


Special Feature:

# "Today's Innovation is Tomorrow's Basic"

— Four Growth Areas —





DNP's goal today is to create "Tomorrow's Basic." When we talk about creating "Tomorrow's Basic," we mean developing products and services that solve challenges for corporate clients, consumers and society whereby the solutions become such an intimate part of our lives that we can't imagine living without them. Our approach to this endeavor is not to wonder what kind of future will happen upon us, but rather to envision the kind of future we want to create. We must identify issues that need to be resolved in order to build the future we want, and DNP must continue to play a central role in the challenging work of resolving those issues along with our many partners.

For example, given that we are already becoming an "ultra-aging," advanced information society, we need to create a sustainable society in which people accept each other's differences. If we could draw close to people who live in the kind of society we want, we would hear them saying, "We want to deepen communication while protecting our valuable information," "We want to continue eating foods whose safety and quality we can rely on," "We want to impose less of a burden on the environment," "We want to cultivate the next generation by enhancing education and passing on knowledge," "We want to live healthy lives amid advancing and more widely available medical care," and "We want to live comfortably in safe living spaces." These are the kinds of things we mean by "Tomorrow's Basics."

At DNP, we want to combine our own strengths with those of our partners and offer effective solutions even before people become aware of desires like these. Recently we established four growth areas in which we intend to offer "Tomorrow's Basic" value: knowledge and communication, food and healthcare, environment and energy, and lifestyle and mobility. In addition to creating new businesses in these fields, we will also work on improving asset efficiency, capital efficiency, and effective use of all management resources. Three years from now, in the fiscal term through March 2018, we plan to boost our return on equity ratio (ROE) to 5.0% and operating income to 80.0 billion yen.

By continuing to create value that every consumer feels is so "basic" that he or she cannot live without it, we aim to contribute to the society of the future as we grow as a company.

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## Growth Area

# Knowledge and Communication

DNP is moving forward with projects aimed at fostering culture and enhancing people's lives through lively, safe and reliable communication in the context of an advanced information society. Rather than simply producing information media and content, we also create frameworks for the interactive exchange of information and provide consumers with the information they want, when they want it, in the optimal format for them.

Some of the ways that we do this include promoting DNP's "honto" hybrid bookstore network, which broadens consumers' experience of reading paper and electronic books; developing our educational ICT service, which uses digital textbooks as well as other teaching materials to strengthen ties between teachers and students; stimulating multilingual communication as more people travel outside of their own country or region; and by enhancing services that support the secure exchange of personal information, settlement information, and other sensitive information. DNP expands its businesses by broadening pleasant communication between people and by addressing a variety of themes that cultivate knowledge.

Major themes connected to markets in which DNP can make the most of its strengths



## Settlement-linked services in a cashless society

Compared to Europe and North America, cash settlement is more commonly used in Japan. In preparation for hosting the 2020 Olympic and Paralympic games in Tokyo, one of the growth strategies endorsed by the Japanese government is to improve the convenience and efficiency of transaction settlements by promoting cashless payment. We expect to see increasingly rapid development of Japan's settlement infrastructure so that visitors from abroad will be able to make cashless purchases.

DNP views this movement as an opportunity, and we are taking advantage of it to promote our cashless solutions, for example by enhancing related infrastructure. By making the most of the strengths that enable us to maintain the top share of the Japanese smart card business, we will continue to support the use of "omni-channels" that allow consumers to purchase products through diverse sales channels including physical stores and online shopping, the introduction of prepaid cards that are expected to be used by a broad sector of the population, and debit cards being promoted by regional banks in order to stimulate local economies.

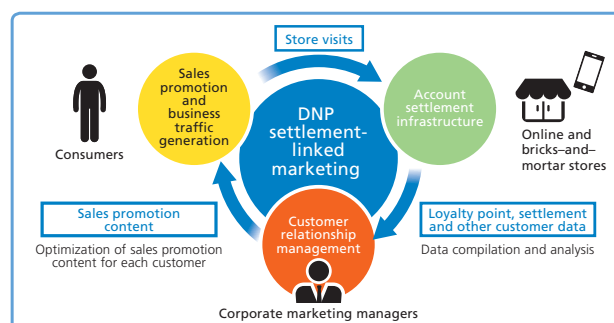
In the fall of 2015, we plan to launch a settlement-related marketing business that will organically tie together settlement, sales promotions, business traffic generation and customer relationship management. We will combine and analyze data from credit card, prepaid card or other settlement services with all types of purchasing data and other customer information, and offer services like planning sales promotions tailored to individual customers and guiding customers to physical stores.

DNP will also focus on handling international brand prepaid cards that can be used with payment terminals that accept VISA,

MasterCard, JCB and other international brand credit cards. For example, DNP provides a variety of solutions that support KDDI's "au WALLET" international brand prepaid card. Within two months of the card's launch in May 2014, more than three million applications were received.

We are considering using historical data accumulated through these types of settlement services as a basis for analyzing consumers' purchasing habits and providing card-linked offer (CLO) services that assist clients in making offers that are appropriate for specific card members and optimally timed. By linking settlement data with data from members stores' cash registers (sales receipt details), we can even make offers related to specific products, allowing us to develop a range of marketing measures.

Furthermore, we propose and provide comprehensive support for all types of sales promotions. For example, in addition to directing business traffic to physical stores and e-commerce websites, it will design stores, websites, and POP promotions to encourage customers to actually buy products.



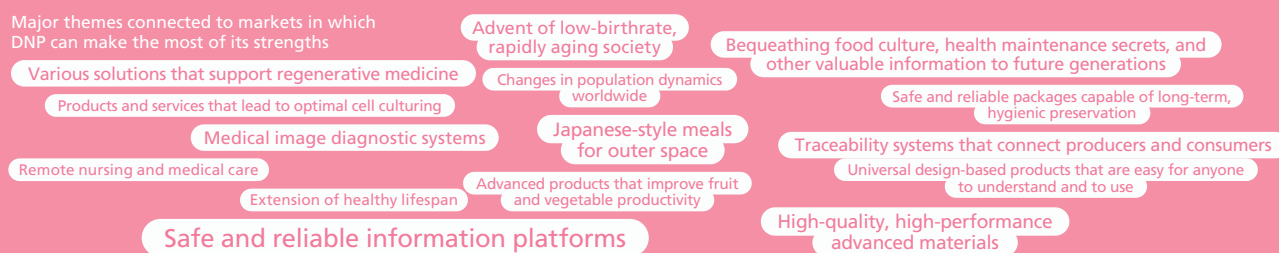


## Growth Area

# Food and Healthcare

Population dynamics are changing dramatically all over the world, and Japan is already becoming an “ultra-aging society.” DNP is responding first of all by taking on the development of products and services that support safe and high-quality lifestyles and lifelong health maintenance. Going forward, we foresee demand for resolving similar types of challenges on a global scale. We will work to expand our businesses as we respond to that demand while paying careful attention to the needs of each country and region.

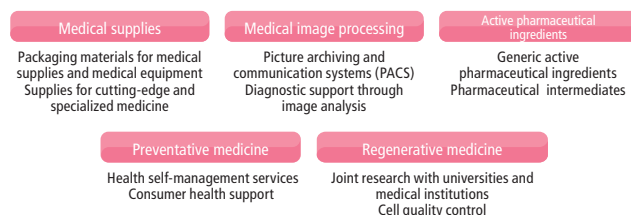
For example, we support people’s food supply and health by providing safe, hygienic packages for foods and beverages, household items and pharmaceutical products. We are actively developing advanced products, image processing systems, and other endeavors that make use of printing and information technologies in new fields such as regenerative medicine and other areas of life science, and agriculture.



## Developing life science businesses

DNP aims to develop full-fledged businesses related to life science by grasping the requirements of cutting-edge medical research institutes and companies and building cooperative relationships. By combining biotechnologies and other new technologies with proprietary core technologies that DNP has cultivated through our printing business, we aim to help improve people’s quality of life by developing five new life science-related businesses.

### ■ The five life science businesses that DNP is developing

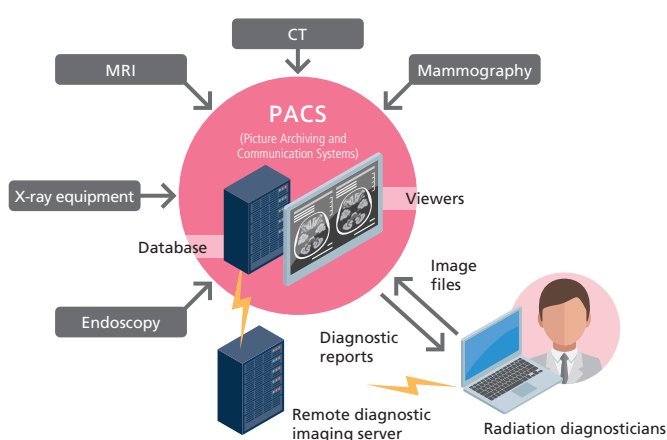


In the regenerative medicine field, there is demand for specialized Petri dishes that make it possible to cultivate cells uniformly or in specific patterns, and to peel off the cultivated cells in sheets. Tokyo Women’s Medical University had developed cell sheets that showed promise for stimulating regeneration when applied to the surface of an injured cornea, esophagus, periodontal membrane or heart muscle, etc. However, it was difficult to maintain their sheet form when peeling the sheets off of the dishes in which they were cultivated. While participating in a university-led project, DNP found a way to use microfabrication and other techniques that it had cultivated through its printing business to treat the surface of the Petri dishes in such a way that they meet the needs of university hospitals and other research facilities. Regenerative medicine is

currently moving from the research phase toward commercialization. In addition to providing medical supplies, DNP uses information technologies like color management and 3D image processing to establish cell cultivation processes that do not depend on the human eye.

In recent years, there has been growing awareness in Japan of the idea of a “healthy lifespan,” referring to the length of time that a person can live independently and enjoy good health. Since preventative medicine is important for extending healthy lifespans, DNP has teamed up with university hospitals and businesses to commercialize mechanisms that support health self-management, and to develop other related businesses.

Regarding medical image processing, we formed an operational tie up with PSP Corporation, a major developer of picture archiving and communication systems (PACS). PACS performs uniform management of all of the digital images recorded in a hospital, whether by x-ray, CT, MRI or other equipment, and makes the images available to all of the hospital’s departments. To date, technologies that DNP has developed by using the image processing technologies that are among its strong suits include an original tablet PC that excels at reproducing natural colors, a fish-eye monitoring camera that self-corrects image distortion, and image analysis technology that can help determine the cause of pathologies by analyzing MRI images of eye globes. We plan to further develop these technologies and add to PACS an image analysis support function that facilitates diagnosis of breast cancer and other conditions. In addition, DNP and PSP are jointly promoting a service that will link local hospitals and clinics to a computer network in order to allow specialized physicians to perform remote diagnostic imaging.



## Printing expands into agriculture

DNP branched out into the packaging business the early 1950s. Among the products that we have developed since then are universal design-based packages that are easy for anyone to use, packages made of functional films that block the passage of oxygen and moisture, and eco-friendly packages made of plant-derived materials.

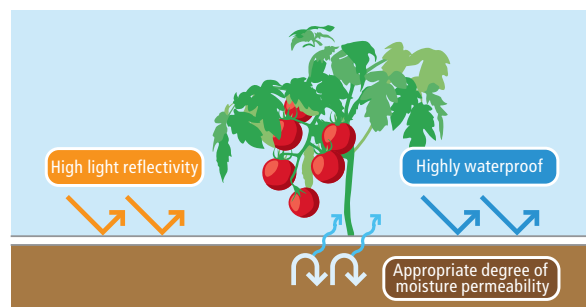
In 2015, we applied technologies and expertise that we gained through our packaging business to develop “DNP Agri Film (reflective, moisture preserving film)” for fruit and vegetable cultivation. In order to increase crop yields, boost sugar content, and otherwise improve results, farmers have come to use a variety of agricultural films that prevent weed growth, hold down soil temperature and reflect light. DNP Agri Film is highly reflective—it

can reflect 95% of visible light. The film helps make up for insufficient light in open culture, greenhouses and vegetable factories, thereby efficiently promoting photosynthesis. The film is durable enough to be used for a long time. In addition to keeping soil from heating up by insulating against light-generated heat, due to its appropriate moisture retention qualities the film not only preserves the moisture level needed for crop growth but can also prevent evaporation of sprayed fertilizers.

In experimental cultivation of tomatoes in 2014, tomatoes grown with the new DNP film produced about twice as much fruit as vines grown with conventional films.

DNP plans to actively expand into the agricultural sector in Japan and overseas. One product that it intends to add to its lineup is a highly water-permeable, soil-resistant version called “DNP Agri Film (reflective, moisture preserving film), water-permeable,” which can be used on pathways between crops to prevent puddle formation.

### ■ Characteristics of DNP Agri Film (reflective, moisture preserving film)





Knowledge and  
Communication



Food and  
Healthcare



Environment and  
Energy



Lifestyle and  
Mobility

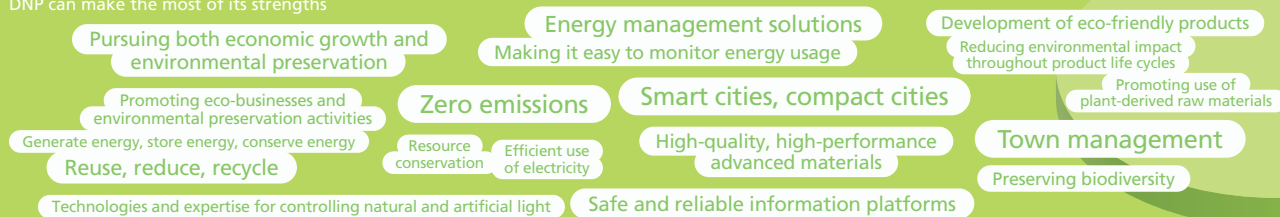
## Growth Area

# Environment and Energy

Does it seem to you that the economic growth of past years has destroyed much of our natural world and has negatively affected the Earth's environment in many ways? At DNP, we believe it is essential to pursue both economic growth and environmental preservation at the same time. Toward that end, we are working to realize a society that minimizes the burdens that it places on the environment.

DNP works in many ways to coexist with the Earth's natural environment and to preserve biodiversity. For example, rather than simply reducing power consumption, we work to generate, store and conserve energy, to participate in efforts to create smart cities that conserve resources partly through effective use of electric power, and to help create "compact cities." We develop products that place less burden on the environment throughout their life cycle, from raw material procurement and manufacturing through use, disposal and recycling. We provide films that take in and/or control light in order to make the most effective use of natural light.

Major themes connected to markets in which  
DNP can make the most of its strengths



## Developing businesses that support generation, storage, and conservation of energy

To support energy generation, DNP has developed components that increase the conversion efficiency of photovoltaic cells. For energy storage, we developed soft packs for lithium-ion rechargeable batteries, among other products. Compared to the metal cases that were commonly used before DNP developed its soft packs, our soft packs are easier to form into a desired shape and size, and help reduce product weight and cost. DNP has captured a large share of the market for these products.

We have also worked hard to develop products that help conserve energy. For example, our light-control window film blocks the heat and light of the sun in summer but lets in an appropriate amount in winter, thereby reducing the amount of energy required for heating and cooling. We also developed digital signage powered by a natural energy system that combines solar power, wind power and storage batteries. This product can be used to transmit information in emergency conditions when the normal power supply has been disrupted.

DNP is also actively developing energy management solutions for overall management of energy generation, storage and conservation. For example, we developed an in-house energy monitoring system that links production equipment operation data and energy consumption data in real time and displays the information on a computer screen. We began using this system in 2009. In addition to displaying the quantities of electric power, cooling water and steam being consumed, the system converts the data so that users can see at a glance energy costs and CO<sub>2</sub> emissions. DNP will continue to use the experience we

have gained from our own company's operations in order to help government bodies, companies involved in smart houses or smart cities and other interested parties to appropriately manage their energy usage.

In addition, in response to a Japanese legal reform that allows new players to enter the electric power market, in August 2014 we began providing marketing and business consulting services to help new power supply companies based on research and analysis of consumer needs.



Energy-efficient digital signage  
using natural energy



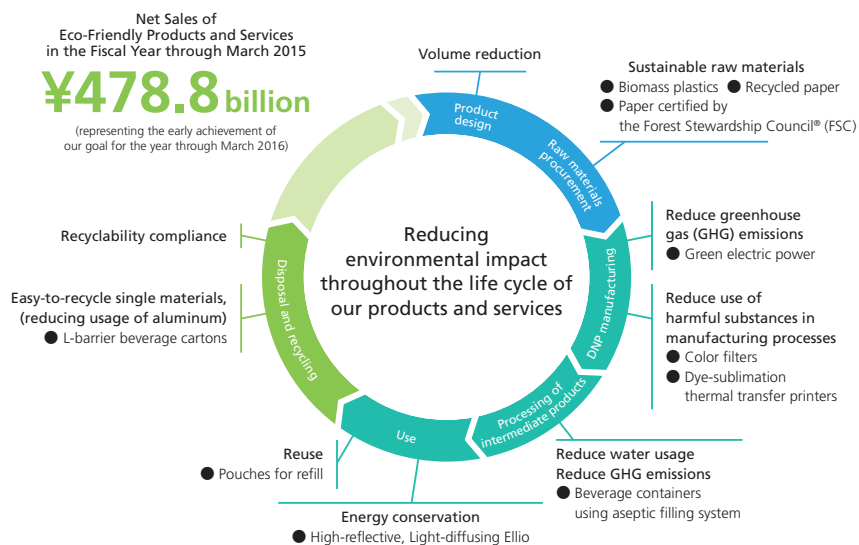
## Expanding our line up of eco-friendly products

In addition to working to reduce emissions of CO<sub>2</sub> and volatile organic compounds (VOCs) in our manufacturing processes, we strive to minimize the burden that our products place on the environment throughout their life cycles, including during usage and disposal. In 2000 we established Guidelines for Developing Eco-friendly Products and Services and we have continued to work at protecting biodiversity and making it easy to monitor environmental impact.

One example of our eco-friendly products is “Biomatech PET” plastic film containing plant-derived materials, which we developed in 2012. Since then, we have been working to expand our product lineup by developing products like plant-derived (biomass) aluminum vapor deposition film and paper beverage containers made of paper combined with biomass plastic.

In May 2015, DNP became the first packaging company to develop microwavable packaging made from plant-derived materials. By using plant-derived material in every film layer, we achieved a maximum biomass plastics ratio\* of about 60% for the entire container. We succeeded in reducing CO<sub>2</sub> emissions over the product’s entire life cycle by a maximum of about 14% compared to conventional petroleum-derived products.

Going forward, DNP’s policy is to switch to using biomass as the raw material for packaging materials that we supply to



manufacturers of foods, beverages, household items and other products. Overseas manufacturers have also expressed strong interest in packaging materials made from biomass plastics, and we intend to link that interest to expansion of this business in overseas markets.

\* Biomass plastic ratio: the percentage (by weight) of biomass-derived content relative to the total weight of biomass plastic contained in a raw material or finished product.



Knowledge and  
Communication



Food and  
Healthcare



Environment and  
Energy



Lifestyle and  
Mobility

## Growth Area

# Lifestyle and Mobility

As consumers' values become increasingly diverse, we are seeing demand for a high degree of comfort in spaces shared with family and friends, in workplaces and public spaces, in personal spaces and elsewhere. At DNP, we believe it is important to be able to provide optimal responses to these demands so that everyone can always be comfortable everywhere.

DNP views homes, offices, medical and nursing care facilities, automobiles, railroad passenger cars and anywhere else where people spend time as "living spaces" for which we develop and provide many types of products and services. In our daily lives, we enter and leave these spaces and exchange various types of information. We are promoting business activities aimed at achieving a "smart society" in which various types of lifestyle infrastructure are managed so as to promote safety and reliability. We expect to see increasing use of portable information terminals and wearable devices, and further development of machine to machine (M2M) communication based on the use of an assortment of sensors as well as further development of the "Internet of things (IoT)."



Major themes connected to markets in which DNP can make the most of its strengths

**Making all living spaces comfortable and pleasant**

Pleasant spaces for families, friends, and private time

Barrier-free, accessible to elderly, etc.

Universal design makes products and services easy to understand and to use

**High-quality, high-performance advanced materials**

Advanced lifestyle materials and detailed solutions

Comfort in automobiles, railroad cars and other moving spaces

"Functional value" mainly from EB technology; "emotional value" mainly from aesthetic design

**Safe and reliable information platforms**

Convenient and safe information equipment and networks

Sensor-based machine-to-machine communication; smart sensing

"Internet of things (IoT)" connecting everything to the Internet

**Actualization of smart society**

Information services that can be used anytime, anywhere

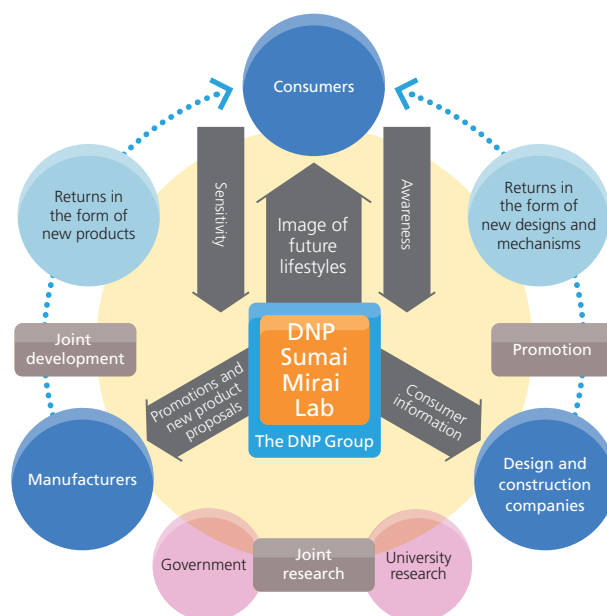
## Thinking about the future of homes

In the course of our daily lives, we place ourselves in multiple spaces. In our living room and in our own bedroom, in vehicles on the way to work or school, public spaces like workplaces and schools, places to relax like shopping malls and tourist attractions... By making these spaces comfortable and pleasant, and by organically linking them with consumers' movements, they become more convenient and gain added value.

Looking first at the homes we live in, in addition to homes becoming outdated, in modern Japan family structures and lifestyles are changing so that in the future we expect the home renovation market to grow faster than the new home construction market. Given this situation, DNP is focusing on using its special proprietary electron beam (EB) technology to develop interior and exterior materials that have outstanding durability and functionality as well as pleasant designs and aesthetic appeal. Based on consideration for the consumer's standpoint, rather than just developing products, DNP offers total solutions encompassing everything from the development of pleasant materials to space design, consulting, and construction method development.

In October 2014, we reinforced these activities by opening the DNP Sumai Mirai Lab. The lab uses databases and other tools that compile information about changes in consumers'

values and preferences and analyzes them from DNP's unique standpoint. We then work with manufacturers, designers, construction companies and other partners to promote the development of the kind of products and services that will be needed in the homes of the future.





## Actualizing a smart society that comfortably connects all kinds of spaces

As people share information both at home and outside the home, they increasingly want to receive individually tailored services that they expect to be available any time, anywhere. In order to link a variety of spaces and increase the added value of its services, DNP uses its data center as a basis for advanced information security and provides products like smart tag-based automatic authentication and wireless technology-based biosensors as well as security modules that safely and reliably connect “smart sensing” devices which measure and share a variety of types of data.

We are also working on a big data service that compiles data acquired from smart sensors and other devices, combines it with consumer information and other information and analyzes it to generate new value. By taking advantage of the strengths that

have allowed us to secure the largest share of the Japanese smart card market, information security-related technologies and expertise, and the comprehensive business framework that enables us to offer a full range of services, we will continue to succeed in transmitting and processing huge amounts of information in real time. In partnership with Nihon Unisys, Ltd. and IBM Japan, Ltd., we will also develop marketing support services that make use of the customer information that businesses hold as well as other forms of big data.

In recent years, amid progress in machine to machine (M2M) communication and the “Internet of things (IoT)” in Japan and overseas, DNP will contribute to the realization of a “smart society” that implements comprehensive management and optimal control of social infrastructure including electric power, gas and water supply, and transportation and medical care.

