such batteries also provide a high degree of shape flexibility, which is advantageous for replacing the formerly rectangular batteries in notebook computers and smartphones. Another area where surging demand for such batteries is expected are IoT devices, which need to combine small size with high capacity. Furthermore, amid the progress of power saving in various fields, power supplies with smaller size, lighter weight, and higher efficiency will be required. TDK’s lineup covers a broad range of applications, including AC-DC and DC-DC converters, automotive inverters, and wireless power transfer systems.

**The business strategy in Value Creation 2020**

With regard to batteries for mobile devices in the ICT market, we are further bolstering our position and stepping up development of products for wearable devices and drones by adapting successful models, and we are also exploring high-power markets, including e-scooters and automated guided vehicles (AGVs).

As for power supply products, we will provide custom solutions with high added value through vertical integration extending from materials to in-house products, and we will strengthen our development efforts in the market for automotive and industrial equipment.

Shifting focus from conventional stand-alone products to units that combine hardware and software gives TDK a unique advantage in delivering integrated power solutions with high added value.

In fiscal 2019, we expect net sales to grow by about 8%–11%. We plan to expand production volume by about 15%, including production capacities for mini cell and high-power battery products. This will allow us to reliably meet demand in the smartphone market, and we are also actively pursuing new application venues.

**Commercial Value**

- **Provide high-efficiency, high-reliability power storage and power supply solutions through vertical integration of materials and components**

**Batteries**
- Develop the mini cell market based on successes in the ICT market
- Apply materials technology and develop the power cell market based on collaboration with a strategic partner

**Power supply solutions**
- Address high-quality power supply solutions such as medical devices and robotics
- Expand programmable power supply and bidirectional power supply solutions
- Launch the EV power supply business targeting full-fledged expansion of the xEV market
- Pursue smaller, lighter, and higher-efficiency automotive power supplies

2005

- Acquisition of ATL opened the way into the battery market
- In 2005 TDK acquired ATL, a Hong Kong-based manufacturer of rechargeable lithium polymer batteries. This paved the way for our full-scale entry into the energy sector.

2018

- Moving toward power solutions
- ATL currently is one of the leading players in the consumer-use battery market. The wide lineup of TDK products, from standard to energy devices and power supplies, enables vertical integration and provides a solid base for comprehensive power solutions.

Solid-state battery CeraCharge™ allows charge/discharge

CeraCharge™ is the world’s first SMD type all-ceramic solid-state battery that supports charging/discharging cycles. By harnessing layering technology gained in the area of multilayer ceramic chip capacitors (MLCCs), we have realized high energy density and small dimensions. Taking advantage of the high degree of safety, we will concentrate on developing dedicated products for IoT devices, wearable devices, energy harvesting systems, and similar consumer equipment with low capacity requirements.
Corporate Governance

TDK from Outside Perspectives

In June 2018, Makoto Sumita, whose former position was Outside Director and Chairman of the Board, assumed the post of Chairman & Director; at the same time, Kazunori Yagi, whose former position was Outside Audit & Supervisory Board Member, was named Outside Director and Chairman of the Board. We asked them to discuss openly and honestly about corporate governance.

(Note that Mr. Sumita shared his thoughts from the position of a director with an outside perspective.)

The governance reform trend

Sumita: For many years, the management style at Japanese companies has focused on maintaining long-term employment and stable business growth. Looking back over the past quarter century, however, one comes across cases in which the failure of companies to let go of unprofitable units had an impact on business. Companies are now introducing corporate governance codes with the goal of more clearly aiming management in the direction of profit growth, and I think developments in corporate initiatives that align with this objective are a good thing. That said, I also believe that more accurate monitors, the role of outside directors will change according to the stage of a company’s development. And according to the stage of a company’s development. And according to the stage of a company’s development. And it is better that they take one year at a time, remaining constantly aware of questions of substance as they focus on business structure and fitness, and on responding to the posture of investors. From that standpoint, I think the revisions to the corporate governance code made in June of 2018 are designed to expose those companies whose efforts fail to involve matters of substance and that make only a formal response. The problem of so-called “short-termism” was one of the factors behind the current governance reforms. While a long-term approach to management is the ideal, taking only of far-off dreams can hardly be called management, and even investors focused on long-term holdings expect some kind of results over the medium term. Corporate management also needs to keep this middle term in mind.

The role of outside directors

Sumita: Efforts to strengthen governance in Japan are sometimes criticized as taking a biased interpretation that primarily centers on the use of outside directors to apply the brakes on corporate actions. I think this observation is right on the mark. The true role of outside directors is in designating corporate leaders who have the mindset and character to take on bold challenges aimed at improving corporate value. If the outside directors are able to recognize a certain amount of rationality in policies on the business execution side, they can provide their full support without insisting on an excessive degree of certainty regarding future forecasts. Just as venture companies require supporters more than they need monitors, the role of outside directors will change according to the stage of a company’s development. And because objectives vary from one company to another, that role varies as well.

Yagi: The role of outside directors is to monitor the suitability of management’s driving, for example, when they may be going dangerously fast for a particular stretch of road. Companies naturally take risks, so excessive braking at the threat of just any risk does not make sense. The question is how much risk the company should take; the business execution side has the experience and expertise to know how much risk is acceptable. My approach, except in cases where an action could put the survival of the company at risk, is to try to understand the intent of the action and advise them to give it a try if they insist.

Corporate governance at TDK

Sumita: TDK has implemented a number of forward-thinking efforts to date, introducing a system of Outside Directors in 2002 and increasing their number to three in 2009. We continue to maintain a strong awareness of the importance of governance. At the same time, there are issues. On the Board, Outside Directors and Outside Audit & Supervisory Board Members participate in discussions, but the business execution side tends to spend a considerable amount of time explaining things to us. This is effective of a corporate culture that tolerates a diversity of opinion, and careful explanations are always welcome. Still, sometimes the message can be conveyed more effectively when the business execution side can say with confidence, “we know there are a variety of opinions, but you can leave this up to us.” This also makes for more efficient Board meetings. For a company to grow, it requires momentum, too.

Yagi: TDK fostered a consensus around the importance of governance at a fairly early stage, and I think it can be considered on the forefront of governance in terms of both form and substance. How effective that governance is depends on whether a company’s nomination and compensation advisory committees are functioning substantively. The compensation advisory committee has contributed to raising the level of management remuneration in Japan, which was low by international standards, and in many cases has functioned substantively. At the same time, I suspect that many business leaders are resistant to the function of the nomination advisory committee, which may prevent them from appointing the successor they intended. TDK introduced its Compensation Advisory Committee (2002) and Nomination Advisory Committee (2008) long before the discussion about governance reached its current heights, and I think the Company has made solid progress in improving its effectiveness. My understanding of the outstanding issues is similar to that of Mr. Sumita.

Mr. Sumita’s appointment to Chairman & Director

Yagi: It is extremely rare for an outside director to join a company as its chairman. I can imagine having a watchdog appointed to the business execution side must have come in for some criticism. But if one defines that outsider status as someone having the perspective of external stakeholders, I believe that instead of delineating the role in terms of form, all directors should have that perspective. I think Mr. Sumita’s appointment as chairman will, in terms of substance, effectively strengthen governance at TDK. He has extensive management experience and knowledge of the Company’s business, and he has observed TDK from an objective viewpoint as an outside director. This appointment will free him of the restrictions of being an “outsider” and allow him to work toward improving TDK’s corporate value. Still, I think this was only possible because someone like Mr. Sumita happened to be available for the role just as his predecessor Mr. Kamigama was resigning. Continuing in a similar vein going forward will likely be more difficult.
Value Creation 2020

Sumita: A considerable amount of time was apparently spent on working out the details of this Medium-Term Plan. When it was first explained to me, I could sense the strength of the president’s aspirations.

The plan focuses not only on top-line growth, but on simultaneously developing Commercial Value, Asset Value, and Social Value. Of these, the sensor business will be key to achieving the plan for Commercial Value.

The inclusion of Asset Value is a statement of TDK’s intent to maintain financial discipline, balance its investment of management resources, and narrow its focus where necessary. Business opportunities are expanding, not just in batteries and sensors but in all of our businesses. Commensurate investment is required, so I think the skills of our financial executives will be put to the test. At the same time, my honest impression is that since the plan touches little on dividends, investors, and other factors indicates to me that, to date, capital efficiency has been less than stellar. TDK is one of the industry’s most diversified companies, with many possibilities for growth. Combining those possibilities will allow the Company to offer customers a variety of solutions. Because the business is not structured solely around specific products, fields, or customers, you have also been able to reduce risk. While this diversification makes more than enough sense, it inevitably results in lower efficiency. Looking back at the past 10 years, I think the Company has consistently seen its asset turnover ratio fail. I believe that for TDK, Asset Value is a particularly important issue.

Hopes for TDK in the future

Sumita: As a free and open collective of individual business companies and regional groups, TDK is working to improve and grow. Still, investors will not support us unless we deliver results. I hope to see us become even more fixated on delivering results.

As a free and open collective of individual business companies and regional groups, TDK is working to improve and grow. Still, investors will not support us unless we deliver results. I hope to see us become more fixated on delivering results.

Concerning the sensor business. This is why the current plan is successful, and the Company has consistently seen its asset turnover ratio fail. I believe that for TDK, Asset Value is a particularly important issue.

Factors behind strengthening of corporate governance

• Particularly in consumer-use components in the ICT field, performance will be affected by short-term market fluctuations. At the same time, it can take from several years to as long as a decade to see the results of investment in R&D expenses, and management decisions need to be based on a medium- to long-term perspective.

• As a global company, ensuring business moves forward smoothly requires a governance structure that is also compatible with the standards of countries in Europe and the Americas.

• With non-Japanese employees representing in excess of 90% of the workforce on a consolidated basis, TDK needs to consider issues to be addressed in the future, the Board of Directors recognized that, in order to steadily implement the new Medium-Term Plan, it would be important to properly demonstrate the supervisory and advisory functions on a continuous basis, further strengthen the corporate governance and compliance systems, including sharing in a timely manner important matters with the Board of Directors as well as responding to global business deployment, and further enhance the operational efficiency of the Board of Directors.
Sustained Improvements Stressing Effectiveness

Designing structures that emphasize increases in corporate value over the long term

POINTS
- TDK has pursued an optimal balance between monitoring-type governance (separation of management execution and supervisory functions) and management-type governance (Directors also serve as Corporate Officers).
- TDK appointed an Outside Director as Chairman & Director.

Emphasis on effectiveness over form

TDK has put inside directors in charge of non-business divisions and is working to increase the pace of decision-making and reinforce both monitoring and supervisory functions while designing structures that place greater emphasis on raising corporate value than form in all areas, including the processes related to nomination and compensation and policies on the appointment of outside officers. The appointment of an Outside Director as Chairman & Director is one part of these efforts.

From Outside Director to Chairman & Director of the Company

Mr. Sumita was appointed an Outside Audit & Supervisory Board Member in June 2011, served as an Outside Director starting in June 2013, and was recently appointed Chairman & Director. He has become well acquainted with the Company’s management, business details, and so on through his performance of his duties and was appointed with the expectation that he will reinforce decision-making on material matters, supervision of the performance of duties, and corporate governance from the perspective of an outside stakeholder.

Highly transparent nominating system

POINTS
- TDK established the Nomination Advisory Committee, chaired by an Outside Director and comprising a majority of Outside Directors.
- The Committee contributes to ensuring the appropriateness of nominations for TDK’s Directors, Audit & Supervisory Board Members, and Corporate Officers, and transparency in the decision-making process.

Nomination policies and procedures

TDK established the Nomination Advisory Committee as an advisory body to the Board of Directors. The committee is chaired by an Outside Director, and a majority of its members are also Outside Directors. It contributes to securing transparency in the decision-making process and reasonableness in the appointment of Directors, Audit & Supervisory Board Members, and Corporate Officers by nominating candidates after deliberating on the expected requirements regarding nomination of Directors, Audit & Supervisory Board Members, and Corporate Officers. The Committee also deliberates on the independence of Outside Directors.

When nominating the CEO, the Committee formed an image of the ideal person suitable for the role of top executive and conducted deliberations that also covered such issues as systems and the term of office. An outside expert organization was also utilized, and efforts were made to ensure objectivity.

Outside officers appointed with an emphasis on effectiveness

POINTS
- TDK has established “items to be verified regarding independence” to ensure the independence of Outside Directors and Outside Audit & Supervisory Board Members.
- TDK has a deep understanding of technology and knowledge of global management.
- Outside Audit & Supervisory Board Members comprise professionals from important and diverse fields of expertise, including finance, legal affairs, internal controls, risk management, and others.

One-third or more of the Directors is independent Outside Directors

The Board of Directors, comprising Directors and Audit & Supervisory Board Members, has a total of 11 members, of whom five are outside officers. To secure the independence of the Outside Directors and Outside Audit & Supervisory Board Members recruited to the board, TDK established “items to be verified regarding independence” by making reference to Article 436-2 (Securing Independent Director(s)/Auditor(s)) of the Securities Listing Regulations and Section III, 5(3)-2 of the Guidelines Concerning Listed Company Compliance, etc., established by the Tokyo Stock Exchange, Inc.

The basic policy is that one-third or more of the Directors shall be independent Outside Directors. Currently, three of seven directors are independent Outside Directors, and an independent Outside Director is chairman of the Board. To reinforce the independence, objectivity, and accountability functions of the Board of Directors in relation to the nomination and compensation of officers, majority of the Nominating Advisory Committee and the Compensation Advisory Committee, which are advisory organizations to the Board of Directors, are independent Outside Directors and both committees are chaired by independent Outside Directors.

Reasons for nomination of Outside Directors and Outside Audit & Supervisory Board Members

Outsider Officers

<table>
<thead>
<tr>
<th>Outside Directors</th>
<th>Reasons for nomination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazunori Yoshida</td>
<td>Mr. Yoshida has an abundance of experience and knowledge concerning the management of companies related to the electronics industry, global business, and consumer businesses as well as a broad perspective.</td>
</tr>
<tr>
<td>Kazuhiko Ishimura</td>
<td>Mr. Ishimura has abundant experience and knowledge concerning the management of companies related to electronics industry, global business, and consumer businesses as well as a broad perspective.</td>
</tr>
<tr>
<td>Kazumasa Yoshida</td>
<td>Mr. Yoshida has extensive knowledge related to finance and accounting, as well as an abundance of experience and knowledge concerning corporate management in the electronics industry.</td>
</tr>
</tbody>
</table>

Outside Audit & Supervisory Board Members

<table>
<thead>
<tr>
<th>Outside Officers</th>
<th>Reasons for nomination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toru Ishiguro</td>
<td>Mr. Ishiguro has expertise in the law as an attorney, specialized knowledge regarding corporate governance and internal control, and considerable insight in such areas.</td>
</tr>
<tr>
<td>Kiyoshi Fujimura</td>
<td>Mr. Fujimura has extensive knowledge related to finance and accounting, as well as an abundance of experience and knowledge concerning corporate management of a general trading company.</td>
</tr>
</tbody>
</table>

Outside Directors with extensive practical experience

Persons recruited as independent Outside Directors have extensive practical experience relating to corporate management or a high level of financial knowledge and are able to provide advice from an independent perspective with regard to general management for enhancing the Company’s corporate value.

Kazumasa Yoshida
Former Representative Director and President Intel K.K.

Kazuhiro Ishimura
Chairman & Director (present post) AGC Inc.

Kazunori Yagi
Former Director, Executive Vice President and General Manager of Management Administrative Headquarters Yokogawa Electric Corporation
Remuneration system linked to medium- to long-term corporate value

**POINTS**
- The system was designed with an emphasis on linkage with short-term as well as medium- to long-term results.
- TDK constantly pursues the formulation of a competitive remuneration system to secure diverse and excellent human resources.
- TDK aims to set remuneration at levels enabling the maintenance of competitiveness compared with other companies of similar scale, mainly in the same business category.

Design and determination process of the remuneration for Directors and Audit & Supervisory Board Members

TDK designs its remuneration system for Directors and Audit & Supervisory Board Members with an emphasis on linkage with short-term results as well as medium- to long-term results, and also continuously pursuing the formulation of a competitive remuneration system so that it can recruit diverse and exceptional human resources, for the purpose of achieving as much as possible a behavior on the part of Directors and Corporate Officers geared toward enhancing corporate results and stock value. With regard to the determination of individual compensation, the Compensation Advisory Committee, which is chaired by an independent Outside Director and of which more than half of the members are independent Outside Directors, examines the remuneration system and the level of remuneration pertaining to Directors and Corporate Officers and reports to the Board of Directors in order to preserve the transparency of the remuneration decision-making process and help ensure that individual remuneration is reasonable.

Results Linkage System

<table>
<thead>
<tr>
<th>Factor</th>
<th>Type of compensation</th>
<th>Strategic purpose of compensation</th>
<th>Method of calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term results linkage system</td>
<td>Results-linked bonus</td>
<td>Intended to clarify the responsibility of Directors and Corporate Officers to achieve consolidated financial results in each fiscal year and to increase motivation for raising short-term financial results.</td>
<td>In addition to consolidated financial results (operating income, ROE) in the relevant fiscal year, indicators are set for each division, and bonuses vary from 0% to 200% of base salary depending on the degree of attainment of targets.</td>
</tr>
<tr>
<td>Medium- to long-term results linkage system</td>
<td>Stock-linked compensation stock options</td>
<td>A system for raising corporate value from a medium- to long-term perspective and for Directors and Corporate Officers to share with shareholders not only the benefits of raising share prices but also the risks of falling share prices.</td>
<td>The exercise of a portion of stock options (stock-linked compensation) is conditioned on achieving certain financial results. For the consolidated financial results (operating income, ROE) under the Medium-Term Plan are set as indicators, and the number of options that can be exercised ranging from 0% to 100% of the options granted depends on the degree of achievement of those indicators. TDK established the Corporate Stock Ownership Guidelines and encourages officers to hold at least a certain number of shares (including stock options) set according to the officer’s tasks.</td>
</tr>
</tbody>
</table>

Standard Allowance

- Basic remuneration
- Short-term incentive (Results-linked bonuses)
- Medium- to long-term incentive (Stock-linked compensation stock options)

Changes in total amount of remuneration for Directors and Audit & Supervisory Board Members

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Operating income</th>
<th>ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2014</td>
<td>¥304 billion</td>
<td>1.3%</td>
</tr>
<tr>
<td>FY2015</td>
<td>¥311 billion</td>
<td>1.5%</td>
</tr>
<tr>
<td>FY2016</td>
<td>¥335 billion</td>
<td>1.8%</td>
</tr>
<tr>
<td>FY2017</td>
<td>¥367 billion</td>
<td>1.9%</td>
</tr>
<tr>
<td>FY2018</td>
<td>¥377 billion</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

* Including ¥144.4 billion in business transfer gains associated with the establishment of the joint venture business with Qualcomm.

Diversity in response to globalization

**POINTS**
- Six of 17 Corporate Officers (35%) are non-Japanese.*
- Human Resources HQ was established in Germany to promote further globalization. * As of the end of June 2018

Promoting diversity in management systems

TDK began encouraging globalization at an early stage, appointing a non-Japanese as Corporate Officer in 2004 and promoting the globalization of management by increasing the number of non-Japanese Corporate Officers since then. Today, more than 90% of sales and employees are overseas, while 35% of the Company’s Corporate Officers are non-Japanese. In recent years, globalization has advanced as TDK implemented a number of mergers and acquisitions, and the globalization and diversification of management structures is an important issue. We will continue to recruit outstanding human resources from around the world under the Human Resources HQ established in Germany in 2017.

Corporate Governance
Corporate Governance

Directors, Audit & Supervisory Board Members, and Corporate Officers

(AAs of the end of June 2018)

Directors

Shigenao Ishiguro
Representative Director
President and CEO
General Manager of Human Resources
Corporate Management HQ

Tetsuji Yamanishi
Representative Director
General Manager of Finance & Accounting HQ

Makoto Sumita
Director
Chairman

Seiiji Osaka
Director
General Manager of Corporate Strategy HQ
In charge of Human Resources

Kazumasa Yoshida
Outside Director
Chairman of Compensation Advisory Committee
Member of Nomination Advisory Committee

Kazuhiko Ishimura
Outside Director
Member of Nomination Advisory Committee
Member of Compensation Advisory Committee

Kazunori Yagi
Outside Director
Chairman of the Board
Chairman of Nomination Advisory Committee
Member of Compensation Advisory Committee

Audit & Supervisory Board Members

Junji Yoneyama
Full-Time Audit & Supervisory Board Member

Osamu Yotsui
Full-Time Audit & Supervisory Board Member

Toru Ishiguro
Outside Audit & Supervisory Board Member

Kiyoshi Fujimura
Outside Audit & Supervisory Board Member

Corporate Officers

President and CEO
Shigenao Ishiguro
Senior Executives
Hiroyuki Uemura
Executive Vice Presidents
Atsuo Kobayashi
Noboru Saito
Tetsuji Yamanishi
Mitsuru Nagata

Senior Vice Presidents
Joachim Thiele
Satoru Sueki
Michael Pocsatko
Hong Tian
Albert Ong
Dai Matsuoka
Osamu Hikita
Andreas Keller

Corporate Officers
Takakazu Momozuka
Joachim Thiele
Satoru Sueki
Michael Pocsatko
Hong Tian
Albert Ong
Dai Matsuoka
Osamu Hikita
Andreas Keller

Corporate Officers
Takakazu Momozuka
Joachim Thiele
Satoru Sueki
Michael Pocsatko
Hong Tian
Albert Ong
Dai Matsuoka
Osamu Hikita
Andreas Keller
Corporate Information
TDK Corporation and Consolidated Subsidiaries (U.S. GAAP)
As of March 31, 2018

Corporate Name
TDK Corporation

Corporate Headquarters
Nihonbashı Takashimaya Mitsui Building,
2-5-1 Nihonbashı, Chuo-ku, Tokyo 103-6128

Date of Establishment
December 7, 1935

Authorized Number of Shares
480,000,000 shares

Number of Shares Issued
129,590,659 shares

Number of Shareholders
21,565

Common Stock
¥32,641,976,312

Securities Traded
Tokyo Stock Exchange (Listed on the 1st Section in October 1961)

Securities Code
6762

Number of Employees
(Consolidated)
102,883

Transfer Agent
Sumitomo Mitsui Trust Bank, Limited
1-4-1, Marunouchi, Chiyoda-ku, Tokyo 100-8233

Independent Registered Public Accounting Firm
KPMG AZSA LLC (the Japan member firm of KPMG International)

ADR Information
Type
Level 1 with sponsorship

ADR Ratio
1 common stock = 1 ADR

Ticker Symbol
TTDSKY

CUSIP
872351408

Depositary Bank
Citibank, N.A. Shareholder Services
P.O. Box 43077
Providence, Rhode Island 02940-3077
U.S.A.
Tel. 1-877-248-4237 CITI-ADR (toll free)
Tel. 1-816-843-4281 (out of U.S.)
Fax. 1-201-324-3284
URL: http://www.citi.com/adr
E-mail: citibank@shareholders-online.com

Principal Shareholders (10 largest shareholders)

<table>
<thead>
<tr>
<th>Name of shareholder</th>
<th>Number of shares held (thousands of shares)</th>
<th>Percentage of number of shares held in the total number of issued shares (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Master Trust Bank of Japan, Ltd. (trust account)</td>
<td>24,086</td>
<td>19.08</td>
</tr>
<tr>
<td>Japan Trustee Services Bank, Ltd. (trust account)</td>
<td>14,404</td>
<td>11.41</td>
</tr>
<tr>
<td>Trust &amp; Custody Services Bank, Ltd. (Securities investment trust account)</td>
<td>3,437</td>
<td>2.72</td>
</tr>
<tr>
<td>STATE STREET BANK WEST CLIENT - TREATY 505234</td>
<td>2,355</td>
<td>1.87</td>
</tr>
<tr>
<td>Japan Trustee Services Bank, Ltd. (Trust account 5)</td>
<td>1,999</td>
<td>1.58</td>
</tr>
<tr>
<td>JPMC OPPENHEIMER JASDEC LENDING ACCOUNT</td>
<td>1,839</td>
<td>1.46</td>
</tr>
<tr>
<td>STATE STREET BANK AND TRUST COMPANY 505001</td>
<td>1,797</td>
<td>1.42</td>
</tr>
<tr>
<td>Nippon Life Insurance Company</td>
<td>1,640</td>
<td>1.30</td>
</tr>
<tr>
<td>Japan Trustee Services Bank, Ltd. (Trust account 7)</td>
<td>1,634</td>
<td>1.29</td>
</tr>
<tr>
<td>Japan Trustee Services Bank, Ltd. (Trust account 9)</td>
<td>1,626</td>
<td>1.29</td>
</tr>
<tr>
<td>Total</td>
<td>54,817</td>
<td>43.42</td>
</tr>
</tbody>
</table>

Note: Other than the above, the Company holds 3,346 thousand shares of treasury stock.

Status by Ownership

- Japanese Financial Institutions 48.56%
- Foreign Institutions and Individuals 38.58%
- Japanese Individuals, etc. 6.72%
- Japanese Securities Firms 2.73%
- Treasury Stock 2.58%
- Japanese Corporations 0.82%

TDK Stock Price and Volume

Investor Relations (IR)

- Securities Reports
- Quarterly Financial Statements
- Operational Risks

Non-Financial Information

- CSR REPORT 2018
- CSR Activities

Product Information and Services

- TDK Product Center

About Our Website

Financial Information

Non-Financial Information

Product Information and Services