

# Daifuku CSR Report

## 2016



**DAIFUKU CO., LTD.**

[www.daifuku.com](http://www.daifuku.com)



An Overview of  
Daifuku for FY2015

World's **No.1**  
in material handling industry sales  
Source: "Top 20 Systems Suppliers"  
U.S.-based magazine Modern Materials Handling

Net sales  
**336,184** million yen

Ratio of sales outside Japan

**66%**

Ratio of employees outside Japan

**59%**

Number of patents acquired

**2,773**

Contribution to CO<sub>2</sub> reduction

**33,367**  
t-CO<sub>2</sub>

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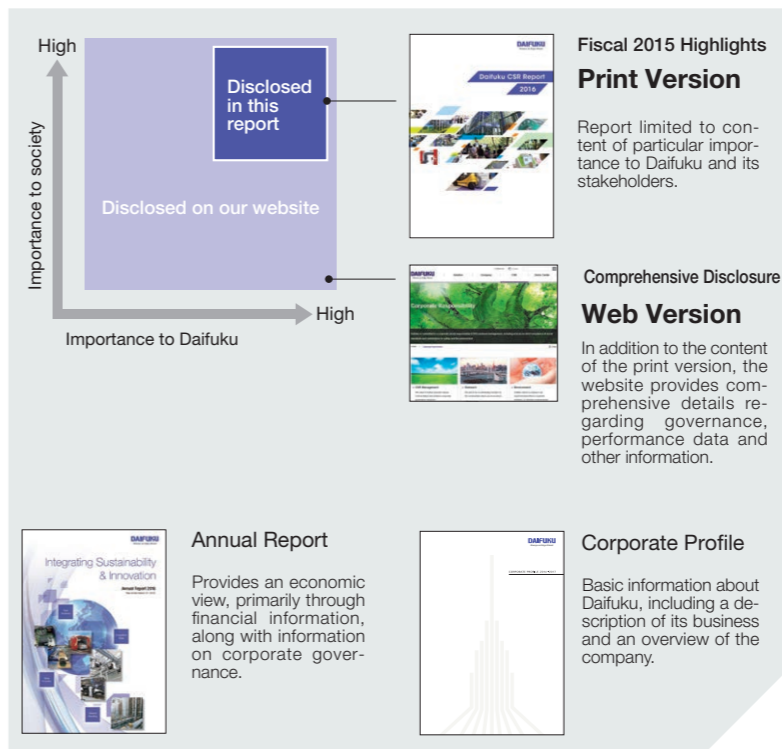
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● Editorial Policy

This report is published once a year for Daifuku's stakeholders to understand its approach to and activities involving corporate social responsibility (CSR). In addition to examples of contributions by Daifuku toward solving social issues through the use of its advanced products and technology, this issue focuses on a dialogue with employees, as they exchange their own thoughts and opinions regarding CSR. The report was designed to reflect our brand message, "Always an Edge Ahead," with the goal of giving readers a sense of what makes Daifuku unique.

● Information Disclosure Tools and Approaches

At Daifuku, we use different tools for different types of readers and objectives to ensure the information we disclose about our CSR and other corporate activities is conveyed to our various stakeholders in a way that is easily understood.



● Report Scope

The report covers the activities of Daifuku Co., Ltd. and its consolidated affiliates (the Group companies)

● Reported Period

April 2015 – March 2016

Note: Some content may fall outside the reported period.

● Date Published

August 2016

● Reference Guidelines

- United Nations Global Compact
- Global Reporting Initiatives (GRI) G4 Guidelines  
\*Note: An index to GRI guideline content is available on our website.
- Environmental Reporting Guidelines (2012 version),  
Ministry of the Environment, Government of Japan



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Corporate History

# The History of Business and CSR at Daifuku

Since its founding almost 80 years ago, Daifuku has offered customers solutions by providing innovative products and technology. Putting CSR into practice through our business, we will continue working with our stakeholders to benefit society.

- Business and product milestones
- CSR milestones

**1937**



**Sakaguchi Kikai Seisakusho Ltd. founded**

**1947**

**Company name changes to Daifuku Machinery Works Co., Ltd.**

**1953**




**Bulkveyor**  
Japan's first grain and bulk unloading equipment

Consolidated Sales Growth

1937~1956

**1959**

**Chain conveyor system**  
Delivered to Japan's first passenger automobile factory



**1963**



**Develops the first Japan-made ten-pin bowling machine**  
Delivered to the world's largest bowling alley

**1964**

**日新**  
Hini Arata  
**Hini Arata, established as the company creed**

**1966**



**Rackbuild system**  
An innovative warehouse for consumer electronics at the start of the mass consumption era

**1970**

**Plans for construction of an industrial park**  
Land acquired in Hino-cho, Shiga Prefecture and development begins

**1976**



**Sorting Master**  
Japan's first steel belt-type automated sorter

1957~1976


**1978**



**TELELIFT System**  
Japan's first book conveying system

**1980**

Trolley conveyor plays an active role in major repair of the Great Buddha Hall at Todai-ji, a National Treasure of Japan



**1981**



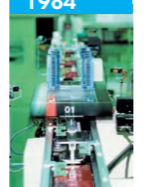
**Waxmore 303**  
Japan's first microcomputer-equipped car wash machine

**1982**



**Factory Automation (FA) system**  
Delivered to the world's most advanced motor factory

**1984**



**1984**  
**Company name changes to Daifuku Co., Ltd.**

**March 1990**  
Sales exceed **100** billion yen

**1986**



**Digital Pick system**  
Delivered to distribution centers for supermarkets, Co-ops, and other

**1993**



**Ramrun-HID**  
World's first non-contact power supply system for monorails

**1995**

Electronic Control Division obtains Daifuku's first ISO 9001 certification

1977~1996

**1999**

Komaki Works and Shiga Works obtain ISO 14001 certification

**2002**



Daifuku publishes its first Environmental Report

**2004**



**E-DIP**  
An eco-friendly automobile paint line system

**2004**

- Corporate Code of Conduct established
- Expansion and integration of ISO 9001 to include service and sales divisions
- Osaka headquarters, Tokyo head office and Tokai branch office obtain ISO 14001 certification

**2006**

**Shiga Works becomes world's largest material handling and logistics production site**  
Daifuku's main production site with 11 factories

**2008**

- Seven production sites in China, Taiwan, South Korea, Thailand and the U.S. complete acquisition of ISO 9001 and ISO 14001 certification

**2009**

- Four sites in Japan obtain OHSAS 18001 certification: Osaka headquarters, Tokyo head office, Shiga Works and Komaki Works

**2010**

- Shiga Works receives the Chairman's Award from the Japan Greenery Research and Development Center
- Launches Environmental Enhancement Management Committee
- Inaugurates hands-on safety training facility at Osaka headquarters
- China subsidiary obtains OHSAS 18001 certification

**2011**



**eye-navi**  
High-performance digital picking system developed to support growing home delivery business at Co-ops

**2011**



**Baggage Tray System**  
Travels at the world's fastest speed of 600 m/min

**2011**

- Formulates Daifuku Environmental Vision 2020
- Becomes the first material handling provider to be rated under a disaster preparedness program of the Development Bank of Japan (DBJ)

**2012**



**audit**  
A prescription checking system that prevents prescription errors, and offers patients and pharmacists greater reliability

**March 2007**  
Sales exceed **200** billion yen

**2012**

- Daifuku Eco-Products Certification Program established
- Five sites in China, Taiwan, Thailand, and the U.S. obtain ISO 9001 and ISO 14001 certification
- Becomes first material handling systems manufacturer to obtain DBJ Environmental rating

**2013**



**Daifuku Shiga Mega Solar**  
Generates capacity of 4,438 kW, producing 4.3 million kWh annually

**2014**



**Area Management System**  
A control system for high-speed vehicles with a running speed of 200 m/min

1997~2016

March 2016

Sales exceed **300** billion yen

**2014**



**SPDR (Spider)**  
Temporary parts storage and sorting system

**2014**



Joins the United Nations Global Compact

- Shiga Works recognized with a Green Factory Award from the Kinki METI Bureau
- Establishes hands-on safety training facility at Shiga Works
- Formulates Daifuku's CSR and CSR Action Plan

**2015**



Recognized with an honorable mention at the 2015 Environmental Leadership Development Awards

**2015**

**D-PAD**  
World's first commercialization of a newly developed wireless charging system for forklifts

**2015**





# Continuing to be a company that supports the future, responding to customer and social issues with advanced technology



The Yui no Mori forest at the Shiga Works, where efforts are underway to protect biodiversity

Masaki Hojo  
President and CEO  
Daifuku Co., Ltd.

## The increasing role of logistics in a changing society

As change in social environments and industrial structures occurs more rapidly, logistics systems play an increasingly significant role in society. The spread of the internet is driving the creation of new businesses, with e-commerce among the fastest-growing sectors and the business model that integrates the Internet and logistics, leading to a transformation in consumer behavior and lifestyles. This has resulted in an increased breakdown in units, going from pallet, to case, and to the individual piece, requiring both speed and accuracy. The key to responding to these needs is the use of robots and other advanced automation and streamlining technology. Daifuku provides solutions from a market-oriented perspective through close association with our customers.

The knowledge and experience we have gained in working with leading-edge customers in various industries finds many uses among companies taking on new businesses, and I sense the weight of our responsibility growing. Advancing the technological capabilities that support our business foundations is an extremely important issue if we are to respond to society's expectations. There are numerous areas we should be addressing, including the Internet of Things (IoT), artificial intelligence (AI) and big data. As the work force continues to shrink with lower birthrates and an aging population, personnel shortages at

logistics sites have become a serious problem. We hope to contribute to solving these social issues through Daifuku's technological capabilities.

## CSR is the barometer of a sound company

For a company to continue growing requires not only the pursuit of profit, but sound management. A healthy mind and body are as important to the growth of a company as they are to a person, and CSR activities are necessary to measure how well a company maintains sound management practices. We hope to promote CSR activities unique to Daifuku by considering both our business attributes and social conditions to identify and give priority to initiatives involving issues of greatest importance.

A key word that comes to mind is "safety." For a business, safety, which involves its employees' very lives, should be the highest priority, and is essential in developing customer trust. At one time, Daifuku went a record 5,500 consecutive days injury- and accident-free. We will continue to clarify our commitment in this area as we work to spread our culture of safety around the globe.

Another important issue is "people." Human resource development is essential for sustained growth. For Daifuku, developing its global human resources is of particular importance. This goes beyond simply acquiring language skills, and we are striving to develop individuals who have the ability to communicate effectively and can work successfully

with a diverse range of people of different cultures and attitudes.

## Expanding pragmatic activities to instill CSR company-wide

To clarify its CSR activities, in 2014 Daifuku formulated the Daifuku CSR medium- to long-term policy, and laid out concrete measures in its CSR Action Plan. Since 2015, we have established a series of key performance indicators (KPIs). Just as regular health check-ups are important to building a healthy body, it is important that we have a visible picture of our efforts to achieve our targets and keep track of progress of our activities. We regularly review the results of our KPIs to confirm whether we are moving forward and if we are meeting society's expectations. In April 2016, we established a new team dedicated to advancing our CSR initiatives.

Nevertheless, even with numerical targets and the right structure in place, we are not able to meet our objectives unless our employees make a conscious effort in CSR activities. We have gradually begun to see results: the Legal Department led an effort to promote awareness of compliance issues; a disabled employee suggested workplace improvements; and we have seen more widespread efforts under the Daifuku Eco-Action program, which supports independent involvement by employees in environmental activities. By expanding these kinds of pragmatic efforts, we are striving to instill the

importance of CSR activities.

## Employees coming together to achieve sustained growth

In fiscal 2015, Daifuku set new records in orders received, net sales and income, marking our sixth consecutive year of increases. We are also making solid progress with our four-year business plan, Value Innovation 2017, which ends this fiscal year, with growth exceeding our initial targets. However, we must continue to focus on the task at hand as we work to build an even stronger foundation for our business.

Business expansion and the creation of a sound organization are two sides of the same coin. In May 2017, Daifuku will mark its 80th anniversary. Our employees are ready to cooperate in our CSR efforts so that we can respond to the expectations of our stakeholders and continue to achieve healthy, sustained growth.



# Implementation of CSR Action Plan based on six initiatives to guide our Corporate Policies Structure into practice

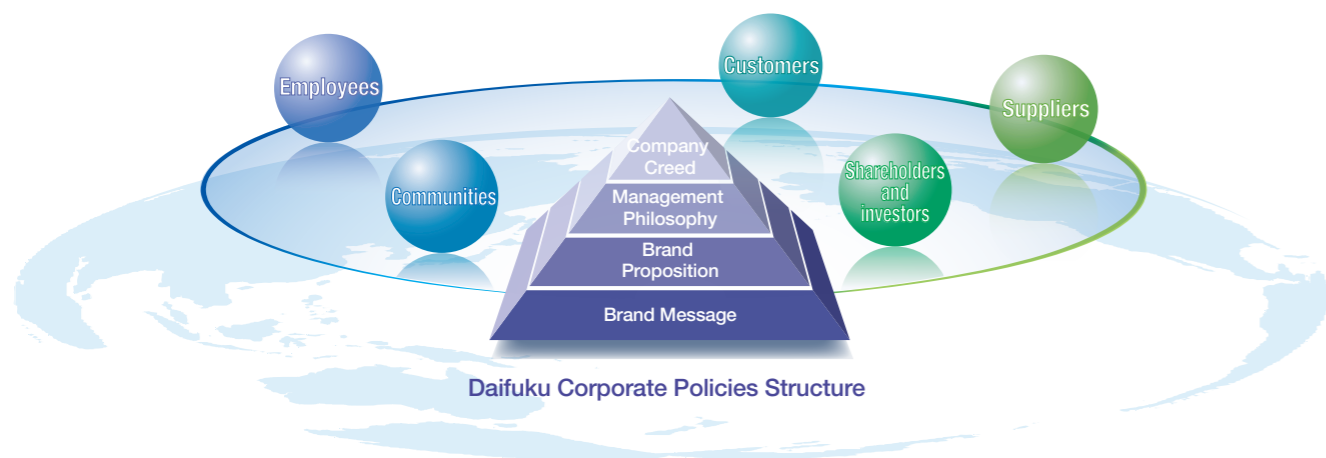
## ■ Daifuku's CSR

Daifuku's CSR is a comprehensive and long-term policy that concisely pulls together our views on CSR. It specifies six initiatives, and declares the implementation of our Corporate Policies Structure in corporate activities as we move forward with our stakeholders.

“A company that supports society and the future”

To achieve that goal, we are engaged in the following six initiatives.

- Provide high quality products and services
- Strengthen risk management
- Nurture relationships of trust with our suppliers
- Respect human dignity (human rights, labor practices, safety, health)
- Create good relations with communities
- Contribute to the environment through corporate activities



### Company Creed



Today we are doing better than we were yesterday.  
Tomorrow we will be growing ahead of where we are today.

### Management Philosophy

1. Provide the best solutions to benefit the global markets and the development of society.
2. Focus on healthy, growth-driven global management under a diverse and positive corporate culture.

### Brand Proposition

Value Innovator

### Brand Message

Always an Edge Ahead

## ■ Daifuku by KPI

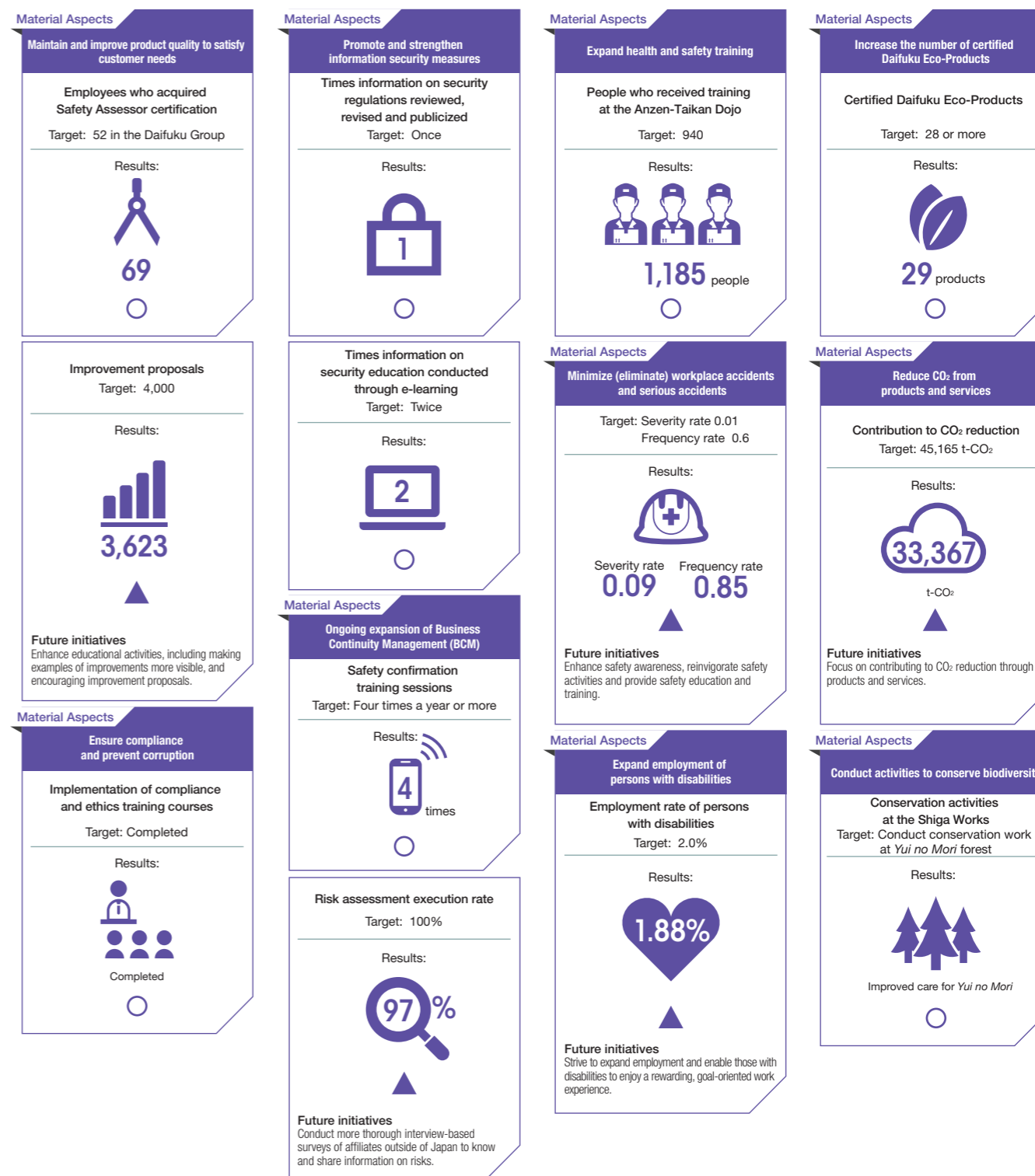
In accordance with the six initiatives, the CSR Action Plan defines medium-term targets with specific measures. Efforts tied to each of those initiatives were then assessed for their importance from the perspective of the Company and its stakeholders, and the 10 items deemed most important by both were specified as material aspects and given the highest priority. Progress with these material aspects is tracked using KPIs\*.

\*Key Performance Indicators: A quantitative performance evaluation index that measures target achievement.

Details of the CSR Action Plan are available on our website at: [www.daifuku.com/sustainability/management/plan/](http://www.daifuku.com/sustainability/management/plan/)

### Key CSR Action Plan targets and KPI results for fiscal 2015

○ : Achieved ▲ : Not Achieved



# A Company That Draws Out Employee Diversity to Enable Each Individual to Fulfill Their Potential

At Daifuku, non-Japan sales have reached 66% of net sales, and non-Japanese employees represent more than half of all personnel. Creating a workplace accepting of the growing diversity in personnel, in which all employees respect one another and are able to fulfill their potential, is an important aspect of the Company's CSR. What kind of workplace environment is needed for us to continue to grow as a global company, and what should we expect of the employees? Four of our employees from different occupations, careers and nationalities came together to discuss, from their perspectives, Daifuku today and the issues it faces.

## Participants



**Yoshihisa Ichinose**  
Corporate Officer  
General Manager of CSR Division



**Kouzou Kawata**  
Assistant Manager  
Production Management Group, Production Control Department, AFA Operations

From Osaka. Joining the Company in 1992, has worked in a wide range of operations, from systems for automobile production lines, to assembly, procurement and production control. Spent six years working in Thailand, and has extensive experience working in the U.S., Mexico, and other countries.



**Chisato Kimoto**  
Assistant Manager  
Consulting Group, System Planning Department, FA&DA Operations

From Tokyo. Joined the Company in 1997. After working in simulation software sales, now in charge of consulting work using CG technology. Creates 3D images of customer systems to provide effective proposals.



**Li Xue**  
Global Business Administration Department, Finance and Accounting Division

From Sichuan Province, China. Joined the Company in 2006. Worked at Hini Arata Kan, and took childcare leave in 2011. After returning to work, assigned to her current department. Provides risk training for operations of and transactions by affiliates outside Japan.



**Dang Dang Khoa**  
Engineering Group, International Division  
FA&DA Operations

From Ho Chi Minh, Vietnam. Joined the Company in 2014. Provides proposals for efficient, thought out system plans and designs to meet customer needs.

## A "Switch" is important to transcending nationality and language

**Kawata:** I spent about six years assigned to our Group company in Thailand. One of the first difficulties I felt upon taking the position was getting used to differences in work styles and cultures. At first, I was constantly confused. Ms. Li, you're from China, aren't you? You must have felt the same way when you first joined Daifuku in Japan.

**Li:** Yes, often. It's hard to put into words, but there's just something different from the normal, everyday interactions. However, as the saying goes, "When in Rome, do as the Romans do," so I've made a habit of asking senior staff around me whenever I don't understand something. They're all very nice about it, and I believe that Daifuku is a comfortable place for non-Japanese staff to work. How about you, Mr. Dang—you're from Vietnam, right?

**Dang:** Certainly, it's important to be aware of differences in how people work and in culture. You have to make a "cultural switch" when

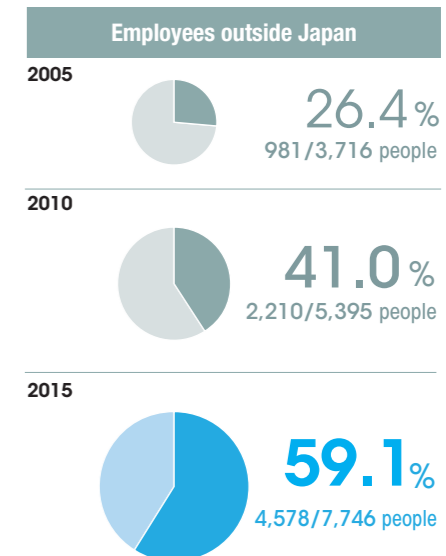
you go to another country. I think learning to control that switch really helps.

**Kawata:** A switch—that makes sense. There are many things we Japanese understand without having to be explicit, but it's not the same outside Japan. I think we'll increasingly be required to switch back and forth, without obsessing over what might be considered common sense in Japan.

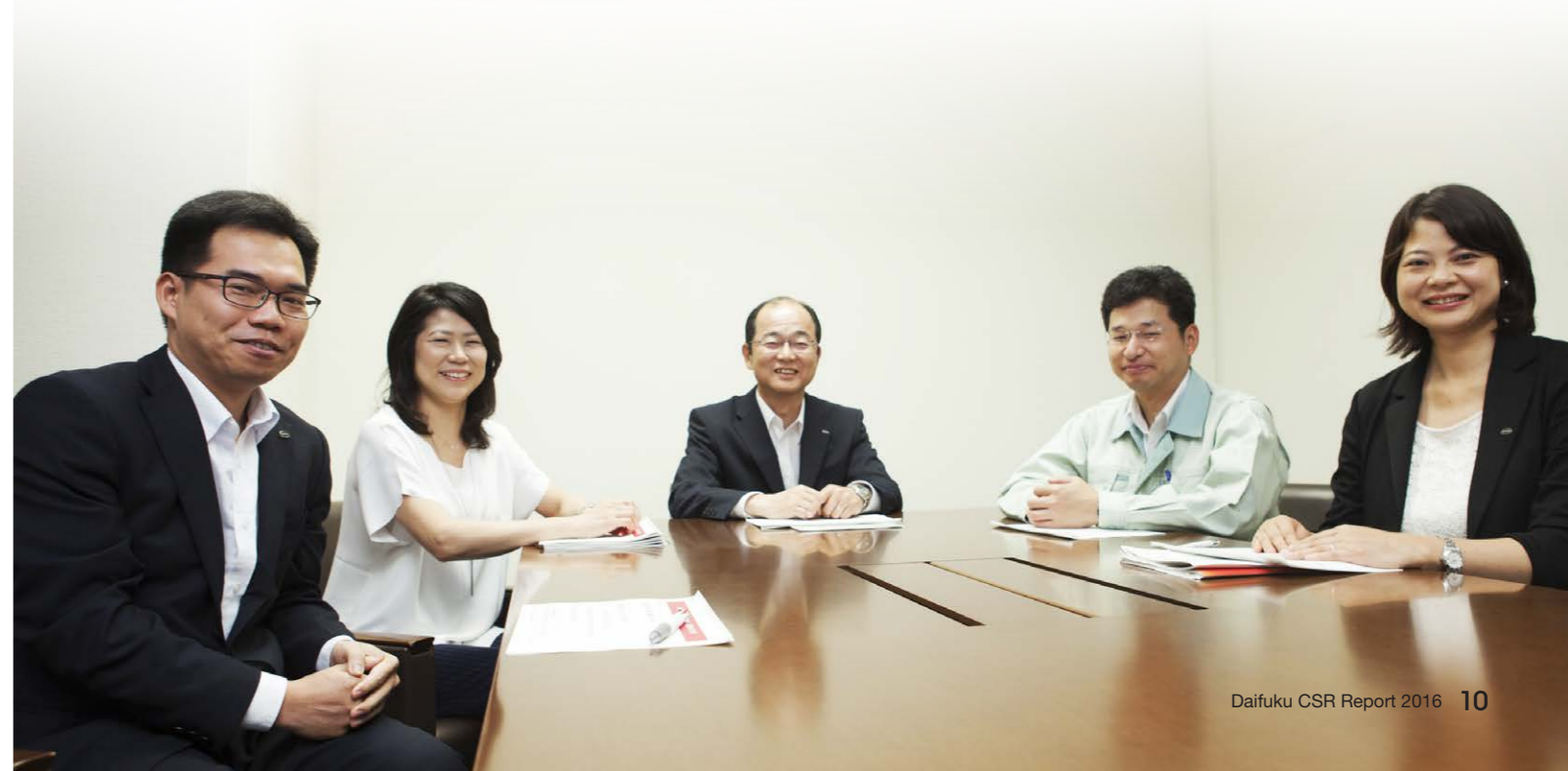
**Kimoto:** When I was studying at a U.S. university, I had a class called Business Speech, where I did presentations in English in front of other people. I used to look at the audience's faces and say whatever came into my head, but one time the presentation was more difficult, and I read from a manuscript I'd prepared. The feedback I got was that the audience didn't understand what my message was. That taught me the importance of expressing myself in my own words, even if my English isn't that great.

**Ichinose:** Recently, President Hojo often reminds us to speak out. He means that we should take the initiative in a conversation, and not

hang back just because we don't speak English well. That way, the person you're talking to will adjust to your level, and that's where real communication starts.



(Note) Ratio of employees at non-Japanese affiliates and branch offices to all employees of the Group companies.





## Changing the concept of “Made in Japan” to consider the Daifuku Group a single global team

**Dang:** Nearly 70% of Daifuku’s sales come from outside Japan. Rather than just having Japanese staff go to other countries, we need to create a framework for staff outside Japan to play a more active role.

One way to do that would be personnel exchanges between Group companies worldwide. Affiliate staff from Singapore could work at Group companies in India or Thailand, and vice versa.

**Kawata:** Staff would sometimes travel to India to assist our Group company. There’s no need to be overly fixated on Japan because the headquarters is here. In terms of accepting greater diversity, I think it’s important that, wherever we work, the environment is there to allow us to build experience and our careers.

**Ichinose:** That mean’s being able to move not just between Japan and other countries, but between other countries besides Japan. I believe that’s going to be an issue for Daifuku.

Despite how much we’ve expanded globally, the way Daifuku conducts its business and the mindset of its employees are still rooted in Japan. That is why we introduced our Global Business Trainee program and our Global Leadership Training. As Mr. Dang noted, only by encouraging employee exchanges among our Group companies around the world and recognizing that together we all make Daifuku can we truly call ourselves a global company.

### Systems and Training to Develop Global Human Resources

#### Global Business Trainee Program

This program offers young employees language training and on-the-job training at our locations outside of Japan.

Total number of participants: **56** people (since 2005)

#### Global Leadership Training

Training to improve the skills of management candidates at affiliates outside of Japan

Total number of participants: **37** people from **10** countries (since 2011)

### Efforts needed to allow everyone to play an active role in the company

**Kimoto:** I looked this up after I’d been asked to participate in this dialogue, but apparently Daifuku has a very low attrition rate among its female employees. And personally, I feel the Company is a comfortable place for female staff.

At the same time, because there are still few female staff overall, I sometimes see room for improvement. I occasionally visit our production sites and I’m always handed a man’s uniform. I’m sure they have uniforms for women, so that’s one area I want them to consider. It may seem like a minor issue, but this is the kind of thing that can help change people’s awareness. How about you, Ms. Li?

**Li:** You’re right that the number of female staff is still small. I joined the Company in 2006, along with close to 100 other people, of whom only seven were women. The numbers have gradually increased recently, and there

are more women in management positions.

**Dang:** I joined the Company in 2014, and three women among the 50 or so new hires. In Vietnam, men and women work together equally, so I never noticed the difference in numbers.

**Li:** To develop oneself in Daifuku, I think on-site experience at the production and installation sites is important. With more consideration of the kind Ms. Kimoto mentioned, even someone like me from an administrative division might find it easier to visit.

**Kimoto:** The Company is moving ahead in promoting a more active role for female staff, so I think we’ll see an increase in the number of female staff. At the same time that means more women will be involved in the production side of the business. Since Daifuku depends on its production sites, I hope women will be able to play an even wider role.

**Ichinose:** As Ms. Kimoto pointed out, creating workplaces where female staff can have an active role is an issue we need to continue working on. At the same time, I think we’ve also improved our maternity and childcare leave systems. Didn’t you make use of both, Ms. Li?

**Li:** Yes, and not just me; there are many other working mothers around me. This was true for me as well, but support in the workplace is strong, making the process of returning to work smooth for everyone.

**Ichinose:** After maternity and childcare we need to consider

care for the elderly. The number of employees who leave to take care of family members has grown, and this is an issue that all companies face. While Daifuku has begun introducing systems to assist employees in those situations, we need to put more support in place. We hope to create an environment in which all employees, not just women, can work in a way that fits where they are in life and enables them to achieve work-life balance.



### Creating a workplace that recognizes employee individuality and draws out their full potential

**Kimoto:** In dealing with newly-hired female staff recently, I feel they are both success driven and highly motivated.

**Kawata:** I see. That means that those of us welcoming them into the Company need to be prepared to handle that kind of drive. I think this will require a company-wide change in attitudes, starting with the managers who will supervise these staff.

**Kimoto:** I do hear of cases where

supervisors are unsure about how to handle newer staff, so a change in mindset among management might be important.

**Ichinose:** The Company also recognizes that issue, and we’ve incorporated it into our management training programs. Putting in place programs and working environments that recognize each employee’s individuality—regardless of gender, nationality, religion and so on—while maximizing their performance is a theme Daifuku must continue to focus on.

**Ichinose:** To conclude, I’d like to ask what each of you thought of today’s dialogue.

**Kimoto:** In the normal course of our work, we don’t have many opportunities to think about CSR, so it was a great experience to talk with everyone about such a relatable topic. I think Daifuku has made a lot of progress in

developing an environment that supports an active role for women, and I hope they will continue to increase those efforts.

**Kawata:** Like Ms. Kimoto, while I was familiar with the term CSR, I never gave it much thought. Listening to everyone’s opinions today made me more aware of a lot of issues, so this has been a valuable opportunity. I was also glad to hear directly from everyone about their experiences in their own workplaces.

**Li:** I also thought this was a great opportunity. I hope this will be the start of a relationship where I can turn to you all for any kind of advice, including about work.

**Dang:** I learned a lot, too. One thing I felt through our discussion is that Daifuku’s business is going to continue expanding globally. I look forward to our being able to contribute around the world through our work.





Pharmaceutical Distribution

# A Range of Technology That Supports the Pharmaceutical Value Chain

Daifuku technology in production and distribution centers that ensure stable supply even in emergencies and in high-precision dispensing at pharmacies.

Solutions using Daifuku's technological capabilities contribute widely to the medicinal drug value chain, from production and distribution to dispensing at pharmacies.

Because their products directly involve health and human life, maintaining a stable supply is one area of critical importance to drug-related companies, not only in normal times but during disasters as well.

Issues for achieving a stable supply vary from customer to customer. Daifuku responds to these diverse needs through leading-edge technology, whether for seismic isolation systems for production and distribution sites, automation via robots, deployment of IT or to address environmental concerns.

In addition, as Japan moves away from a policy of hospital-centered care and shifts toward home care and community-based medicine, pharmacies will take on an important role as the direct suppliers of prescription drugs to patients. Daifuku's image recognition and weight inspection technologies are used to help prevent dispensing errors.



Seismic isolation flooring under the racks of a unit load AS/RS employs a ball bearing system

Reducing shaking with seismic isolation flooring (at seismic intensity of upper 6)

Reduced **75** %

Quakeproof automated warehouse supports stable supply system

Case 01 — Nissin Pharmaceutical Co., Ltd.

Nissin Pharmaceutical Co., Ltd.'s Araya Plant (Tendo, Yamagata Prefecture), which handles generic drugs and contract manufacturing of pharmaceuticals, is the company's most advanced manufacturing site. As the market for generic drugs continues to grow, Nissin has installed the latest production equipment in an effort to boost production capacity, and has also deployed a quakeproof unit load automated storage and retrieval system (AS/RS) for raw materials and products. This upgraded their supply system by significantly reducing shaking during an earthquake by 75%, which prevents stored items from falling, and enabling an uninterrupted supply of products even during a disaster.



Parts composed of oil dampers and ball bearings



Picking robot provides delicate handling of products of varying size and weight

Shipping accuracy "seven nines" (best in the industry)

**99.99999** %

Innovative distribution center mobilizes robot technology

Case 02 — Toho Pharmaceutical Co., Ltd.

Toho Pharmaceutical Co., Ltd. is involved in the pharmaceutical wholesale business. At the company's large-scale distribution center, TBC Saitama (Kuki, Saitama Prefecture), Toho Pharmaceutical faced two major issues: a labor shortage resulting from a shrinking, aging population, and a need to further improve shipping accuracy. TBC Saitama decided to build a cutting-edge distribution center utilizing robot technology; robots were deployed to automate 100% of case picking and 65% of piece picking. By also integrating their computer system with each of their automated warehouses, they were able to reduce personnel by half compared to distribution centers of the same size and doubled productivity, while offering traceability and other high-quality distribution services.



Mini load AS/RS for temporary storage of shipping containers



Simultaneous identification of multiple drugs

Total deliveries of the *audit* (From 2012 market launch through the end of March 2016)

About **900** units

Preventing errors through image recognition and weight inspection technology

Case 03 — Heart Pharmacy

Heart Pharmacy (Kizugawa, Kyoto Prefecture) has deployed the *audit* prescription checking system, which uses image recognition and weight inspection technology. It compares the drugs picked by the pharmacist with prescription data to instantly audit drug type and quantity. Prior to installation, the pharmacy risked mistaking one drug for another in the dispensing process, or other pharmacist errors; with a double-check system that combines human and machine verification, they are now able to prevent such errors. The system can also maintain a log, making it easier to quickly respond to questions from patients.



The system is highly effective in pharmacies with just a single pharmacist

VOICE

A constant effort to evolve to contribute to stable supply

Masami Iwai  
Manager  
System Planning Group, System Planning Department  
FA&DA Operations

I was responsible for project management for TBC Saitama, from initial system proposal to full operation. The project was unprecedented in terms of distribution automation, requiring robots capable of handling thousands of products of varying shapes and sizes. However, thanks to a flexible approach to system development and solid technology to make that possible—in short, Daifuku's comprehensive strengths—we were able to meet the customer's requirements. Using the new technology and expertise we gained through this project, we will continue to pursue even greater contributions to a safe, stable supply of pharmaceuticals.





Smart Mobility

# D-PAD, the Future of Wireless Battery Charging



Electric forklift incorporating D-PAD

## A Breakthrough for the Future of Mobility

Recently, much attention has been given to smart mobility, electric vehicles (EV) and other technologies seen as the next generation of transportation infrastructure. At the same time, there is also a greater focus on the question of how cleanly and efficiently electricity can be supplied. Wireless charging technology is attracting particularly heavy interest.

As the name implies, this technology requires no connection to a conventional power cable, charging devices wirelessly. Already commercialized for use in some household digital appliances, issues remained in adapting the technology for high-power charging. Daifuku's D-PAD represents a breakthrough in wireless charging technology, opening up new possibilities for the industrial sector.

## Innovation Born of 20 Years of Accrued Technology

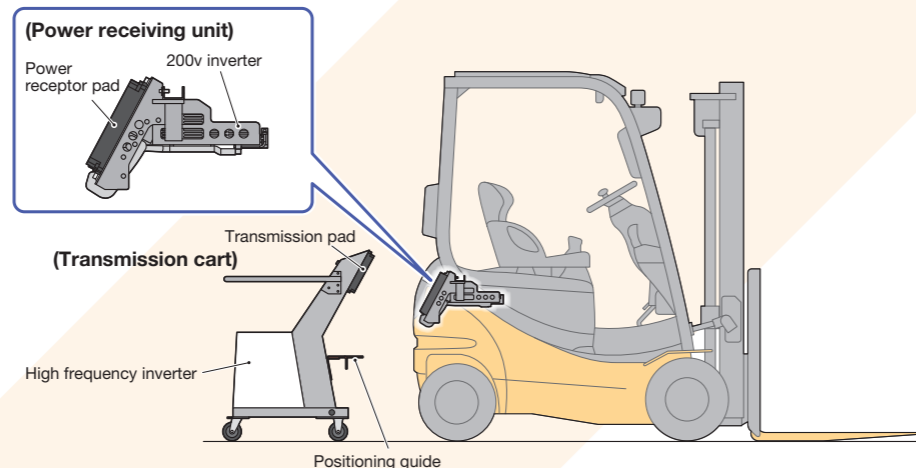
D-PAD was developed based on Daifuku's non-contact power supply technology known as HID, for High Efficiency Inductive Power Distribution, in which the Company has a track record of more than 20 years. In 1993, Daifuku developed the world's first electrified monorail system using a non-contact power supply. Since then, Daifuku's non-contact power supply transport systems have been delivered to the automobile, semiconductor, flat-panel display and many other sectors, and have won both acclaim and an overwhelming market share, particularly in the semiconductor field, making the technology a global standard.

The difference between power "supply" with HID and power "charging" with D-PAD is that the former

The system comprises a transmission cart (transmission pad and high frequency inverter) and a power receiving apparatus installed on the forklift itself (a power receptor pad and 200v inverter). Standard equipment forklift batteries may be used. Proprietary wireless technology is used to automatically recognize the relative positions of the transmission and receptor pads, maintaining stable power transmission efficiency.

**D-PAD Features**

- High-power**  
A broad range of uses in the industrial sector
- Fast charging**  
Charges in about the same amount of time as plug-in systems
- Compact**  
Easily applied to mobile carts
- Greater power transmission distance**  
Transmission units can be embedded in floors, providing greater freedom in facility design



## Exploring the potential of D-PAD for expansion into a wide range of fields

D-PAD works on the same principles as HID, but uses a different method of transmitting electric power; establishing that method proved to be the biggest hurdle in the development phase. As we work to enhance performance, reduce cost and make other improvements, we hope to develop D-PAD into a product that can respond to the expectations of our customers regardless of industry or field.

We have had inquiries from customers not only in manufacturing, but across a diverse range of industries. Once D-PAD's benefits becomes more widely known, we think we will find application across an even broader range of fields. D-PAD is also the first Daifuku product designed as a unit type. In that sense, as well, we believe it is a truly breakthrough product.

Yoshio Doi (left)  
**Manager**  
 WPT Group, Power Device Department  
 eFA Operations

Fumio Funahashi (right)  
**Manager**  
 Sales Management Group, Power Device Department  
 eFA Operations



V O I C E

supplies power while the equipment is running, while the latter charges the battery at a fixed spot. Development of D-PAD began in 2012, an attempt to respond to numerous customer requests for highly efficient large-current power transmission, coupled with a compact, lightweight design. Daifuku signed a technical and licensing agreement with the University of Auckland in New Zealand for D-PAD, similar to the agreement already in place with the University for HID technology. Following D-PAD's first commercial application in automated guided vehicles (AGV) in 2014, in February 2016, Daifuku worked with Komatsu Forklift Japan Ltd. to develop the world's first commercial wireless battery charging system for electric forklifts (patent pending).

## A Game Changer in Mobility, With Applications Across a Broad Range of Fields

Systems using D-PAD wireless battery charging technology employ a transmission cart to wirelessly charge the forklift. Although charging time is equivalent to that of traditional plug-in systems, the D-PAD is more convenient since it eliminates plugging in a cable. It also reduces malfunctions caused by poor connections as well as the risk of electric shock.

D-PAD is not only capable of high-power transmission, but is unique for the unit's compact size. It can also transmit power at a distance of up to seven centimeters, making it possible to embed the transmission unit in the floor and otherwise offering greater flexibility in facility design. This technology has the potential to significantly change the future of mobility in the industrial sector.

Moving forward, we will work to expand applications for mobile carts and other factory equipment, while also exploring possible uses in other fields such as mobility scooters and household equipment.

### Future Potential

The D-PAD system is expected to reach beyond industrial vehicles and find uses in a wide variety of fields and applications.

### From industrial vehicles, to more familiar applications

- Resolving maintenance issues through broader use of systems commercialized for electric forklifts, AGVs and other applications.
- As the units become even more compact, potential will emerge for application in cars for seniors, electric wheelchairs and electric bicycles and motorbikes.

### Expansion into the housing sector

- The system can be used not just for digital appliances, but for other household equipment requiring greater electric power. The addition of waterproofing can offer safe use in toilets, bathrooms and other areas of the home with plumbing.





Eco-friendly Products and Services

# Working With Customers Through Eco-Products to Reduce Environmental Impact

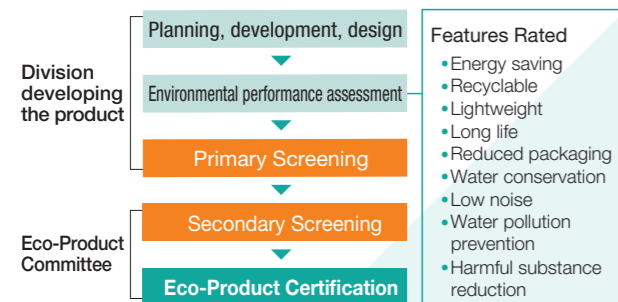


Developing eco-friendly products and services that meet our standards and making them widely available to society

Environmental problems, such as climate change, are an issue for the international community. In 2012, Daifuku began an Eco-Products Certification system, with the goal of contributing to our customers' efforts to reduce their environmental impact by providing environmentally friendly products and services. The system targets both the Group's current products in and outside Japan, and all products developed going forward. It assesses their environmental performance in terms of energy savings, resource conservation and pollution prevention, and products that meet our standards are certified as Daifuku Eco-Products. In fiscal 2015, eight products were added.

To achieve more advanced environmentally friendly design, we introduced environmental impact assessments using Life Cycle Assessment (LCA)\*.

Certification Process



## Case 01

Products Certified in Fiscal 2015

### S/R Machine (Model: R-L10)

Model change from the original S/R machine for unit load AS/RS. Equipped with a highly efficient motor and a reduced number of parts, contributing to energy savings and resource conservation.



Energy savings

Watt-hours  
**7.6%** reduction

Assessment conditions (specifications)	
Horizontal speed	160 m/min
Vertical speed	15 (30) m/min
Clearance height	15 m
Transfer equipment	Fork type
Horizontal distance	50 m

( ) indicates speed when unloaded

Resource conservation

Main unit weight  
**2.7%** reduction

Resource conservation

Number of parts  
**10.1%** reduction

(Note) Reduction rates are versus Daifuku's conventional models.

### V O I C E

Rather than being led by the design division, development for this project was conducted through a collaboration of all the divisions involved. A monthly development meeting made it possible to share issues and to decide on an optimal division of roles, which I believe led to the project's success.



Kunihiro Tsukamoto S/R Machine Section, AS/RS Group Design Department, FA&DA Operations

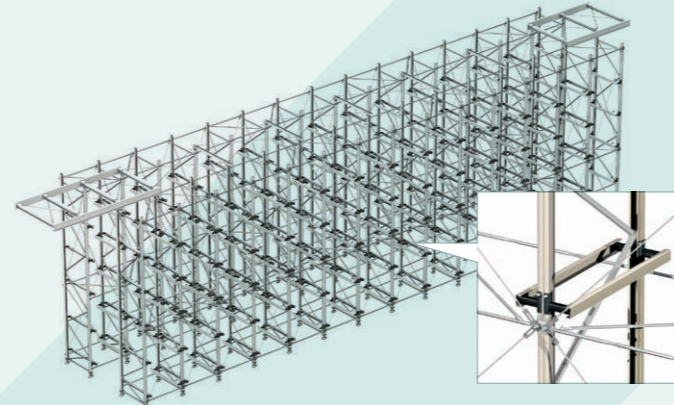
## Case 02

Products Certified in Fiscal 2015

### Bolt-Up Rack (new cross-section) (Model: DC100)

Enhancing the cross-section performance of the rack components enabled a switch from welded construction to assembled construction.

This contributed to energy and resource conservation, and reductions in CO<sub>2</sub>.



Assessment conditions (specifications)

- 10 banks x 25 bays, 14 levels = 3,500 pallets
- Truss: 100 x 100mm (welded type) → DC100 (assembled type)
- Number of transport trucks: 75 (welded type) → 26 (assembled type)

Energy savings

Energy consumption during manufacture  
**32.2%** reduction

Resource conservation

Rack weight  
**10.7%** reduction

CO<sub>2</sub> reduction

CO<sub>2</sub> emissions during transportation  
**61.7%** reduction

(Note) Reduction rates are versus Daifuku's conventional models.

### V O I C E

For this model change, we deployed a life cycle assessment (LCA) based environmental impact assessment, which showed a significant reduction in CO<sub>2</sub>. We will continue our R&D efforts to apply this assembled-type rack to even more products.



Yasushi Sugimura Assistant Manager, Structural Design Group Design Department, FA&DA Operations

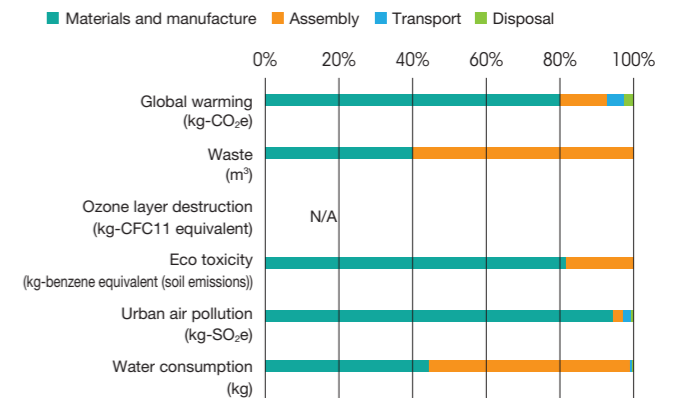
### TOPIC 1

## Deploying LCA to Visualize Environmental Impact in Greater Detail

Daifuku has defined expanding the number of environmentally friendly products and services as a priority under our Environmental Vision 2020. To achieve our targets, we are working to expand the number of products under the Eco-Products Certification, and since fiscal 2015 have begun deploying LCA\* as a tool for environmentally friendly design. Using LCA enables us to visualize in detail a variety of environmental impacts in each step in a product's life cycle, which is useful in environmentally friendly design through comparison of new and old products.

\*Life Cycle Assessment (LCA): A quantitative assessment of the environmental impact arising from the input of resources and from environmental loads in the product and service life cycle (raw material procurement, manufacturing and production, transport, use, disposal, and reuse).

### Example of environmental impact assessment using LCA: Heavy Duty Storage Rack

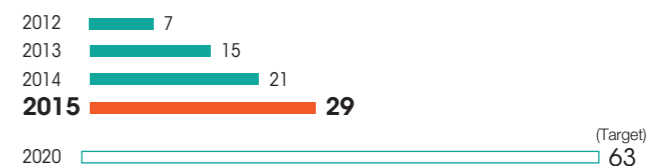


### TOPIC 2

## Steadily expanding Eco-Products

Under Daifuku's Environmental Vision 2020, we have established a KPI of having more than 63 products certified as Eco-Products by fiscal 2020. In fiscal 2015, we successfully reached our fiscal year goal with a total of 29 certified products. We will continue to expand that number by providing more of these products and services to our customers.

### Number of certified Daifuku Eco-Products





## Daifuku CSR activities around the world

With eight companies in Japan and 49 elsewhere around the world, Daifuku has a total of 57 consolidated affiliates, and employees in each location implement a variety of CSR activities.

As a global company with up to 66% of non-Japan sales to net sales, we are working to instill "Daifuku CSR" in our group companies worldwide.

### Germany

Joint exhibit of solutions for airports by five Group companies



BCS Group Limited (New Zealand), Jervis B. Webb Company (U.S.), Daifuku Logan Ltd. (U.K.), Elite Line Services, Inc., Logan Teleflex, Inc., all five Group companies working on systems for airports, jointly exhibited at Passenger Terminal EXPO 2016, one of the world's largest aviation-related exhibitions held in Cologne, Germany March 15 to 17, 2016.

The companies displayed models of the BAGgate automated baggage check-in system, the Mobile Inspection Table, which uses an automatic guided cart (AGC), and the Baggage Tray System for baggage transport. Using videos and pamphlets, the visitors were shown a wide range of airport solutions, including software.

### Europe



### Asia

#### China

##### First Daifuku China Group Safety Conference held

On March 8, 2016, Daifuku (China) Co., Ltd., Daifuku (China) Manufacturing Co., Ltd. and Daifuku (China) Automation Co., Ltd. got together to hold the first Daifuku China Group Safety Conference at Daifuku (China). It was attended by about 30 people, including the heads of the three companies, divisional managers from factories installation units, and members of a Safety Council made up of subcontractors. The Group companies reviewed their safety slogans, number of work accidents and the efforts of each company in fiscal 2015, and reported on targets and plans for safety activities in fiscal 2016. Subcontractors also shared their own on-site safety management activities and exchanged opinions to increase awareness towards achieving an accident-free workplace.



Safety Management Opinion Exchange Session



Members wrote their names on a safety banner, reconfirming their determination toward safety.

### Daifuku's global production sites



Daifuku America



Jervis B. Webb (U.S.)



Wynright (U.S.)



Jervis B. Webb Canada



Daifuku (China) Automation



Daifuku (China) Manufacturing



Daifuku (Suzhou) Cleanroom Automation



Daifuku Korea



Clean Factomation (South Korea)



Hallim Machinery (South Korea)



Taiwan Daifuku



Daifuku Singapore



Daifuku Thailand



Daifuku Logan (U.K.)

### Nine personnel from seven countries participate in Global Leadership Training

During November 26 to December 2, 2015 at the Shiga Works, Daifuku held its Global Leadership Training, a program intended to enhance the skills of executive candidates from subsidiaries outside Japan. This program included nine participants from the U.S., Taiwan, Thailand, Indonesia, South Korea, China and India. The training included a lecture by President Hojo on the Group's management philosophies, basic management policies and business strategies, as well as the Group's investor relations, the role of global leadership, production structures and environmental management. Human resource development, safety, information security, intellectual property, business continuity planning and communicating with other cultures were also covered. Group work included sharing opinions and ideas on issues in global business, as the participants worked to deepen their knowledge and insight as leaders.



#### VOICE



As a member of a global company, I take responsibility for my work. By enhancing communications within the Group, I hope we can all continue to grow and evolve.

#### Gregory Robinson

Service Manager, eFA Division  
Daifuku North America Holding Company

### United States

#### Safety Activities Recognized by Alaska Airlines

An employee of the Daifuku Group's Elite Line Services, Inc. (ELS) stationed at the Anchorage International Airport in Alaska was awarded the 2015 Safe Operations Award and Recognition (SOAR) by Alaska Airlines.

The award recognizes outstanding achievement by employees of Alaska Airlines and its subcontractors in contributing to a culture of safety based on the airline's "Ready, SAFE, Go" safety slogan. This marks the first SOAR award for an ELS employee.

The employee was highly commended for his approach to preventive maintenance on dollies used to transport containers, including always removing burrs that occur with wear and considering the safety of workers around them.



Commemorative badge



ELS members with the Alaska Airlines manager in charge (far right)



## Third Party Opinion



**Keisuke  
Takegahara**

**General Manager  
Economic and Industrial  
Research Department  
Development Bank of Japan Inc.**

Born in Shizuoka Prefecture in 1966. Graduated from the Faculty of Law, Hitotsubashi University in 1989, and joined the Development Bank of Japan (now the Development Bank of Japan, Inc.). Posted to Frankfurt in 1995. After working in the Research Department and the Policy Planning Department, was appointed director of the CSR Support Office in the Business Development Department in 2009, becoming General Manager of the Environmental Initiative and Corporate Social Responsibility Support-Department in 2009. Named to his current position in June, 2016.

The CSR Report 2016 narrows the focus that assumes a segregation between the report and the company's website, which provides more detailed information disclosure. As noted in the Editorial Policy, the content focuses on two main subjects that relate directly to your corporate philosophy: Contributing to solving social issues through products and technology, and instilling CSR in your employees. Sharing this focus consistently across the report has, I believe, resulted in a format that will make readers strongly aware of the integration of CSR and business.

Notable to that integration are two sections, your Corporate History and the Message from the President. Presenting quantitative data on the company's growth trajectory, supplemented with qualitative information from both the business and product and the CSR sides, and then attempting to unify them was, I think, an excellent idea. The Message from the President clearly lays out Daifuku's mission to use advanced automation and efficiency technologies,

deepening both to solve social issues, as well as the importance of CSR activities once you have fulfilled that mission and attained sustained growth, and that leaves a strong sense of cohesive thinking.

The report also effectively conveys your two main subjects by using examples from pharmaceutical distribution and smart mobility to effectively demonstrate, through data, the creation of value outside the company, and by including a dialogue between employees of diverse backgrounds, something unique to global companies.

You have also followed up on the issue of materiality from the previous report. While your stance of proactively disclosing those KPIs you failed to achieve is most appreciated, it may be easier for your readers to understand if you reevaluate how you present materiality in light of how you have narrowed your subject matter and strengthened its integration with the business discussion.

That bold refocusing has been effective in terms of advancing the integration of CSR and business. However, the question, "is it truly a complete picture of the company", remains. What I would like to see at this point, as your report evolves and now heads toward a new stage, is a stronger stakeholder perspective that continues from the previous report. The employee dialogue is a part of that, but I think even there, there are elements that could reflect materiality. Also, due to the nature of your business, you contribute significantly to the creation of value on the customer side not just through your products, but through maintenance and other services as well. In addition, the company has a wide range of non-financial strengths, from your unparalleled standards for sound management, to your environmental preservation efforts drawing out specific site characteristics. Using outside viewpoints is both necessary and effective in identifying those strengths. As you have already begun moving forward organizationally by establishing a dedicated department to oversee CSR activities, I look forward to seeing you raise the bar even higher.

## Response to the third-party opinion



**Yoshihisa Ichinose**

**Corporate Officer  
General Manager of CSR Division**

I am most grateful that Mr. Takegahara has continued to provide us with his opinions over the four years since the start of our Four-Year Business Plan in 2013.

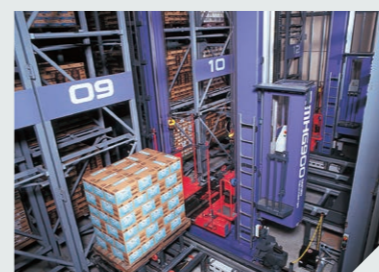
In preparing the CSR Report 2016, we structured it around the themes of solving social issues through products and technology, and instilling CSR in our stakeholders, primarily our employees, and worked to create a communication tool that would connect Daifuku and its stakeholders. Mr. Takegahara recognized that the report fulfills the function of effectively conveying our business and CSR, the two main subjects of the report.

Going forward, we will establish measures for reevaluating our CSR Action Plan, particularly material aspects, and by also reconfiguring our KPIs, will work to enhance the PDCA cycle behind our CSR activities. We will also expand the extent to which we disclose non-financial elements, incorporating outside viewpoints, as we continue our sustained effort to ensure we are providing a complete picture of Daifuku.

## Corporate Data

<b>Corporate name:</b>	Daifuku Co., Ltd.	<b>Representative:</b>	Masaki Hojo, President and CEO
<b>Headquarters:</b>	3-2-11 Mitejima, Nishiyodogawa-ku Osaka 555-0012 JAPAN	<b>Employees:</b>	7,835 (consolidated, as of March 31, 2016)
<b>Established:</b>	May 20, 1937	<b>Consolidated net sales:</b>	336,184 million yen (fiscal year ended March 31, 2016)
<b>Paid-in capital:</b>	15,016.1 million yen (as of March 31, 2016)	<b>Ratio of non-Japan sales:</b>	66%
<b>Stock exchange listing:</b>	First Section of Tokyo Stock Exchange	<b>Group companies:</b>	57 (eight in Japan and 49 outside Japan)

## Areas of Business



### FA&DA (Factory and Distribution Automation)

Provides automated warehousing, storage and transport systems, and sorting and picking systems that are optimized for each customer, to distributors including e-commerce, retailers, wholesalers, and to manufactures including food and pharmaceuticals.



### eFA (e-Factory Automation)

Provides cleanroom transport and storage systems essential in manufacturing semiconductors and flat panel displays. We have delivered numerous systems to the world's leading electronics manufacturers in North America, South Korea, China and Taiwan.



### AFA (Automotive Factory Automation)

Provides systems for automobile production processes worldwide, mainly for Japanese, Detroit's Big Three, Chinese and South Korean automakers. The system conveys car bodies between each assembly process, including press, weld, paint, and assembly shops.



### ATec (Airport Technologies)

Provides a wide range of solutions for airports, including baggage handling systems, automated baggage check-in systems, and baggage screening systems, and airport facilities monitoring and controls. The business is deployed worldwide in collaboration with its Group affiliates in the U.S., U.K., and New Zealand.



### LSP (Lifestyle Products)

Provides mainly car wash machines to service stations and automobile dealers. The business provides eco-friendly functions, including saving water and using plant-based liquid detergents. This business boasts top shares in the Japan and South Korean markets. It also sells and services auto scoring systems and related products for bowling alleys.



### Electronics

Daifuku's subsidiary Contec Co., Ltd. provides high-end industrial personal computers, computers built in digital signage, and measuring and display systems for LAN products and solar facilities.