

Business Strategy by Segment

Smart Communication











Major products and services



The main businesses of the Smart Communication segment include imaging communication, where we boast the top global market share in dye-sublimation thermal transfer printing media; Information Security, where we offer solutions such as Business Process Outsourcing (BPO) and authentication security; content and XR communication, a new area; and other domains such as marketing, publishing and education.

In this segment, we promote collaboration and service development with domestic and overseas companies by leveraging the expertise we have cultivated through our BPO business, such as the ability to securely distribute large volumes of data and integrate and optimize complicated and extensive business processes in addition to high-definition image processing technology.

Basic strategy

- Efficient investment with a view to balancing invested capital and cash generation
- Consider utilizing core values for collaboration and service development with companies inside and outside Japan
- Rationalization of locations and systems according to market trends and business size

KPI (FY2025)

- Sales
- 726 billion yen (101% compared to FY2022)
- Operating income 31 billion yen (116% compared to FY2022)

Action

- Consider investment in global expansion of imaging communication and Information Security
- Rationalization of paper media business

DNP's strengths

- capability to securely deliver large volumes of digital data, and integrate and optimize business processes
- Accomplishments and trust such as dye-sublimation thermal transfer photo media products with the world-leading share and smart cards for financial institutions with the leading share in Japan

Examples of our core technology

Technology that has evolved from authentication to identify individuals and perform encryption for safe and secure transfer data	Information security	Inform proces
Technology that converts text, graphics and other data into an optimal format for various information media	Media conversion technologies	Proj plani an des

We aim to generate maximum returns on invested capital through efficient and effective investments. In terms of expansion investments, we will explore investments to drive global expansion in areas such as Information Security, where market growth is expected, and imaging communication, where the market is robust.

At the same time, with respect to paper printed materials, which continue to decline, we will continue to promote rationalization of the paper media business through structural reforms such as reevaluating production processes and reallocating resources. In this segment, in fiscal 2022, sales amounted to 720.2 billion yen and operating income was 26.7 billion yen. In fiscal 2025, we will aim for sales of 726 billion yen and operating income of 31 billion yen.









Market environment		
Japanese BPO market	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
Global market for digital ID solutions	2021 → 2030 CAGR 17%	
Global sublimation transfer photo media market	2023 → 2026 CAGR 2%	
Global metaverse- related market	2030 \$ 678.8billion	

*CAGR = Compound Annual Growth Rate

Focus business area strategy

New business

Promoting stable business

Content & XR communication

One of DNP's strengths is our worldwide network of diverse content holders and creators. We also have a track record in high-definition image processing technology and complex copyright processing developed in the archiving business and Information Security business, and the capability to distribute large volumes of data in the real world and digitally while securely authenticating individuals and information, and to integrate and optimize business processes.

Building upon these strengths, we aim to seamlessly and securely bridge the real and virtual worlds, contributing to the advancement of the information society. The global metaverse-related market is expected to continue expanding significantly, and DNP is actively pursuing the expansion of this as a new business. In this field, we aim to approximately double our fiscal 2022 sales in fiscal 2025.



"Virtual Akihabara," a fusion of real and virtual spaces



© The Association of Japanese Animations (AJA). © Dai Nippon Printing Co., Ltd.

Tokyo Anime Center

DNP Virtual Experience VR presentation gateway Data provided by Anshin Project Japan Inc

Business strategy / Investment plan

- Early creation of unique fan service business spanning real and digital worlds by utilizing Tokyo Anime Center and Web3 for fans of IP holders*
- Creation of business supporting both real and virtual corporate activities including authentication security technology, AI-based DX services and BPO
- Creation of a business providing new customer experience value leading to cultural and regional development based on the accomplishments by digitally archiving over 100,000 artworks with art museums, galleries and cultural facilities, etc. in Japan and overseas

* IP holder: A person or group who owns a variety of content (intellectual property) such as games and anime



metaverse-related market





"Midokoro walk®" interactive content system

TOPIC

DNP has created more than 100 interactive systems since launching the DNP Museum Lab initiative in 2006, with the goal of delivering cutting-edge viewing experiences. The "Midokoro Series" represents a range of systems developed by drawing upon the accumulated technologies and expertise, envisioning diverse experiential scenarios rooted in culture and the arts.

One of these systems, "Midokoro walk®," harnesses "cross-modal perception," when two or more senses interact with each other. DNP provides new cultural experiences by creating the feeling of walking through a virtual environment using virtual reality (VR) such as the Mazarin Gallery in the Richelieu site of Bibliothèque nationale de France.



Image of a VR experience using "Midokoro walk®" at the Mazarin Gallery ©DNP Dai Nippon Printing Co., Ltd. 2021, with the courtesy of the Bibliothèque nationale de France.

Sublimation transfer photo media products and service creation

DNP has achieved the world's leading market share with dye-sublimation thermal transfer printing media developed based on printing technologies such as coating. As the way people enjoy photography evolves with the times, DNP leverages these products and various services, particularly in the realm of photo printing, to develop the photo imaging business. In recent years, driven by the widespread use of smartphones and social media, consumer needs have expanded beyond printed photos to experiences. In response, DNP offers a wide range of services, from photography and processing to print sales, as well as cloud-based image sales and services, all while prioritizing data security and privacy protection with a high-security infrastructure and system

TOPIC

Promoting digital transformation and accelerating the rollout of new photo services

DNP has established a network of "Ki-Re-i" ID photo printing machines across Japan, enabling electronic application processes for various official certificates and qualifications. We are also expanding the application, for example by providing a service for collating and using profile photos taken by a "Ki-Re-i" to create employee ID cards. Moreover, we aim to provide consumers in Japan and abroad with a range of services that enhance the photography experience at theme parks, events and other venues.

Business Process Outsourcing (BPO)

In the past, DNP has contributed to the BPO business with support 24/7. Now, we are deploying the latest technologies to expand this business using artificial intelligence (AI) and RPA*, from both domestic and international locations. Our services are designed to help companies and organizations address their business challenges swiftly and efficiently, tackling pressing social concerns such as labor shortages and the need for workstyle reforms through business process reengineering.

* Robotic Process Automation (RPA): Business automation using robots (software) that utilize AI

Authentication and security technology

We offer advanced authentication technology, system infrastructures, smart card manufacturing and payment services with a leading market share in Japan. We also provide physical security solutions such as security gates and surveillance cameras for offices, factories and other locations. Our services encompass sensitive information and physical security solutions, utilizing digital authentication methods for object authentication and facial recognition for personal authentication, ensuring enhanced security and convenience in daily life.

Imaging communication





Dve-sublimation thermal ransfer printing media



Information Security





Business Strategy by Segment











Life & Healthcare

Major products and services



- Mobility and industrial high-performance materials
- Medical & healthcare
- Packaging
- Living spaces
- Beverages

The main businesses of the Life & Healthcare segment include the mobility and industrial high-performance materials business represented by the world's top share of battery pouches for lithium-ion batteries and mobility interior and exterior decorative materials; the medical & healthcare business, which encompasses bulk pharmaceutical manufacturing and medical packaging; and the packaging, living spaces and beverages businesses, which encompass aseptic filling systems for PET bottles and products for household interior and exterior decoration.

In this segment, we will invest in manufacturing facilities for battery pouches for lithium-ion batteries and in focus businesses centered on medical and healthcare business and promote investment in the global expansion of existing packaging and living spaces businesses

Basic strategy

- Expand business through large-scale capital investment centered on battery pouches
- Investment in growth areas centered on medical & healthcare and global
- Consider utilizing core values for development of new products, and for collaboration and service development with companies inside and outside Japan

KPI (FY2025)

- Sales
- 542 billion yen (120% compared to FY2022)
- Operating income 24 billion yen (304% compared to FY2022)

Action

- Expansion of battery pouch production capacity
- Medical & healthcare investment: 10 billion ven or more
- Reorganization of facilities in packaging-related business

DNP's strengths

- Provide essential value for security, safety, health, comfort and the environment with a variety of functional films leveraging converting technology, our unique material processing technology
- Accomplishments and reliance on battery pouches for lithium-ion batteries with the world-leading share, and PET bottle aseptic filling systems and products for household interior and exterior decoration with the leading share in Japan.

Examples of our core technology



We will continue to develop new products leveraging converting technology and our unique material processing technology, and actively explore collaborations and service development with domestic and international companies to consistently deliver value for safety, security, health, comfort and the environment.

In fiscal 2022, sales in this segment amounted to 541.3 billion yen and operating income was 7.9 billion ven. With the above initiatives, we will aim for sales of 542 billion ven and operating income of 24 billion yen in fiscal 2025. To achieve our goals, we will strive to boost business profitability by reorganizing bases and optimizing resources in the packaging business as well as in other businesses in parallel

with investment to expand focus businesses.



results

(¥ billion) Sales Operating income 542.0 524.0 495.0 451.3 24.0 21.0 18.0 7.9 FY2022 FY2023 FY2024 FY2025

Targets

Targets

Targets



*CAGR = Compound Annual Growth Rate

Focus business area strategy

Growth-driving businesses

Mobility and industrial high-performance materials

DNP provides products and services supporting EV range extension, automated driving and comfortable mobile spaces, starting with battery pouches for lithium-ion batteries and mobility interior and exterior decorative materials. On the back of growth in the global market for Plug-in Hybrid Electrical Vehicle (PHEV), DNP is planning major investments to expand our production capacity for battery pouches and other products, aiming to increase overall business sales in fiscal 2025 to 180% the fiscal 2022 level.

We are also developing components and materials related to clean energy and energy management. In addition, we hope to guickly commercialize MaaS*, which is gaining traction worldwide, beginning with a demonstration test of a cold chain logistics service for last mile delivery in the Philippines that combines a digital delivery management system and DNP Multifunctional Insulated Box.

*Mobility as a Service (MaaS) refers to the provision of mobility solutions, such as automobiles, as a service.

Business strategy / Investment plan

- Major investment in expansion of production capacity for battery pouches, etc. Promotion of supply to appropriate regions such as Europe and the United States
- Accelerate development of components for clean energy, energy management and sensors, key devices, etc. supporting comfortable mobile spaces
- Development and mass production of decorative film for exterior use, and molding and laminating systems
- Early commercialization of MaaS from the trial period
- Accelerate new product development for industrial high-performance materials





Next-generation

decorative panels

automobile

realizing the advance seamless design of

vironmentally friendly and aesthetically appealing decorative film for exterior roofs and molding and laminating systems



TOPIC

Promoting the expansion and practical implementation of EV models equipped with wireless charging capability

In recent years, there has been growing anticipation for wireless charging as a means to accelerate the shift to EVs, eliminating the need for a cable to connect the charger and car body. This technology reduces charging burden and increases convenience. In March 2023, DNP, in collaboration with Sojitz Corporation and DAIHEN Corporation, became the first in Japan to obtain registration approval for commercial EVs equipped with wireless charging capability and began on-road performance tests.



Image of a thin, light sheet-type coil for high-capacity wireless charging

Focus business area strategy

Medical & healthcare

With a solid foundation of proprietary strength in Printing & Information (P&I) cultivated over a long period of time, DNP has been engaged in the pharmaceutical packaging business derived from food packaging technology and active pharmaceutical ingredients (API) business that takes advantage of precision organic synthesis technology. From an early stage, DNP has focused on advanced medical fields such as regenerative medicine and will continue to support advanced medical business with AI-driven testing technology. At the same time, we are developing services leveraging ICT and online technology in fertility treatment, telemedicine and medical checkups. Against this backdrop, in April 2023, we began a strategic business alliance with CMIC HOLDINGS Co., Ltd., which operates as a Contract Research Organization (CRO) and Contract Development and Manufacturing Organization (CDMO). As part of the alliance, CMIC CMO Co., Ltd., which operates a pharmaceutical formulation business, joined the DNP Group as a

capital participation subsidiary.

Business strategy / Investment plan

- Expand API business at DNP Fine Chemicals Utsunomiya and formulation business at CMIC CMO, and establish an integrated system spanning from the development and manufacture of API through to formulation development and manufacture through alliances with both companies
- Develop value-added pharmaceuticals by combining the packaging technology of DNP with the drug formulation technology of CMIC CMO
- Promote digital transformation (DX) in clinical trial support business through the alliance with the CMIC Group and pursue healthcare solutions to maintain and promote health such as pre-symptomatic measures designed to reduce the risk of lifestyle-related diseases



TOPIC

Supporting the pharmaceutical industry's value chain and creating new value

The resources of the DNP Group and the CMIC Group will be combined to provide further enhanced support to the pharmaceutical value chain and new value proposals in the pharmaceutical industry and the fields of medical checkups and healthcare.

* CMIC Group launched the first CRO in Japan in 1992 and provides comprehensive support in the development, manufacture, sale and marketing of pharmaceuticals.











FOCUS

Business Strategy for Major **Products**

Growth-driving businesses Mobility and industrial high-performance materials

Lithium-ion battery pouches

DNP will leverage its strengths in converting technology and strive to establish itself as the industry's de facto standard, enhancing its presence in the global market. Furthermore, we will expand the applications of battery pouches and maintain and strengthen its global market share leadership. Looking toward 2040 and 2050, we aim to contribute to a sustainable society where people can live with security, health and well-being by supporting the extension of the driving range of electric vehicles (EVs) through our products and services.



In the field of EV batteries, efforts are being made to improve driving performance and energy efficiency, focusing on increasing capacity, reducing weight and thinner designs. DNP leverages its converting (material processing) technology to develop battery pouches, which serve as the outer casing for lithium-ion batteries. secured the world's top market share. Demand for this product extends to various applications, including information devices, automotive, electric bicycles and energy storage.

development

analysis



The sales acumen to expand value

We bolster our competitive edge through comprehensive patent applications, in-house designed materials and self-developed production facilities, as well as external collaborations. With a strong foundation of high quality, a proven track record and trusted relationships with our partners and customers, we expand our presence globally.

DNP Denmar Europe Installation of slit processing line

Tsuruse Plant (Saitama Prefecture) **Tohata Plant** (Fukuoka Prefecture)

To meet forecast growth in demand for EVs over the medium to long term, we will focus investments to increase the production capacity of battery pouches for automotive applications. In particular, we are promoting production in the best locations in Europe and the United States. For Europe, a new slit processing line has been built at the Denmark Plant and operations are underway. In the United States, we are exploring the construction of

Business strategy / Investment plan

- Consider expansion of production capacity for the increase in EV demand from FY2023.
- Promotion of supply to appropriate regions such as Europe and the United States. Installation of post-process line in Europe (Denmark Plant), with operation scheduled to start in FY2023.

Aim for 100 billion yen in sales by FY2025 for lithium-ion battery pouches overall

Marke	et trends	Battery pour
Short-term	 Significantly impacted by market conditions such as a slump in consumption due to the recoil following the surge in stay-at-home demand due to the COVID-19 pandemic Although significantly affected by market conditions such as a decrease in automotive manufacturing caused by the semiconductor shortage, a gradual recovery is being made 	US demand Consider construction the US to caused to
Medium- to Long-term	 Continuous strong sales expected due to growing EV demand 	FY2016 FY20





a local manufacturing plant to meet growing demand on the back of preferential policies for EVs.

Through these business expansion strategies, we aim to maintain the top share in the global market and strengthen our production system to achieve 100 billion yen in overall sales of battery pouches for lithium-ion batteries by fiscal 2025.





Business Strategy by Segment

Electronics











Major products and services



· Semiconductors

The main businesses in the Electronics segment are the digital interface business, which includes optical films for displays and metal masks for manufacturing organic light-emitting diode (OLED) displays, both of which boast the world's top market share, and the semiconductor business, which includes photomasks for manufacturing semiconductor products and lead frames for semiconductor packaging materials

DNP has positioned the Electronics segment as a whole as a growth-driving business and will actively make capital investments in this area going forward.

Basic strategy

- Accelerate expansion of existing businesses through active capital investment
- Consider utilizing core values for development of new products, and for collaboration and service development with companies inside and outside Japan

KPI (FY2025)

- Sales
- 230 billion yen (113% compared to FY2022)
- Operating income 52 billion yen (111% compared to FY2022)

Action

- Investment in expansion of production capacity for metal masks for manufacturing OLED displays Approx. 20 billion ven
- Investment in expansion of production capacity for optical films for displays
- 13 billion ven or more
- Investment in expansion of production capacity for photomasks, etc. 20 billion yen or more
- Expansion of provision of value to the semiconductor supply chain through external alliances

DNP's strengths

- modeling technology, optical control technology, etc.
- displays and optical films for displays

Examples of our core technology



DNP leverages its unique strengths in large-area functionalization technology, micro/nano modeling technology derived from microfabrication technology used for stamps, and optical control technology, which enables the design of colors and the reflection and refraction of light. Using these technologies, we will continue developing cutting-edge products for the electronics industry. Furthermore, through alliances with external partners, we aim to expand our value proposition within the semiconductor supply chain. In this segment in fiscal 2022, sales amounted to 203.5 billion yen and operating income was 46.9 billion yen. We will aim for sales of 230 billion yen and operating income of 52 billion yen in fiscal 2025.









*CAGR = Compound Annual Growth Rate

Focus business area strategy

Growth-driving businesses

Focus business area strategy

Digital interfaces

We will continue to make aggressive capital investments in line with the expansion of the global market for displays, particularly in metal masks for manufacturing OLED displays and optical films for displays. Our plans call for an investment of approximately 20 billion ven in a new metal mask production line for manufacturing OLED displays at the Kurosaki Plant (Fukuoka Prefecture) and more than 13 billion yen in a new wide-range optical film production line at the Mihara Plant (Hiroshima Prefecture) to expand production capacity.

By increasing applications to include Extended Reality (XR) and in-vehicle displays, we hope to contribute to the evolution of the information society by safely and seamlessly connecting the real and digital worlds.

Through these efforts, we aim to raise the sales of digital interface business in fiscal 2025 to 112% of the fiscal 2022 level.

Business strategy / Investment plan

- Investment of approx. 20 billion ven in expansion of production capacity for metal masks for manufacturing OLED displays, scheduled to commence operation in FY2024
- Investment of 13 billion ven or more in the expansion of production capacity of ultrawide optical film, scheduled to commence operation in FY2025
- Expansion of applications such as XR and automotive displays



Image of the Mihara Plant (Hiroshima Prefecture), where a new wide-range coating device has been added



Image of an OLED display manufactured using metal masks





Growth rate indexed against FY2022 as 100 Sales plan

Outlook for the global display market

* Estimate by DNP based on various materials



TOPIC

FY2022

Addition of a wide-range coating device for high functional optical film

DNP has increased the number of wide-range coating devices suitable for the manufacture of high function optical film with a maximum width of 2,500 mm. The device has been added at the Mihara Plant in Hiroshima Prefecture in response to the ongoing shift to large screen televisions. As a result, production capacity, on an area basis, has increased by more than 15%. This will boost the productivity of film for 65-inch large-screen TVs with horizontal and vertical dimensions of 1436.4 mm x 809.0 mm.





photomasks and other products and will also promote alliances with external parties. Moreover, we are working to develop nanoimprint technology to reduce power consumption in semiconductor manufacturing processes.

We formed a capital and operational alliance with SCIVAX Co., Ltd. to accelerate the mass production of nanoimprinted products such as optical elements for mobile devices and bio-device elements through Nanoimprint Solutions Co., Ltd., a joint venture with SCIVAX.

Business strategy / Investment plan

- Investment of 20 billion yen or more in expansion of production capacity for photomasks, etc. in Japan and overseas
- Accelerate the mass production of nano-imprinted products such as optical elements for mobile devices and bio-device elements through Nanoimprint Solutions, a joint investment with SCIVAX
- Expand value provision to the semiconductor supply chain through external alliances



TOPIC

Capital and operational alliance in foundry business for the mass production of nanoimprinted products

In this alliance, we will combine DNP's strengths in cutting-edge nanoimprint master mold manufacturing technology, mass production and quality control know-how, with SCIVAX's strengths in mass-production manufacturing equipment capable of high-precision nanoimprinting and equipment design technology, among other areas. As a result, we will develop a system in Japan that can rapidly respond to the mass production outsourcing needs of manufacturers in Japan and overseas, which, in the future, will also lead to capabilities in responding to global supply chain risks.

Growth-driving businesses

Semiconductors



Photomask (master for making semiconductors)



Lead frame for compact semiconductor packages



Vapor chambers (metallic heat-dissipation components)

