

Top Message



Hideo Takasaki
Representative Director, President
CEO
Nitto Denko Corporation

The Nitto Group Will Continue to Support Our Customers and Create New Values for the Next 100 Years to Realize a Sustainable Society

Building on the Nitto Group's "DNA" to Bring about Innovations for the Next 100 Years to Come

The Nitto Group celebrated the centennial anniversary of its foundation in 2018. Reaching a major milestone is invigorating. In our quest to realize our Mission, "Contribute to customers' value creation with innovative ideas," we have identified the opportunities presented by changes in the market and the world at large since the inception of our business, thus creating values unique to the Nitto Group. Underlying this philosophy is a determination shared throughout the Group, that is, each and every employee should demonstrate a sense of ownership and listen with utmost care to what customers have to say to help them to find solutions to their issues. In this sense, all of our employees are in the business of marketing.

In the upcoming 100 years, we will be required to build a sustainable society where people can lead a sound and healthy life. If we - "Nitto Persons" with DNA of the Nitto Group - are to make such a future a reality, we must fulfill the important duty of "challenging ourselves to make innovations over the next 100 years."

Because we are a B2B manufacturer finding ourselves somewhere between upstream and downstream of the value chain, a number of our products may not be visible to consumers. In the next 100 years, however, it will be important to enhance a public perception that the Nitto Group is a company that offers values essential for making innovations happen. For this, we must maintain an excellent reputation among our customers so that they will say, "Because of the Nitto Group's involvement in the crucial part of our development process, we are able to realize products that we want to create." I believe whether or not we can continue to offer such value will hold the key to our growth over the mid- and long-term.

Top Message

Creating Values Only the Nitto Group Can - Age-old Strengths and the Business Model that Make it Possible

On top of the fundamental strengths of corporate culture and core technological prowess based on polymer synthesis and processing technologies that have been honed over the years, the Nitto Group is privileged to have diverse business domains and competitive intellectual property rights that result from said fundamental strengths, as well as a valuable customer base that covers a wide spectrum of industrial sectors. For us to achieve sustainable growth and keep increasing our corporate value over the long term, we must make constant efforts to broaden our business domains, and it is "Sanshin Activities (three "new" activities)" and "Niche Top Strategy" - two of the Nitto Group's original business models - that will make this possible.

Take, TEMISH®, as an example of "Sanshin Activities." This porous resin filter was originally intended for clothing, repelling water but allowing the passage of air. We subsequently developed a "new" application as a vent for auto lamps and a "new" product as a micro filter featuring a new technology, successfully creating broad "new" demands in the form of air filters for clean rooms to mobile phone parts and electrical components for automobiles. Meanwhile, one of the Global Niche Top™ products, REVALPHA® was originally developed as a surface protection film but went on to create a market in which the Nitto Group has a competitive advantage, namely, an application for fixing electronic components at the production process.

The Nitto Group is proud to have a corporate culture of fostering technologies and products with perseverance. For instance, we began research and development of ITO (Indium-Tin Oxide) films, which is one of the essential components for touch panels, more than 40 years ago. They were ahead of their time though, as upon their release in the 1980s there was little demand for them in the market. Yet, we continued to develop new applications, believing that we should retain technologies that are half a step ahead of our customers' needs. Our efforts paid off, and things made a sudden turn for the better with the advent of smartphones in the 2000s.

Indeed, some of our current mainstay businesses started by catering to niche markets. As we produced one new product and business after another, they began to converge to shape the Nitto Group's business portfolio.



Sanshin Activities and Niche Top Strategy - Nitto Group's Unique Business Models to Achieve Sustainable Growth

What is also important is to keep advancing our business from merely selling products (= things) to customers, which we have been so accustomed to, to offering total solutions (= services) by tapping into the Nitto Group's collective strengths in response to changing market environment.

Keeping Evolving Flexibly in the Ever-Changing Business Environment

The market environment that we find ourselves in keeps changing faster than ever before, a good example of which is the auto industry where technological innovation is making rapid progress as symbolized by the acronym, CASE (Connected, Autonomous, Shared, and Electric), while realignment beyond existing industry boundaries is on the cusp of beginning any time, such as between the energy industry and the information communication industry. Added to these are the ongoing progress in digitalization and other scientific technologies, such as artificial intelligence (AI) and the Internet of Things (IoT), the possible impact that the burgeoning protectionism in the U.S. could have on the economic activities of the world, and the intensifying global-scale competition among enterprises, all of which could bring about significant changes to the external environment.

For us to adequately respond to such changes in the world, we need to keep changing ourselves flexibly while moving forward, underpinned by our Corporate Philosophy and corporate culture, The Nitto Way. We will thus meet the expectations of our customers and the general public.

Determining "Material Issues for Sustainability" to Draw up Mid- and Long-Term Management Plans

Now, what values will be in demand among customers and in the future world? To answer this question, we cannot be diverted from the perspective of sustainability. For the Nitto Group to sustain its growth, we definitely need to manage our company with the environmental, social, and governance (ESG) criteria in mind, in other words, "simultaneously solve social issues and enhance corporate value." It is also important what innovations the Nitto Group creates and how it enhances the quality of its management.

This being the case, at the beginning of fiscal 2019 we came up with "material issues for sustainability" which include both issues to be addressed through products and services and issues to be tackled by reinforcing the management foundations, thus clearly defining the significance of ESG in the context of business management and prioritizing our initiatives. Our next challenge will be how we should incorporate such material issues in the mid- and long-term business plans. To do so, the management team needs to set a concrete model and, as the top manager, I will show the way forward and guide our employees accordingly.

Co-creating Value through Innovation (Issues to be Addressed through Products and Services)

In order to contribute to solutions to social issues that face the world, we are required to address them directly through our products and services. Our products are being supplied to a large variety of markets and, from among numerous social issues, we have narrowed the possibilities down to three areas where we can co-create values through innovations based on a matrix of: if a market

Top Message

offers high growth potential that promises business opportunities and if the Nitto Group can demonstrate its strengths in the market.

The first area is infrastructure development for digital equipment that facilitates human mobility by car and other means to reduce the number of accidents and traffic congestion and facilitates the move toward a smart-society. The second area deals with such issues as depletion of energy and resources and contamination. For this, we will reduce negative environmental impact by spreading use of renewable energy, encouraging energy-conservation, and developing products that promotes cyclic use of plastics, metals, water, and other resources. The third area concerns contributions to good health, medical services, and well-being of people. We will also engage in development of oligonucleotide medicines and other pharmaceutical products. By leveraging the Nitto Group's strengths, we will proactively work on these issues.

Enhancing Management Quality for Co-creating Value (Issues to be Addressed by Reinforcing the Business Foundations)

Delivering products of paramount quality to customers is the primary mission of the Nitto Group. However, as recent years have seen growing attention being paid to the quality of manufacturing processes, in addition to quality, cost, and timely delivery, customers and other stakeholders are increasingly interested in the quality of our manufacturing processes. In response, we are surely implementing responsible manufacturing with a focus on product safety, work environment, human rights, and environmental conservation, among others. These activities need to be performed by involving the entire value chain. With the understanding of this by our suppliers and customers, the Nitto Group will fulfill our responsibilities.

At the same time, in order to reinforce the management foundations and bring about innovations, we must give diverse human resources full play. How we can attract able human resources and maximize employees' competency has become a management issue that is more important than ever.

Establishing a Workplace Culture that Respects the Challenging Spirit and Supports Growth of Employees


The Nitto Group cherishes a culture that encourages and supports employees in their attempts to create innovations. One of the unique systems that facilitate such attempts and thus support their growth is a "management fund," whose investment decisions are made quickly. This fund is typically invested in new businesses, as they often require us to move promptly.

To raise small buds of research and development and new technologies, it is important to have a Group-wide, long-term perspective, in addition to being able to make speedy decisions.

The "management fund" allows us to make flexible investment decisions for future business growth even in the rapidly changing business environment.

Human Resources are our Most Important Assets - Every Employee is a Representative of the Group

For the Nitto Group, "human resources" are the single most important assets in creating corporate values. The Group has manufacturing, processing, research and development, and sales



The Nitto Group will continue to offer its unique added values to customers in a bid to assist them in the value creation process.

bases in 28 countries and regions, and two thirds of its employees are non-Japanese nationals. Because of this, it has become more important than ever to maintain our unique corporate culture by developing "Nitto Persons" around the world, who, regardless of nationality or gender, comprehend the Nitto Group's Corporate Philosophy, including The Nitto Way.

With this in mind, we have developed an original curriculum and a system for human resources development. At the same time, in order to foster a workplace environment where diverse human resources can work lively, we cannot do without the diversity and inclusion approach. If we can reflect multifaceted perspectives in our business management, I believe that it should be easier for us to create new values.

Every employee is a representative of the Nitto Group. Wherever they go in the world, I hope that they act as a representative of the Group with pride and confidence.

To Enhance "Management Safety"

At the base of the Nitto Group's growth is "management safety." Accordingly, we have implemented a series of corporate governance reforms, including the appointment of outside directors, introduction of stock options as a performance-linked compensation (which was later replaced by the performance-linked share-based remuneration and restricted share remuneration), and establishment of an advisory committee with third-party members. We doubly ensure compliance and carefully maintain the corporate governance structure in order to prevent any wrongdoing or information leakages from occurring. Going forward, we will ensure transparency of our management and constantly seek ways to enhance effectiveness of the sound corporate governance structure.

To Realize the Nitto Group's Goal

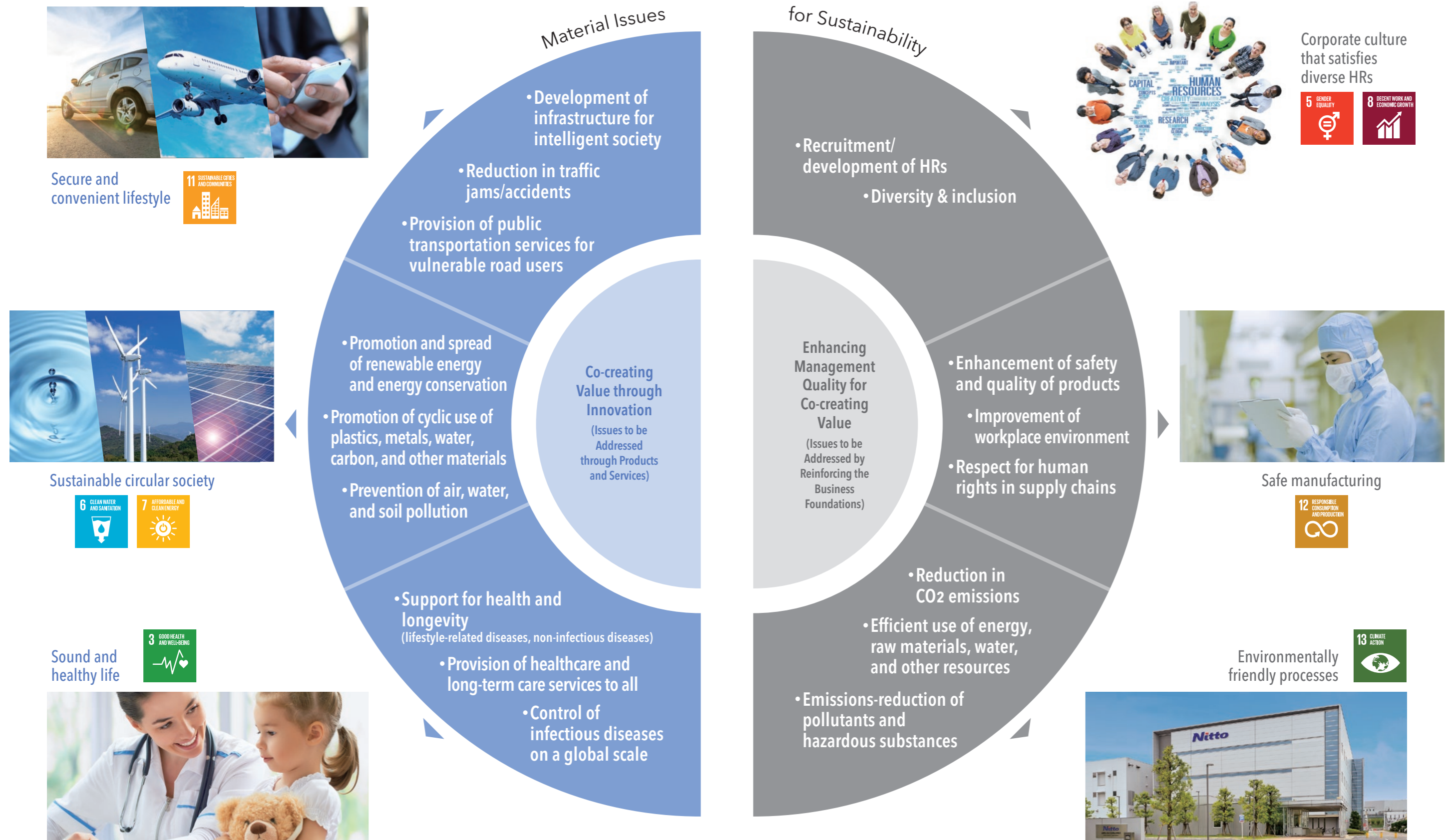
I believe that, as a supplier of intermediate materials, the Nitto Group should continue to aim at the goal of contributing to the establishment of a sustainable society.

Together with our customers, we will continue creating innovations by offering products and services unique to the Nitto Group and work on various issues promptly and honestly while at the same time conducting business with ESG and capital cost in mind.

We will remain committed to creating new values for society, hand in hand with our customers.

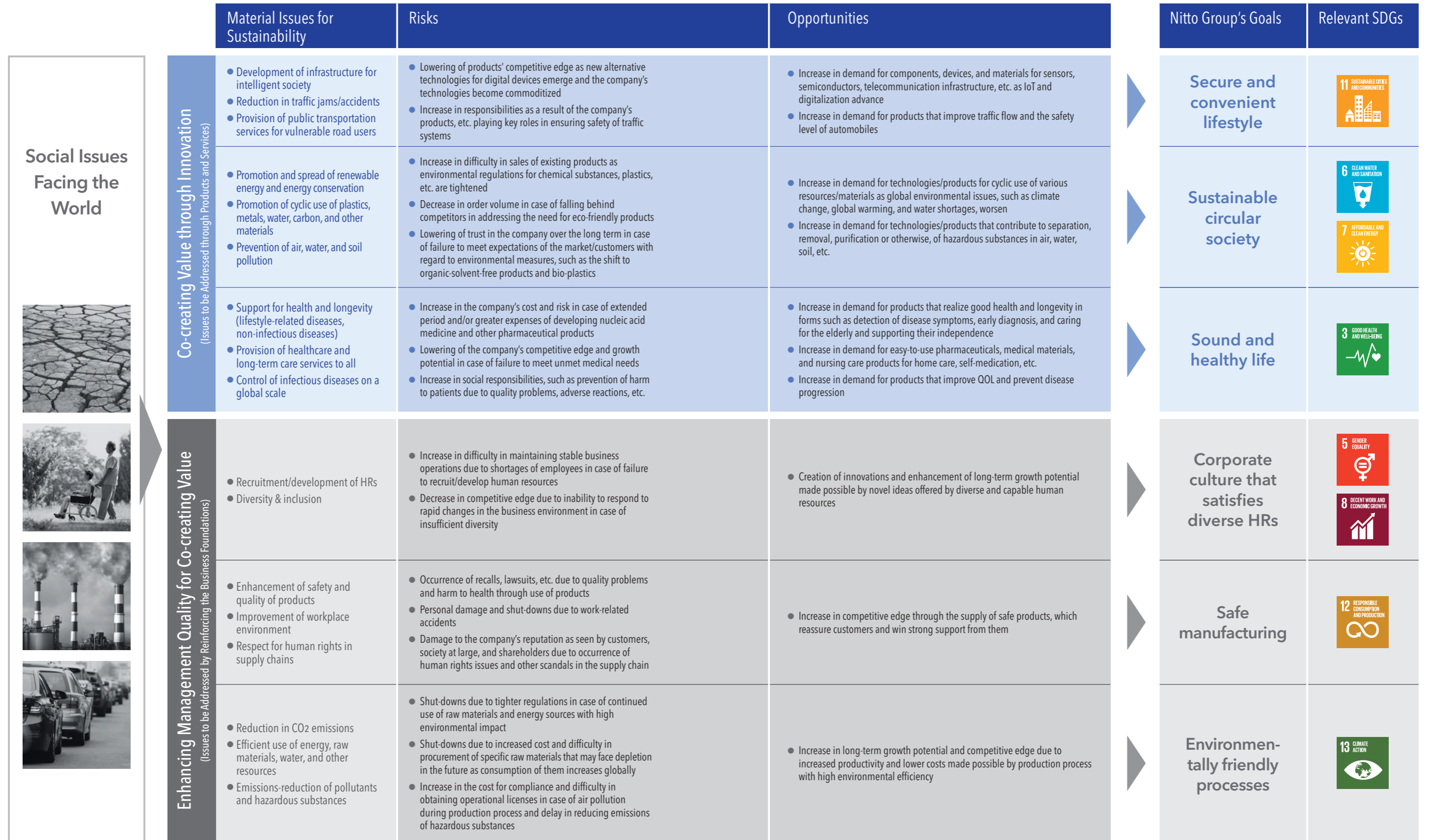
Identification of Material Issues for Sustainability

The Nitto Group has identified material issues for sustainability in order to simultaneously solve social issues and enhance corporate value. Two criteria were used for selection: whether it is for "co-creating value through innovation," which is achieved through products and services, and whether it is for "enhancing management quality for co-creating value," which is made possible by reinforcing the management foundations. In addressing these, we begin by recognizing risks and opportunities associated with each issue and feed them back to business plans.



Identification of Material Issues for Sustainability

» Associated Risks and Opportunities

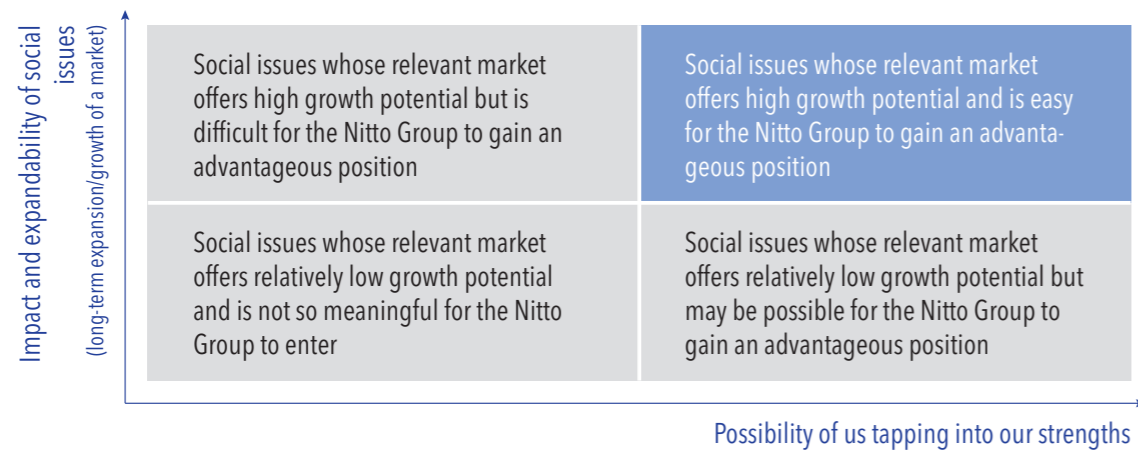
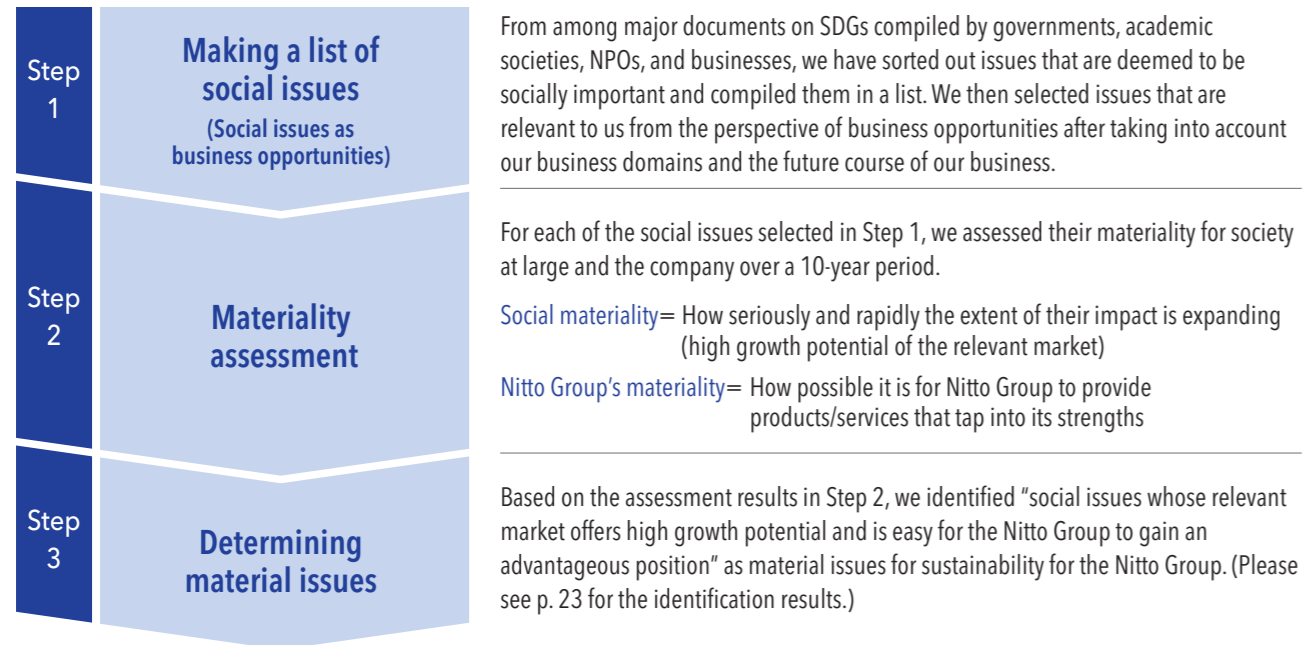


Identification of Material Issues for Sustainability

» Identification Process

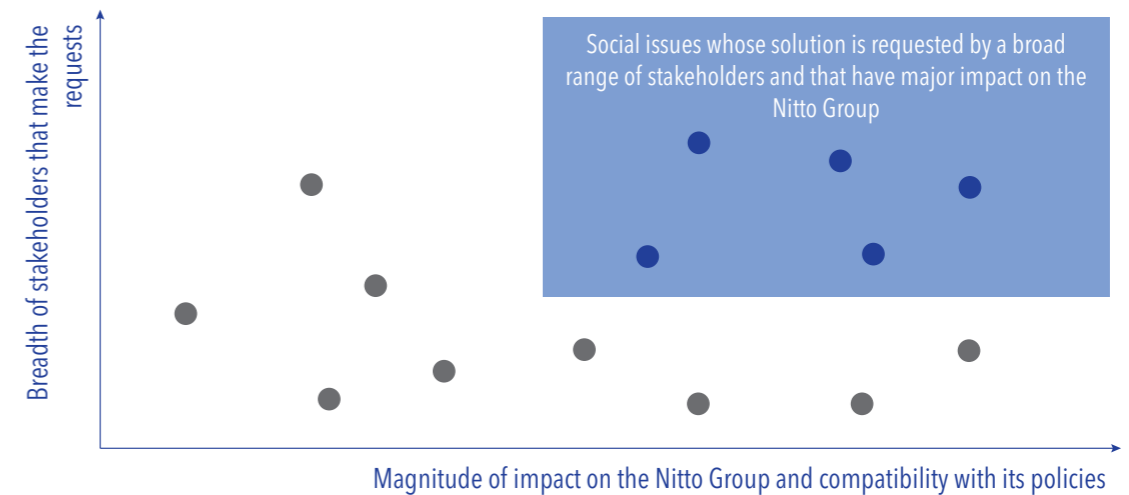
Co-creating Value through Innovation (Issues to be Addressed through Products and Services)

Initiatives taken spontaneously through businesses designed to "simultaneously solve social issues and enhance corporate value"



Enhancing Management Quality for Co-creating Value (Issues to be Addressed by Reinforcing the Business Foundations)

A prerequisite to "simultaneously solve social issues and enhance corporate value," which is addressed in response to requests from stakeholders



Comments from outside stakeholders



Mr. Keisuke Takegahara
Executive Officer, Deputy Chief Research Officer, Chief Manager of Sustainability Management Office, Corporate Planning & Coordination Department, Development Bank of Japan Inc.

Having gone over the selection process of the Nitto Group's material issues for sustainability, I found the identification process most distinctive. Their laudably elaborate analysis and focus on reproducibility impressed me profoundly. Among stakeholder groups, long-term investors tend to value "robustness (resilience or sustainability)" of a company's business model, and I believe that Nitto Group distinguishes itself from competitors by analyzing and mapping expandability of social issues and markets over a 10-year period. What also makes their approach unique is the fact that they bother to determine materiality of not only issues related to business but also those that concern their business foundations. Going forward, I expect that this framework will be shared by their management and employees alike and will lead to stories of value creation into the future.



Mr. Takashi Nawa
Adjunct Professor School of International Corporate Strategy Hitotsubashi University Business School

Most of the material issues for sustainability identified by the Nitto Group are social issues that have already gained general recognition. In the next step, for the Nitto Group to further distinguish itself, I expect them to consider material issues for sustainability that embody the Nitto Group's Corporate Philosophy, such as creation of a "net positive world," which leads to solutions to latent issues or the joy of society at large. To this end, they need to have open discourse with people from both within and outside the company. I suggest that they consciously go through a process of gathering as many ideas of a different nature as possible by having discussions with C-Level executives, within each business division, with young employees, and with people from overseas. I'm hoping that they will challenge themselves with the creation of new value that only the Nitto Group can offer, above and beyond offering solutions to the ailments (social issues) of the world.

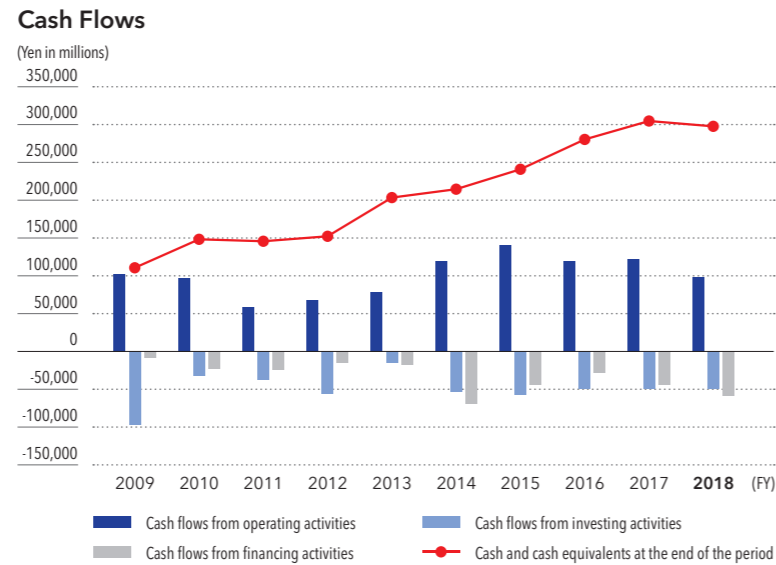
Financial Strategies

Nitto Group's Financial Base

The Nitto Group aims to build a well-balanced, sound financial base that aligns continual enhancement of corporate value with long-term interest of all stakeholders.

Our basic financial policy is, with generated ample cash flows from operating activities through development and sale of competitive products, to enhance capital adequacy as we are operating in fields that are changing fast and pose high risks, such as optronics and life science.

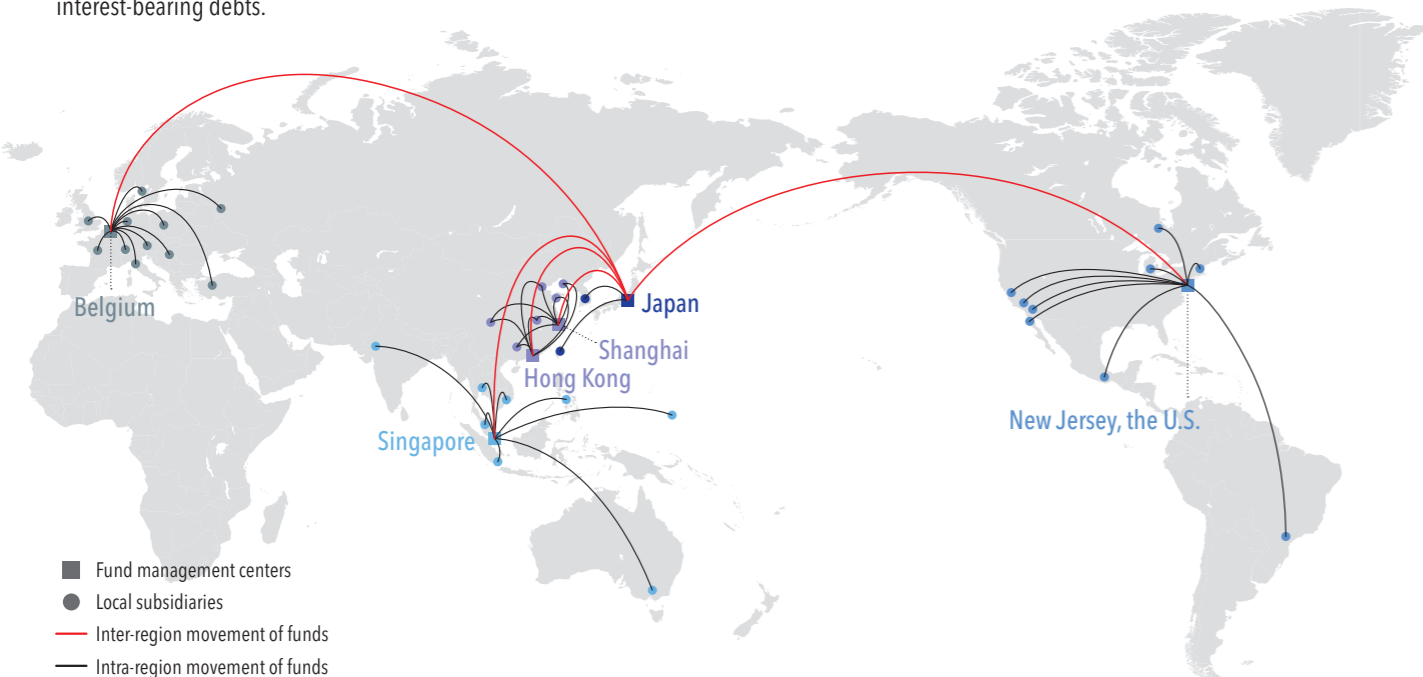
Meanwhile, we consider it important to provide returns to shareholders. Accordingly, we maintain a sound financial base while consistently paying dividends and repurchasing our own shares flexibly.



Cash Management

The Nitto Group has introduced a global cash management system to keep track of any and all funds within the Group in a timely fashion. A fund management center at each region consolidates such funds to increase the efficiency of them.

Through these activities, the Group prevents outflow of costs associated with forex risk hedging from the Group and reduces consolidated interest-bearing debts.



Application of Cash Flows

The Nitto Group uses cash flows generated by its business activities for 1) Capital investment, 2) Dividends, 3) M&As, and 4) Share buyback, by taking into account the balance between business growth and return to shareholders.

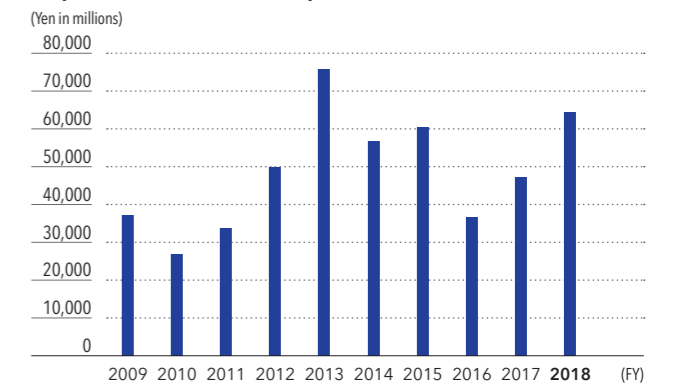
Capital Investment and M&As

The Nitto Group has been constantly investing in equipment and structures and M&As in line with its growth strategy.

When we make capital investment, we aim to enhance our corporate value while maintaining efficiency of assets and financial health and giving due consideration to ESG.

Our investment decisions for M&As are made by giving priority to expected returns. In a bid to capitalize on growth potential outside of the Group, we are constantly searching for M&A partners in fields with growth opportunities.

Capital Investment (completed contract method)



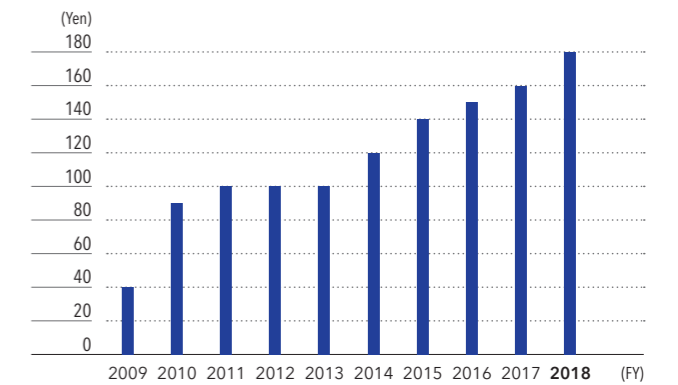
Return to Shareholders

Providing returns to our shareholders is one of the paramount management issues of the Nitto Group. Our policy here is to pay stable dividends to our shareholders.

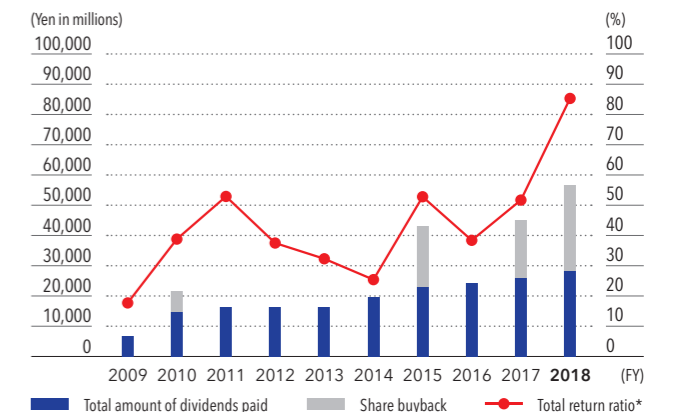
At the same time, it is essential to make proactive upfront investments in research and development and production in order to catch up with rapid technological innovation and meet customer demands in a timely manner. Dividends to shareholders are determined by taking into account various factors, including financial position, profit levels, and payout ratio.

For the purpose of implementing a flexible capital policy in response to changes in the business environment and as part of comprehensive measures to provide returns to our shareholders, we conduct share buybacks. Between February 2018 and July 2018, we repurchased 5.6 million of our shares for 47.7 billion yen. We also drew up a treasury stock holding policy, that is, to cancel all such shares except those with specific use, such as compensation to directors. Accordingly, we cancelled 15 million shares, including those repurchased previously, in March 2019.

Dividends per Share



Shareholder Return



* (Total amount of dividends paid + Amount of shares repurchased) / Net income attributable to owners of the parent company

Nitto Group's R&D Strategy as per the Chief Technology Officer



Experiences at Business Divisions and Corporate Divisions Showed Me the Way

I believe that my primary responsibility as a Chief Technology Officer is to tap into the experiences that I have gained from working for business divisions and corporate divisions, including an R&D organization. This is to say, I see to it that technologies born out of R&D laboratories are interpreted into new businesses without fail and that new values are delivered to customers in a timely manner.

In the past, the Nitto Group was blessed with a virtuous cycle, where we had a number of products developed by tapping into our strengths that boasted a high level of penetration into many different business fields, which then in turn resulted in the creation of new products. Over the past few years, however, our business portfolio has been leaning toward certain fields, with

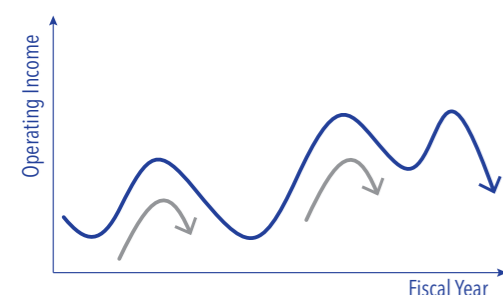
the result that our business has been heavily affected by the movements in those fields.

This being the situation, I decided to do something about intangible assets, such as manufacturing processes and patents, and set about implementing a series of reforms to ensure stable business growth.

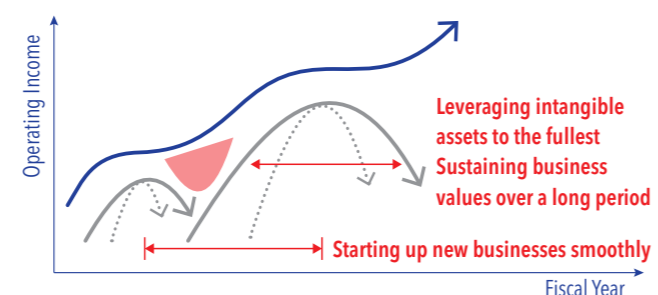
The first initiative was to reinforce the process engineering function. To start up a new business, you have to develop a process that makes it possible for new technologies from R&D labs to be delivered to customers reliably. So, I established a new department within the Corporate Technology Sector to build a system that allows us to launch new businesses smoothly in broader fields. The second initiative was to reinforce intellectual

How We Can Utilize our Intangible Assets to Compete Successfully to Achieve Stable Business Growth

How we competed over the past few years
Heavily affected by ups and downs of certain businesses



How we will compete going forward
Aiming at stable growth by maintaining business values and creating new businesses



property management. What I did was to consolidate intellectual property departments, which used to be under individual business divisions and the Corporate Technology Sector, into one, and I made intellectual property rights held by Nitto visible.

Going forward, I intend to achieve stable growth of the Nitto Group by utilizing our intangible assets to sustain the values of existing businesses over a long period and creating new businesses across a broad spectrum of fields.

Contributing to Business Growth by Putting Intangible Assets to Efficient Use

I first hit upon this idea of creating values out of the Nitto Group's intangible assets in 2009, when I was supervising the optical film-related division. At that time, the business of optical films, one of the essential materials for creating images on LCD TVs, was being engulfed by the waves of rapid commoditization of LCD TVs. Liquid crystal panel manufacturers to whom we were supplying optical films were struggling and on the verge of being unable to continue their business with their conventional production methods. So, my people and I put our heads together and wondered if we could amalgamate production processes previously performed by different companies into one big process, thus reducing losses and making inventory control easier. This is how our innovative business model, "Roll to Panel[®]," came into being.

This is what we did: to produce liquid crystal panels, the Nitto Group had manufactured and processed optical films for such panels, which customers then assembled. We installed optical film processing equipment within customers' assembly processes, so we could take care of the entire process from manufacturing to assembly of the products. To protect this novel business model by way of intellectual property rights, we obtained patent rights pertaining to this. Furthermore, we didn't make the advantages of this business model exclusive to our

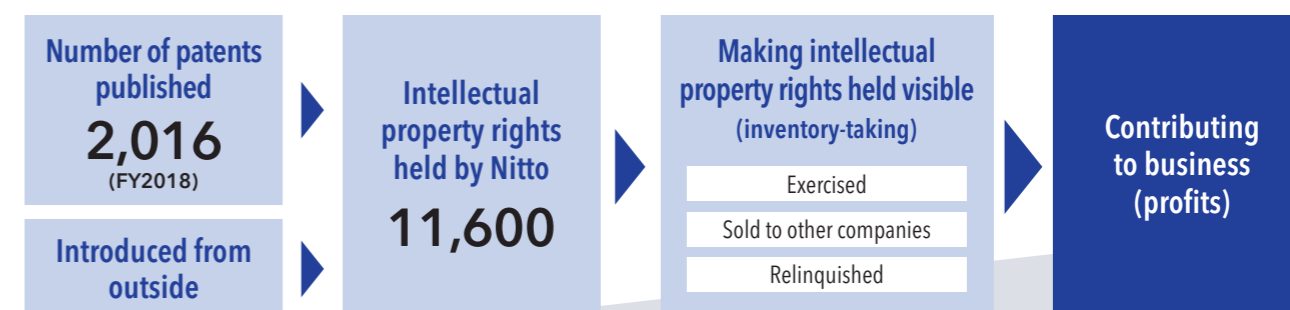
customers and ourselves alone, setting up a system where any party in the liquid crystal panel business could use the process if they paid patent compensation to us. As a result, "Roll to Panel[®]" became the standard process in the industry and made a major difference in the way the Nitto Group does business.

For greater utilization of intangible assets, we are currently in the process of analyzing values of intellectual property rights that we hold, to see if we can create new values by integrating technologies acquired from the outside with the Nitto Group's proprietary technologies, in addition to exercising our intellectual property rights or selling them to other companies. For the development of oligonucleotide medicines, for example, we combined our drug delivery system (DDS) technology with oligonucleotide technology acquired externally to license a set of technologies to pharmaceutical manufacturers.

We are also offering our engineering capabilities built over many years for use by others in the form of services. For example, we offer technical support to overseas manufacturers new to the market of optical films for liquid crystal panels so that they can take advantage of our process engineering for stable mass production of such products.

As detailed above, we will contribute to consistent growth of our business by proactively using our intangible assets.

Maximization of Intangible Assets' Values - Making Intellectual Property Rights Visible -



Nitto Group's R&D Strategy as per the Chief Technology Officer

Striving to Create New Businesses that Will Spawn Global Niche Top™ Products

To start up a new business, we need to act proactively to develop new project themes, and this requires us to have a perspective of "convergence." In other words, we need to merge our technologies with someone else's. If we look beyond our own departments and companies to see what is around, we will be more likely to create something that we have never conceived of before (plus alpha).

When we attempt to explore new fields, however, it sometimes takes far too long to get a project approved internally if we go through the ordinary decision-making process. That is why we have set up a "management fund" system, which allows the CTO to approve a project in a timely manner without having it approved by management committee meetings, if the project is deemed to offer future potential. To manage the fund, we set

milestones for individual short-segmented phases to make decisions as to whether we should go about commercializing a project. An indicator for determining future prospects of a project is "necessity." By this, I mean how much of the Nitto Group's strengths, such as core technologies, process engineering, and intellectual property rights, can be tapped into for a new project. If there is a necessity, it is not an act of "recklessness" but a "challenge."

By making the most of our strengths and converging technologies, I am hoping to create numerous projects that will end up leading to Global Niche Top™ products, thereby contributing to the enhancement of corporate value over the mid- and long-term.



We will challenge ourselves by proactively dealing with new projects through "convergence."

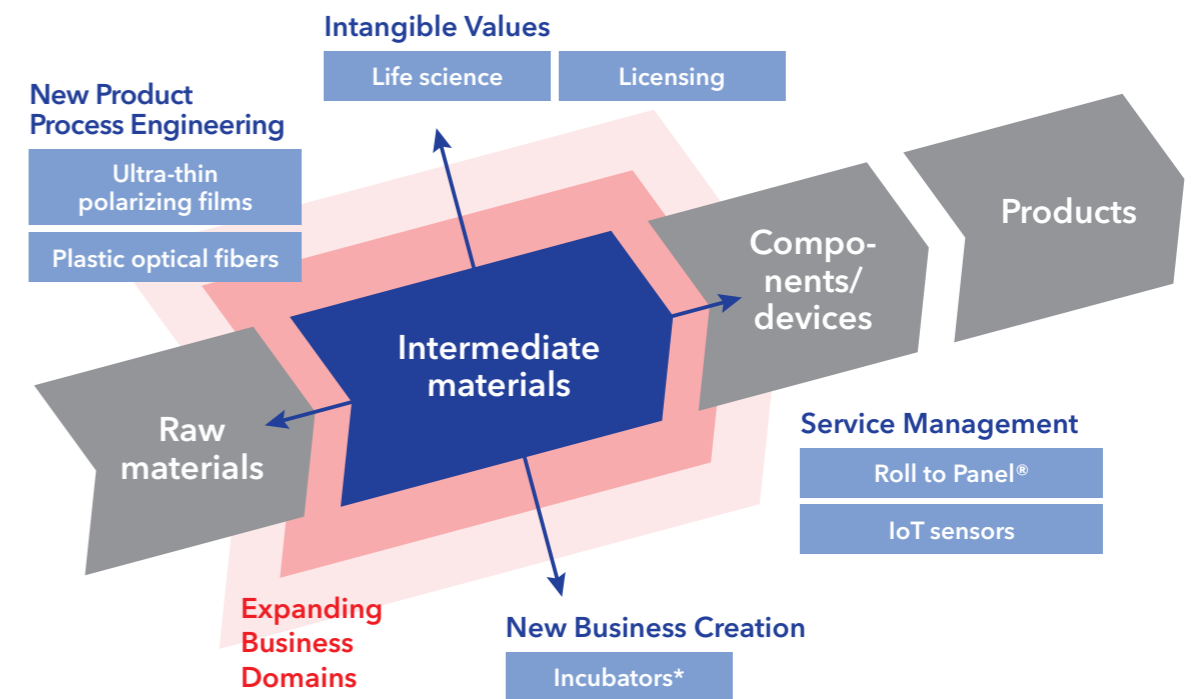
Diversifying "Exits" of Technologies to Expand Business Fields

From now on, we need to transform our business model to one that allows us to create diverse forms of values out of one single technology. With the conventional commercialization process, I have felt that it takes time before a technology evolves because we always have specific businesses or applications in mind. Instead, we should not only provide technologies that we have developed through our product, but change our way of thinking to create a business model with diverse "exits" of technologies in mind, such as sale of intellectual property rights and receipt of payment by exercising options, thereby accelerating technological development and expansion of business fields. When we draw up projects, we will build an intellectual property

network in line with our business strategies, that is, with considerations to what values we should offer and what position we want to reach, and obtain intellectual property rights for any technology thus established.

Because the Nitto Group is a B2B manufacturer, being connected with customers in the supply chain is crucial for delivering values to society. The key to building such a relationship is figuring out how we can convince customers to share their technological roadmap with us and contribute to their goals as one. We will achieve sustainable growth by fortifying ties with our customers and determining optimal "exits" to expand our business fields.

Transforming a Business Model into One that Creates Diverse Values

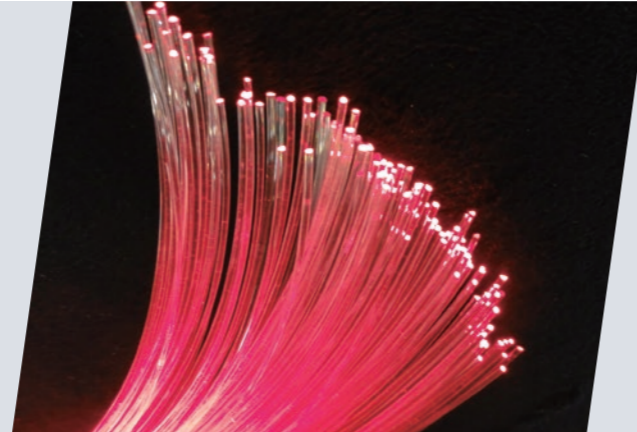


* Companies that help startup businesses

Innovations to Shape the Next Generation

Plastic Optical Fiber Cables

The spread of IoT and the start of ultra-high-definition 8K broadcasting have made it imperative to realize next-generation, high-speed, large-capacity communications. We aim to have Nitto's plastic optical cables adopted for a diverse range of applications, including 8K TVs, data centers, medical equipment, and autonomous cars.



Oligonucleotide Medicines

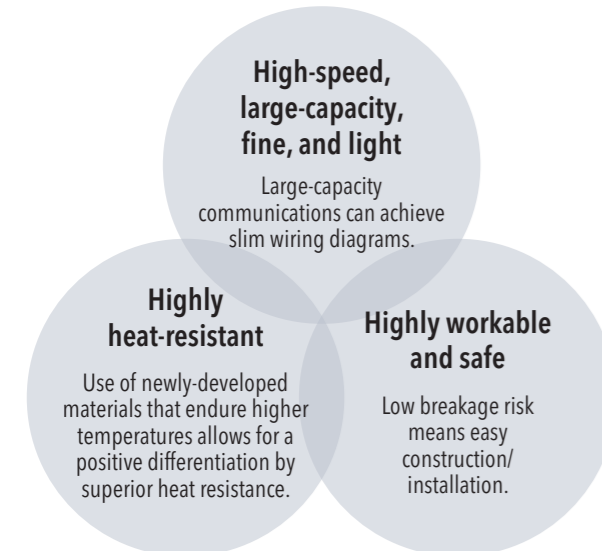
Oligonucleotide medicines are pharmaceutical products made from the structural components of DNA and RNA called nucleic acids. As they directly act on gene expressions that can be causes for illness, these medicines hold great promise for treating hitherto intractable diseases. Holding a leading share in the oligonucleotide contract manufacturing market, Nitto is engaged in R&D of innovative medicines for fibrosis and cancer.



Distinctive Features of the Technology/Product

In October 2017, Nitto established an Optical Cable Joint Research Center together with Keio University. Through the combination of photonics polymer technology accumulated over many years by Keio University and extrusion technology of the Nitto Group, we are now jointly developing new plastic optical fibers that are flexible, light, heat-resistant, and low-noise. By combining optical fibers with optoelectronic hybrid boards, which are being concurrently developed by fusing electrical boards and light guides, we are able to produce thinner, finer, and more compact optical cables.

Strengths and Advantages of Plastic Optical Cables



Nitto's Contributions

Flexible plastic optical cables and highly-secure wired connection allow high-speed, large-capacity communications in all sorts of places, such as private houses, offices, hospitals, and other dwelling spaces, aircraft, automobiles, and other transportation equipment, futuristic robots, and outer space. By developing and mass-producing these plastic optical cables, Nitto is contributing to the realization of an information-communication society, where people the world over are safely and securely connected to each other at all times. We have begun trial production at the pilot line for early start of mass-production.

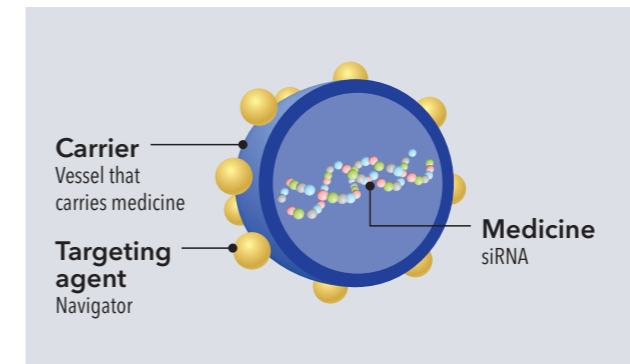
How Plastic Optical Cables are of Service in Multiple Industrial Sectors

- | | |
|---|--|
| <p>Medical equipment</p> <ul style="list-style-type: none"> - An endoscope with a high-definition 8K camera for advanced surgical procedures - Accurate information transmission without radio wave noise interference | <p>Transportation equipment</p> <ul style="list-style-type: none"> - Higher-speed communication - Lighter weight made possible by replacing conventional electric cables - Resistant to vibrations and bending for enhanced safety |
| <p>In-home networks (house wiring)</p> <ul style="list-style-type: none"> - High flexibility increases freedom in cable placing - Easy installation work contributes to overall merits | <p>Displays and video equipment</p> <ul style="list-style-type: none"> - Transmitting information-packed uncompressed 8K signals with one single cable saves space. |

Distinctive Features of the Technology/Product

Nitto is also working to develop the therapeutic drugs using our siRNA *1 technology and the drug delivery system (DDS). The siRNA drugs are a new class of pharmaceutical products that work on mRNA (messenger RNA), the blueprint of proteins, and inhibit production of the disease-causing proteins that cannot be targeted by conventional drugs. The DDS is a technology for delivering a required quantity of oligonucleotide medicines encased in liposomes*2 to target sites within the body. A carrier for oligonucleotide synthesis created through the fusion of the Nitto Group's proprietary technologies in adhesive and polymer design, NITTOPHASE® facilitates high-yield synthesis of highly pure oligonucleotides, which is indispensable for the production of such medicines.

Nitto's molecular target oligonucleotide medicine



Nitto's Contributions

Nitto Group has made the most of its technologies in oligonucleotide drug discovery and DDS to develop treatment for organ fibrosis. In November 2016, Nitto signed an exclusive license agreement with Bristol-Myers Squibb Company (BMS) to develop, manufacture, and commercialize an oligonucleotide medicine "ND-L02-s0201" for targeted therapy in advanced non-alcoholic steatohepatitis (NASH) and cirrhosis. This agreement is expected to accelerate the pace of its development, which in turn will help to deliver the drug to patients in the shortest amount of time possible. We are also conducting a Phase II clinical trial of the "ND-L02-s0201" for the rare disease of idiopathic pulmonary fibrosis. In addition to the development of a fibrosis medicine, Nitto is seeking an inroad into the oncology field. In March 2019, we commenced a Phase I clinical trial in the U.S. for the treatment of KRAS driven tumors in advanced cancer patients. In April 2019, Nitto established a collaborative research department for the development of new nucleic acid drugs in the laboratories of the Local Incorporated Administrative Agency Osaka Prefectural Hospital Organization Osaka International Cancer Institute.

*1 siRNA (small interference RNA) consists of short double-stranded RNA of 21 to 23 residues and inhibits the expression of a target gene by cleaving a significant part of the genes transcript.
*2 A liposome is a bilayer membrane capsule composed of phospholipids, one of the major components of cell membranes and biomembranes.

Segment Information

Summary of Overall Business

During the fiscal year ended March 31, 2019, the world economy saw heightened uncertainty over the future, stemming from trade conflicts between the U.S. and China, and the slowdown of the Chinese economy that began to emerge toward the end of the period. To compound this, there were growing concerns over the future course of the world economy as a whole, such as the U.S. trade policy and Brexit, to name but a few. Meanwhile, crude oil prices remained at a low level and the long-term interest rates held low in financial markets. Amid this economic environment, demand began declining in the

electronics and automobile industries after the beginning of the second half of the fiscal year under review, which affected the Nitto Group's business.

As a result of the above, revenue decreased by 5.9% from the previous fiscal year (changes hereafter are given in comparison with the previous fiscal term) to 806,495 million yen. Operating income decreased by 26.2% to 92,777 million yen, and net income attributable to owners of the parent company decreased by 23.8% to 66,560 million yen.

performance of transport vehicles, including automobiles, railroad cars, and aircraft. For automotive products, the Group has expanded the product lines for reinforcing materials for aluminum and vent filters for electric/electronic components in anticipation of the need to reduce vehicle body weight and an increase in the number of electric/electronic components used in one vehicle. Meanwhile, in response to the rapid expansion of the market for electric vehicles, the Group is working on insulating materials that meet the need for downsizing and lowering costs for power trains. Furthermore, for enhanced safety of self-driving cars, the Group is creating new values and products through convergence of its key technologies.

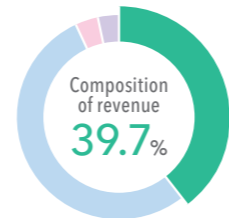
■ Research and development activities

In a bid to foster the next mainstay business in the market of smartphones and other mobile devices, the Group is making constant efforts to develop more functional products, thereby branching out to a variety of product categories, such as semiconductors, electronic components, sound-passing membranes for devices, housing-related products, and automobile-related products. Going forward, the Group will also focus on the development of sustainable, eco-friendly products, while remaining committed to the development of new products for the mobile device market.

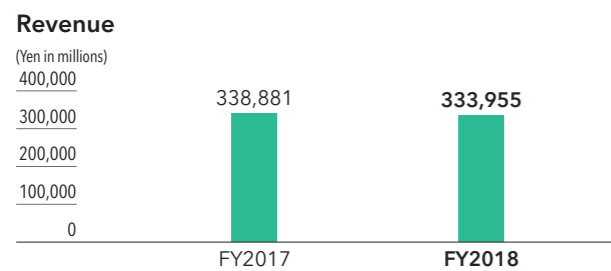
For the transportation business, the Group is forging ahead with the development of new products that help to enhance the

Industrial Tape

Main products: Functional base products (bonding and joining products, protection products, etc.) and automotive products



■ Operating results



For functional base products, general-purpose industrial materials performed strongly, while filter materials for industrial use, products for smartphones, and process materials for semiconductors and electronic components lost momentum toward the end of the fiscal year under review. The transportation business, which includes automotive products, was affected by the sluggish auto market in the second half of the year, while sales of motor insulating paper and vent filters performed well.

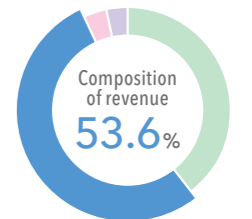
As a result of the above, revenue decreased by 1.5% to 333,955 million yen and operating income decreased by 25.8% to 25,940 million yen.

■ Issues to be addressed

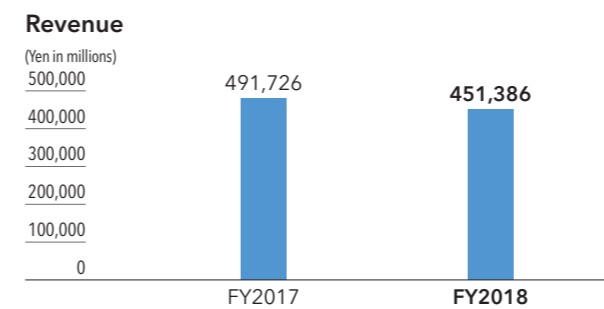
For functional base products, the Group will remain sensitive to market changes and customer needs while at the same time carrying out productivity reform of existing businesses on a global scale. The Group will also attempt to seize the opportunities that the mid- and long-term demand expansion for materials for semiconductor and other industrial processes will present, thus developing new products through collaboration with Optronics and other segments. For the transportation business, the Group will continue optimizing its global supply system in order to improve profitability, while pouring its resources into creation of new products that respond to the ongoing mobility reform known as the acronym CASE (Connected, Autonomous, Shared, and Electric).

Optronics

Main products: Information fine materials, flexible printed circuit boards, and process materials



■ Operating results



For information fine materials, demand for optical films for smartphones did not reach the level of the previous year, primarily owing to lower-than-expected market growth, with the result that royalty income from general polarizing films and benefits of streamlining were limited and weak.

From the fiscal year under review, royalty income from intellectual properties is included in "revenue," rather than "other income" as was the case previously.

Sales of flexible printed circuit boards continued to grow steadily, driven by models for high-capacity hard disk drives (HDDs) for data centers. Process materials, on the other hand, remained sluggish as their demand for semiconductor fabrication entered a correction phase.

As a result of the above, revenue decreased by 8.2% to 451,386 million yen and operating income decreased by 27.0% to 67,134 million yen.

■ Issues to be addressed

For information fine materials, the Group will hone its industry-leading technological prowess, while at the same time responding to the changes taking place to displays, such as foldable and rollable models. The Group will also strengthen its product lifecycle management and streamline its operations to expand highly-profitable businesses. With regard to flexible printed circuit boards, the Group aims to enhance its profitability by boosting market share of its HDD application and streamlining the business. In addition, the Group will shake up its portfolio by developing new demands.

Segment Information

■ Research and development activities

In this business segment, the Group is better catering to the market by, for example, developing larger-sized anti-glare polarizing films for improved visibility to accommodate the increase in size of organic electroluminescence displays (OLEDs) as well as liquid crystal displays (LCDs). The Group is also working to increase processing accuracy in response to the emergence of fully-active and shaped mobile displays. To meet the new demand that the debut of flexible OLEDs has brought, on the other hand, the Group is working on solutions to unprecedented requirements, such as conformability to curved or bendable displays.

In the auto industry, analog instruments and other components are increasingly replaced by large-sized displays, and polarizing films are required to have extremely high durability. In addition, as car interiors become more elaborate, uniquely-shaped polarizing films are in demand, and the Group is focused on the development of products that meet these

requirements. The Group has also come up with optical films for display peripherals other than polarizing films, thereby offering value to a broad range of customers.

For flexible printed circuit boards, the Group is experimenting with applications of high-precision circuits, which are formed with photosensitive polyimide and semi-additive copper plating on a metal base, to other markets than the HDD market. For low dielectric porous polyimide, the Group is working on circuit boards that will play a key role with the launch of the 5G high-speed mobile communications market, and is preparing for their mass production.

In the semiconductor field, the Group has developed adhesive films for new processes that have been adopted for NAND flash memories. The Group has also completed the development of materials used for such processes and has seen their sales grow.

In the light-emitting diode (LED) field, the Group has developed highly heat- and light-resistant resin for indoor displays and is expecting to see their markets expand.

new customers. For the drug discovery business, the Group will forge ahead with research and development as well as clinical trials of drugs in such fields as fibrosis and intractable cancer in an attempt to develop them into new core businesses.

■ Research and development activities

For the oligonucleotide medicine contract manufacturing business, the Group has increased development efforts globally in an effort to effectively respond to requests from each customer.

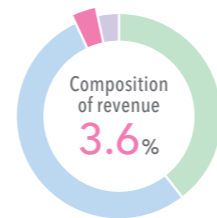
For pharmaceutical products, an additional indication for atrial

fibrillation has been approved for transdermal patches developed for essential hypertension, while at the same time a new drug application has been filed with the regulatory authority for a transdermal patch formulation for the treatment of schizophrenia based on the results of the Phase III clinical trial in Japan.

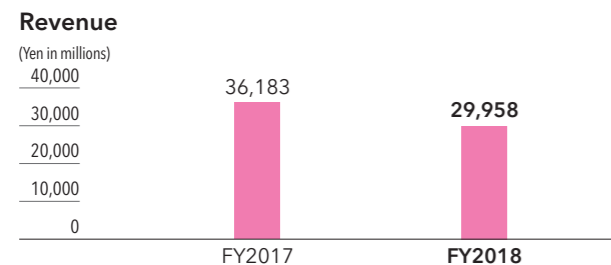
For medical and hygiene materials, an attempt is being made to enter new markets and geographical regions through partnerships with other business sectors/divisions within the Group.

Life Science

Main products: Medical-related products



■ Operating results



An indication for atrial fibrillation has been added to transdermal patches developed for essential hypertension. As for oligonucleotide drug discovery, a clinical trial of a drug for pulmonary fibrosis has been initiated. Meanwhile, the Phase I clinical trial of a small interfering ribonucleic acid (siRNA) formulation for KRAS mutant tumors is underway following

approval by the U.S. Food and Drug Administration (FDA). In the oligonucleotide contract manufacturing business, the impact from the changes in customers' situation regarding new drug development that occurred in the previous fiscal year lingered. Nevertheless, the contract manufacturing business continued to expand, with the development and clinical trials of oligonucleotide medicines remaining active.

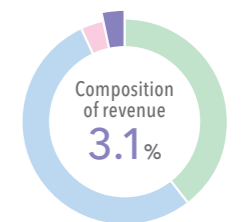
As a result of the above, revenue decreased by 17.2% to 29,958 million yen and operating income decreased by 67.6% to 1,920 million yen.

■ Issues to be addressed

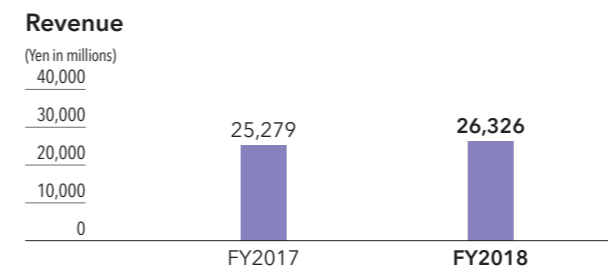
In the oligonucleotide medicine field, where an increasing number of new drugs and clinical trials are approved and conducted, respectively, the Group will expand its share in the oligonucleotide contract manufacturing market by seeking out

Others

Main products: Membrane products, other products



■ Operating results



Sales of membrane products (polymer separation membranes) were steady, backed by brisk industrial demands for the water treatment application, including seawater desalination plants. Please note that this segment includes new businesses that have yet to generate sufficient levels of revenue.

As a result of the above, revenue increased by 4.1% to 26,326 million yen and operating loss amounted to 1,970 million yen (operating loss of 192 million yen was reported in the previous fiscal year).

■ Issues to be addressed

For membrane products, the Group will streamline its operations, which includes automation of its production processes, while strengthening its business foundations. The Group will also work to improve profitability of this segment by expanding business in market spaces with high growth potential. For new businesses, the Group will aim to bring products currently under development, including plastic optical cables, to the market as soon as possible.

■ Research and development activities

Sales of membrane products steadily increased as we successfully responded to the brisk demand for seawater desalination and ultra-pure water production applications. On the other hand, a new product for brackish water desalination was adopted for a large-scale project in South Asia, contributing to sales growth. Because of the differences in the water environment, what customers want from water treatment plants varies. The Group will remain committed to boosting sales of this segment through the development of products that cater to the specific demands in each regional market. The Group will also make continued efforts to realize a circular economy by launching new products for wastewater recycling.

Segment Information

» Key Applications of Nitto Group's Products

Displays

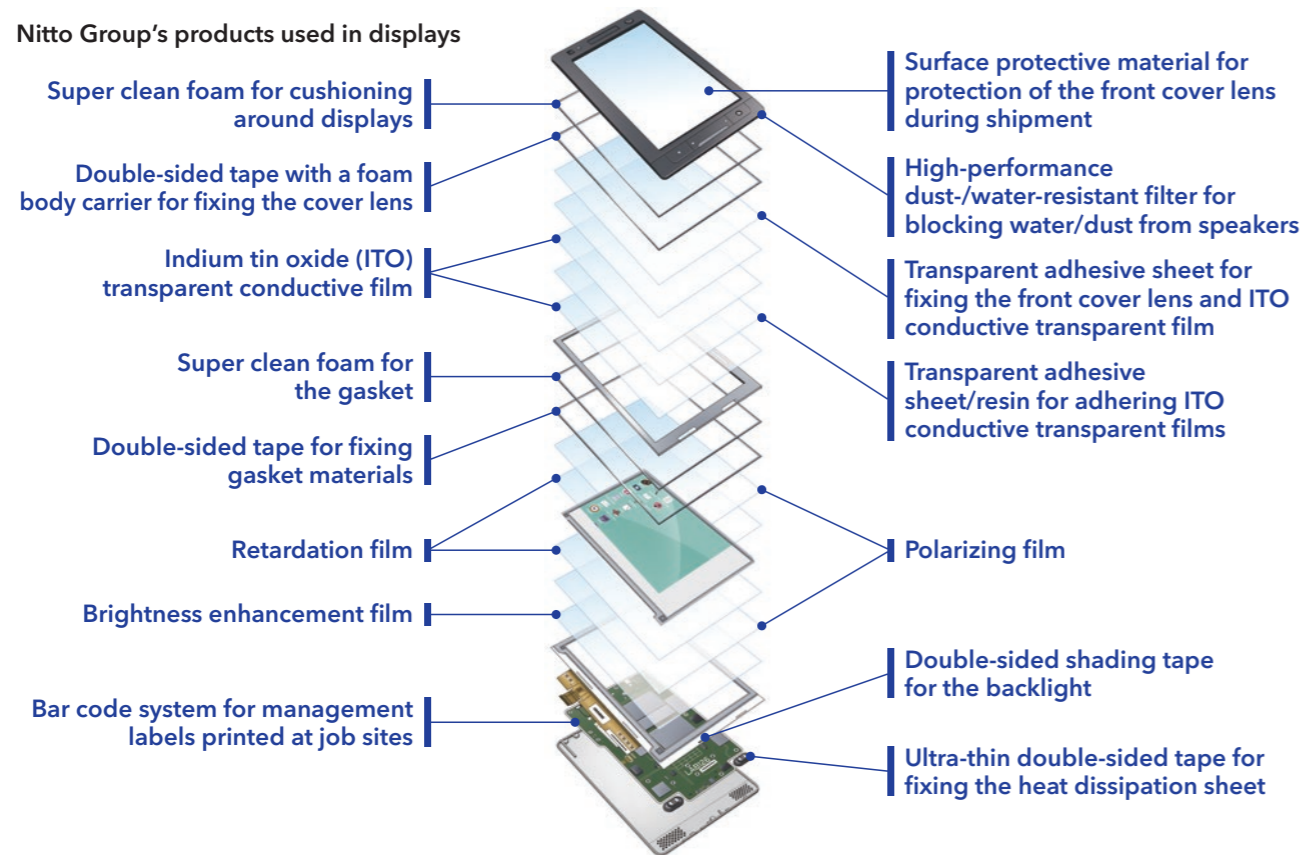
Industrial Tape

Optronics

Our optical films and a myriad of other products can be found in the displays of smartphones, tablet computers, and other information terminals that are essential in this information-driven society.

As with liquid crystal displays (LCDs), Nitto Group's products are a preferred choice of organic electroluminescence displays (OLEDs) as they comfortably meet customer specifications on thinness and flexibility.

Nitto Group's products used in displays



NITTOPHASE®, a Carrier for Oligonucleotide Synthesis

Life Science

Genes, the blueprints of life, are made up of oligonucleotides such as DNA and RNA. Using DNA and RNA for treatment, oligonucleotide medicines have been hailed as next-generation pharmaceuticals, since they are expected to be effective against difficult-to-cure cancers and other intractable diseases. NITTOPHASE®, a carrier* for oligonucleotide synthesis, is indispensable for production of such medicines, as its porous high-performance polymer beads facilitate high-yield synthesis of high purity oligonucleotides.



Polymer beads for oligonucleotide synthesis

* A substance on which other substances are fixed

Automobiles

Industrial Tape

With the four keywords of "environment, safety, design, and comfort" in mind, the Nitto Group offers diverse value made possible by its proprietary technologies in an effort to meet the needs common in automobiles and other kinds of transportation equipment. In addition to the existing lines that contribute to lighter weight for higher fuel efficiency, progress in power

modules for eco-friendly vehicles, and greater electrification of vehicles, we cater to emerging demands for next-generation vehicles.

The Transportation Technical Centers at five locations worldwide are applying various evaluation technologies to come up with total solutions.

Examples of Nitto Group's products used in vehicles



Membrane Products

Others

The Nitto Group's membrane products were created through the combination of multiple technologies, including polymer design/synthesis and thin film formation.

Depending on the size and properties of the substances to be separated, membranes can be divided into microfiltration membranes, ultrafiltration membranes, and reverse osmosis (RO) membranes.

These three types of our membrane products boast a broad range of applications from industrial use to environment/energy domains, such as ultra-pure water production, seawater desalination, wastewater treatment, and secondary recovery at oil wells. The product line continues to expand to include new offerings designed for energy conservation and environmental purification.



Sulfate nanofiltration (NF) membrane

RO membrane element structure

