

Technological Innovations and Work Style Reforms Open Up New Possibilities for Empowering Persons with Disabilities

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Expanding job opportunities for persons with disabilities and providing support for them to fully demonstrate their abilities/skills could serve as one effective solution to the labor shortages that Japanese companies face. These efforts are also vital to dealing with issues such as the rise in the statutory employment quota for persons with disabilities, the expected increase in the number of employees with mental disorders and the issue of aging among physically challenged workers.

Good examples of new possibilities opened up by technological innovations include commuting and work performance support made possible through advances in information technology, increased use of the Internet of Things (IoT) and the spreading popularity of smartphones. While teleworking that facilitates cooperation with welfare organizations and medical institutions is a sensible option, challenges in terms of education, attendance management and communication must be addressed.

Work style reforms could be realized by changing the work content. While most workers with disabilities are currently engaged in jobs such as office assistance and cleaning, there is little chance of the number of such jobs rising, and these jobs are unlikely to generate increased added value. To enable workers with disabilities to have more job opportunities that contribute to corporate value, the number of jobs that satisfy both requirements - meeting a company's needs and making the most of each individual's capabilities and characteristics - should be increased. To this end, collaboration between companies (employers) and nonprofit organizations (NPOs) and other support organizations is useful.

Another way of reforming work styles is changing the roles assumed by workers with disabilities. One idea is to assign the role of leader to them with due consideration given to each person's aptitude. Before anything else, role models should be first created so that people's awareness of the possibility for change in the future could be raised.

To change the work style of workers with disabilities, skill development must be promoted. The following cases provide a good reference for this purpose: social skills training provided by a Japanese subsidiary of Sanofi, a leading French pharmaceutical company, and DO-IT (Diversity, Opportunities, Internetworking and Technology) Japan, a leadership development program offered by the University of Tokyo.

I Empowerment of Persons with Disabilities as an Important Factor to Overcoming Labor Shortages

Employment of persons with disabilities as one factor in overcoming labor shortages

In recent years, a short supply of labor has been a frequent topic of conversation. Given the accelerating trend toward an aging population with fewer children, labor shortages are expected to be further pronounced. Labor shortages pose a serious problem for business management because of the resulting weakened production capacity and intense competition to acquire human resources, possibly with ensuing cost increases. An insufficient workforce has already had major impacts on corporate activities. Some companies have been forced to reduce their operating hours, unable to achieve their goals in terms of production output, or experienced declines in quality of service as a result of a shortfall of workers to provide adequate education/training.

With the aim of contributing to solving these serious problems, various discussions have been held and measures taken to effectively use the abilities of women and elderly persons. Toward the realization of Japan's Plan for Dynamic Engagement of All Citizens, which is being promoted under the initiative of Prime Minister Shinzo Abe, both the government and the private sector have started to move forward with various studies and measures. Turning our eyes to another pool of underutilized human resources, we find the option of utilizing foreign workers. However, because this option involves the issue of "acceptance of immigrants," which requires consideration from a different perspective, the path toward making the option a realistic solution is not yet visible even though studies are being made toward this end.

On top of these ongoing efforts, technological innovation and business process reengineering are obviously effective measures to improve productivity, thereby compensating for labor shortages. Nevertheless, making more effective use of the existing workforce remains most important. In the past, the employment of persons with disabilities was often associated with welfare or obligatory implications from the perspective of employers. Isn't it possible to consider the employment of persons with disabilities as one effective solution to labor shortages? Now that we face the serious problem of labor shortages, which will accelerate even further with the progressive shrinking and aging of the population, persons with disabilities can be one valuable resource to the management of a company. This paper considers measures to expand their opportunities to work and enable them to fully demonstrate their abilities, while

giving due consideration to their disabilities.

(1) Employers' conventional perceptions and practices on the employment of persons with disabilities

In the past, the employment of persons with disabilities was often considered from a welfare standpoint. Under the Act on Employment Promotion, etc. of Persons with Disabilities, companies are obligated to achieve a minimum employment rate (a legal employment rate) for persons with physical/intellectual disabilities. Because of this legal requirement, it is reasonable to assume that not a few companies have taken the stance that hiring persons with disabilities is part of their obligations. This stance is borne out by the results of the Fact-Finding Survey on the Employment of Persons with Disabilities from the Management Perspective ^{Note 1}, which was conducted by Nomura Research Institute (NRI) in 2015. Specifically, the majority of responding companies (about 92.3 percent) selected "achievement of legal employment rate" as the answer to a question about the value expected from a special-purpose subsidiary by its parent company. A special-purpose subsidiary is a company that is established primarily for the purpose of helping the parent company achieve the legally mandated quota for the employment of persons with disabilities. In contrast, only about 7.7 percent selected "contribution to profit/turnover."

However, labor shortages have been growing increasingly serious, thus leading to efforts to achieve a society where all citizens are dynamically engaged. Given this situation, it is considered meaningful for both businesses and persons with disabilities to have the latter included in the workforce and encouraged to fully demonstrate their abilities with due consideration given to the level and specifics of their disabilities.

(2) Employment of persons with disabilities in a society where all citizens are dynamically engaged

Let's look at the position of persons with disabilities in a society where all citizens are dynamically engaged.

In November 2015, the Ministry of Health, Labour and Welfare submitted its "Basic Stance regarding Realization of a Society in Which All Citizens are Dynamically Engaged" to the second meeting of the National Council for Promoting the Dynamic Engagement of All Citizens. The report stated that "the ministry will strive to build a society where all people, including youth, the elderly, women, men, people fighting illnesses, people with disabilities and people who are in need, have opportunities to play an active role in their own preferred way as members of society in their homes, workplaces and local communities." This report suggests "economic independence" and "development of communities where everyone can play an active role" as directions to be pursued.

Furthermore, one of the priorities mentioned in the report is securing a stable labor force in a society with a shrinking population, and one measure toward this end is the promotion of employment of persons with disabilities. As an example of measures to promote the social participation of people with disabilities and people fighting illnesses, the report indicated the promotion of “agriculture-welfare collaboration” and the expansion of the project to set up “Employment and Livelihood Support Centers for People with Disabilities.” As one measure for the development of communities, the report also indicated the need to develop an infrastructure to promote the employment of people with disabilities, people fighting illnesses, etc. and to provide them with places to live.

Prime Minister Abe made similar statements at the Dialogue on the Realization of the Dynamic Engagement of All Citizens held in February 28, 2016. While we need to wait for the government’s future studies related to the creation of a more concrete roadmap toward the establishment of specific measures, as it stands now, the currently pursued goals are the realization of economic independence for persons with disabilities and their active participation in society.

(3) Rise in the statutory employment quota and the aging of persons with physical disabilities

There are two major factors relating to the employment of persons with disabilities. To properly deal with these factors, companies should strive to expand opportunities for persons with disabilities to play active roles, while fully considering their attributes.

1) Probable rise in the statutory employment quota and the need to address the employment of persons with mental disorders

Because of an amendment to the Act on Employment Promotion, etc. of Persons with Disabilities, the number of persons with mental disorders will be included in the calculation of the legal employment rate from 2018. It is expected that the changed calculation methodology will raise the legal employment rate, obligating employers to employ a greater number of persons with disabilities. Given this situation, companies should make further

efforts to provide work opportunities for persons with disabilities to reach their full potential in the workforce and to adopt new work styles appropriate for them.

To prevent a dramatic impact on employers, a Cabinet Order will be issued to enable the quota to be set at a lower rate than that calculated according to the new calculation methodology. The Cabinet Order will apply until April 1, 2023. Accordingly, the amendment will not immediately require employers to employ persons with mental disorders. Nevertheless, employers will need to employ persons with mental disorders in order to satisfy the statutory employment quota in view of the fact that it has become difficult to provide employment for persons with physical or intellectual disabilities, especially in urban areas like Tokyo. Companies need to study measures to enable persons with mental disorders to effectively serve workforce needs by making a shift from the conventional practice of mainly employing persons with physical or intellectual disabilities. For this reason, the employment of persons with mental disorders poses a new challenge to companies.

2) Need to address aging among people with disabilities

Also a serious problem is aging among persons with disabilities. According to the “Annual Report on Government Measures for Persons with Disabilities, 2015” published by the Cabinet Office, the proportion of persons aged 65 or older is extremely high among persons with physical disabilities (68.7 percent) and persons with mental disorders (33.8 percent) (Table 1). (This report is based on a survey conducted in 2011.) The proportion is very high, especially among persons with physical disabilities, given that the proportion of elderly people in the total population was 23.3 percent in 2011. Also, even non-disabled persons might have physical disabilities as they age. In order to maximize the performance of elderly persons with physical disabilities who are no longer able to demonstrate their full abilities like they could when they were younger, measures are necessary such as providing technology-based support and adopting new work styles.

Table 1. Current status (as of 2011) of aging among persons with disabilities

Classification	Total number of persons by type of disabilities	Number of persons with disabilities who are age 65 or older among total number of persons with same disabilities
Persons with physical disabilities (living at home)	3,864,000	2,655,000 (68.7%)
Persons with intellectual disabilities (living at home)	622,000	58,000 (9.3%)
Persons with mental disorders	2,878,000	974,000 (33.8%)

Note: Figures in parentheses indicate percentages of persons with physical, intellectual or mental disabilities who are age 65 or older among the total number of persons with physical, intellectual or mental disabilities, respectively.

Source: Compiled from the “Annual Report on Government Measures for Persons with Disabilities, 2015” by the Cabinet Office

(4) Technological innovations and work style reforms to empower persons with disabilities

As described above, the empowerment of persons with disabilities could help companies facing the major issue of labor shortages. From the viewpoint of addressing this issue, in addition to the purpose of improving the welfare of such persons, companies should work out new measures to enable their employees with disabilities to demonstrate more of their abilities, while adequately considering the nature and extent of the disabilities.

The amendment of the relevant law brings about changes that companies must deal with. The changes include an increasing number of employees with disabilities (quantitative change). Companies also need to expand the employment of persons with mental disorders, and companies must address aging among persons with disabilities (qualitative change). It can be said that these changes now require new measures concerning the work styles of persons with disabilities (Figure 1).

To overcome these difficulties and to enable all employees with disabilities to be active members of the workforce, the authors have considered two kinds of measures: (1) measures that take advantage of the latest technologies to compensate for disabilities, and (2) measures to change the work styles of employees with disabilities, such as their roles at companies.

Chapters II and III discuss these two kinds of measures.

II Cases of Technology-based Support for Empowerment

1 Support provided with new technologies

(1) Development and dissemination of information and communications technology and emergence of ventures dedicated to people with disabilities

Recently, spurred on by advances in information and communications technology (ICT) such as networking and sensing, there has been remarkable progress in the

development and practical application of IoT-related technologies that employ ICT in a variety of ways. As a result of the massive popularization of smartphones, technologies have been developed to allow persons with disabilities to use smartphones and similar devices to live life and work more easily than before.

From a business perspective, we are seeing a trend toward services that are easy for everyone to use and also universally beneficial. In other countries, venture companies are developing applications designed for people with disabilities. This does not mean that only venture companies are considering the above services. Among companies that offer universal services, such as mobile phone providers, more and more companies are studying services aimed at people with disabilities.

(2) Specific examples of new technologies

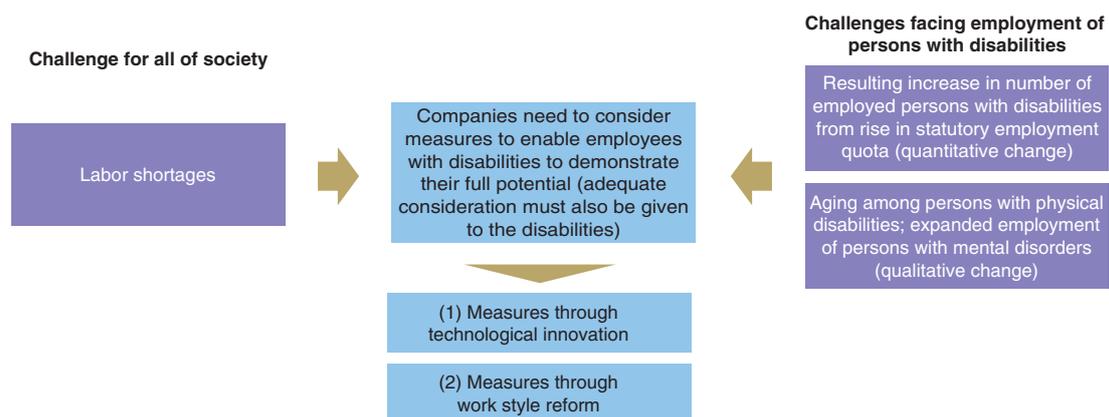
The technology needed to support work performance by persons with disabilities varies depending on the nature of the disability.

For example, a technology that could help hearing-impaired people by converting spoken words to text would enable them to participate in conferences despite their disability. Similarly, for the visually impaired, if Braille technology could be efficiently introduced to the workplace (making it easy for them to read written material), they could carry out their duties as a more effective workforce. People with developmental or intellectual disabilities do not necessarily need any support in situations that allow them to follow their normal daily routines for commuting and work. They require technology-based support only in situations that are different from their normal routines, which is a difference that distinguishes them from people with other disabilities.

Table 2 lists new technologies and services that have been gaining attention recently.

These new smartphone-based technologies are designed to provide functions that enable persons with disabilities to demonstrate their abilities using a familiar device. These technologies not only provide support for commuting but also support work performance. By making use of these technologies, people with

Figure 1. Challenges facing the advancement of the empowerment of persons with disabilities



disabilities will be able to take on and perform a greater range of tasks, and their work efficiency will increase.

Examples of technological innovations using smartphones, which do not require any specific knowledge and are easy to understand, are presented in this paper. In the future, it is hoped that companies including ventures specializing in the support of people with disabilities will develop and disseminate technologies that dynamically support people with disabilities in demonstrating their full capabilities.

2 Benefits and challenges of teleworking

(1) Benefits of teleworking for people with disabilities

As mentioned in Section 1, new technologies are appearing to help persons with disabilities participate in business activities. Of these, teleworking provides an excellent means of allowing people with disabilities to work normally. Teleworking relies on information and communications equipment to allow people to work flexibly without the constraints of time and place.

One of the greatest advantages of teleworking is that it dispenses with the need to commute to work. For people with disabilities, simply getting to the workplace is a burden that able-bodied people do not experience. For example, it may be difficult for people who rely on

wheelchairs to make their way to a bus stop or a station, especially if the route involves negotiating steps, and commuting during the morning rush hour is likely to be very problematic. For those people who are either visually or hearing impaired, commuting can be physically arduous or dangerous. They could avoid such burden and danger if it were possible to work either at home or at the nearest welfare facility. For people with severe physical disabilities, in particular, commuting might be next to impossible. Teleworking provides them with their only real means of working.

For persons with internal organ disorders, teleworking can be a valid choice as well. Their frequent visits to the hospital can be very time consuming. Provided that they live close to the hospital, however, they could use their time more effectively by working from home. Furthermore, because people in their condition often have trouble being recognized as handicapped, they may attract criticism for using the priority seats on buses and trains or encounter other such problems. Thus, freeing them from both the mental and physical strain of commuting is hugely advantageous.

For those persons who are intellectually challenged, any unforeseen event that occurs during their commute (such as a delay due to an accident) may lead to confusion on their part, as mentioned regarding SoftBank's Assist Smartphone in Item (2) in Section 1. Their

Table 2. Examples of new technologies for people with disabilities to effectively perform their work

Technology (product/service)	Description	Effect from a business perspective
Transcense ^{*1}	<ul style="list-style-type: none"> Available since around 2014 in the U.S. (San Francisco), Transcense is a smartphone app developed for deaf and hard-of-hearing people; the app converts speech into text in real time, enabling users to participate in meetings and converse with family members, friends, and others. The app has a distinguishing feature to facilitate conversations: speakers are color-coded so that users know who is talking. 	The app enables deaf and hearing-impaired people to participate in business meetings where generally conversations move quickly.
WayFinder ^{*2}	<ul style="list-style-type: none"> The U.K.'s Transport for London (TfL) developed this smartphone app for blind and visually impaired people; TfL is now running prototype experiments. Smartphones receive signals sent by Bluetooth beacons installed at subway stations to provide audible directions to users via bone conduction headphones. Plans call for improvements and practical use after prototype experiments conducted between December 2015 and January 2016. 	The introduction of the system in work areas enables blind and visually impaired employees to move anywhere safely, such as on manufacturing floors and in warehouses; the system expands the range of work in which such employees can engage.
Dot series ^{*3}	<ul style="list-style-type: none"> These braille devices were developed by South Korea's startup Dot for visually impaired people. Dot Watch, which went on sale in 2016, allows users to not only read the time but also read text messages and tweets in braille when connected to a smartphone. Dot Pad, more suited to reading e-books in braille, is now under development for commercialization in 2017. 	Visually impaired employees can smoothly read business materials, etc. with these devices, which enable them to use touch screen tablets and can expand diversity in terms of places of work.
Assist Smartphone	<ul style="list-style-type: none"> This smartphone-based service was started by SoftBank in 2014 for people with special needs. "Assist Mail" enables users to easily create email messages to contact someone or report something by simply tapping a situation and a set phrase^{*4}. Assumed cases of use include, for example, a message about being late for work due to a train delay. Users can contact their company via email by simply tapping a screen^{*5}. 	In the event of any problem such as an employee with a disability not arriving at work or encountering trouble during the commute, the service sends information in real time so that the company can be immediately informed of the situation to expedite accurate decision making about the necessary response.

Notes:

*1 Ava website (<http://www.ava.me/about/>)

*2 ITmedia NEWS (<http://www.itmedia.co.jp/news/articles/1503/09/news071.html>)

*3 TECHINASIA website (<http://www.techinasis.com/dot-braille-smartwatch>)

*4 SoftBank "Assist Smartphone" (<http://www.softbank.jp/mobile/service/assistsumaho/>)

*5 NHK Welfare Portal, "Hattatsu shogai/chiteki shogai no arikata eno sumaho service ha nani wo kangae kaihatsu saretaka?" (What are the concepts behind the development of smartphone services for people with developmental or intellectual disabilities?), April 24, 2015 (<http://www.nhk.or.jp/hearttv-blog/3400/215318.html>)

inability to react properly would subject them to risk. Again, therefore, teleworking would be beneficial to them too.

People with mental disorders who face problems such as those related to interpersonal relationships may find it impossible to journey to the station and difficult to properly communicate with people. Teleworking would provide them with a means of overcoming these potential problems involved in commuting.

(2) Types of work suitable for teleworking

Many different types of work can be done by teleworking. The most common, in the case of people with disabilities, is IT-related work using a PC. Examples of such work include data input, programming, web design, drawing/design (computer-aided design (CAD), etc.) and marketing work (web-based data gathering).

Even persons with severe disabilities can take on work using a PC, provided that they are able to move their fingertips. Not a few persons with intellectual disabilities are proficient at performing a single repetitive task with consistent accuracy over a long time. They can perform some jobs, such as checking software for bugs and inputting data, more accurately and more tenaciously than non-disabled persons might do. In this way, they can create high added value.

(3) Problems with the system for promoting the use of teleworking for people with disabilities

To effectively use teleworking to empower persons with disabilities, a system to support persons with disabilities working at home was introduced as part of the amendment to the Act on Employment Promotion of Persons with Disabilities in 2006. The system involves the payment of special adjustment allowances or rewards to employers (companies) who place job orders either directly with persons with disabilities working at home or through organizations assisting persons with disabilities to work at home. Essentially, therefore, it can be said that the government also acknowledged that teleworking provides a valid means of realizing the empowerment of persons with disabilities.

Unfortunately, as of the end of April 2016, there were only 23 registered work-at-home support organizations. It is hard to say that the system is being used effectively. Critics point to problems such as strict conditions imposed on allowance and reward payments. Be that as it may, the primary problem is that the system is not designed to support telework by persons with disabilities who are employed by a company.

Apart from the system targeting people with disabilities, there are systems aimed at companies that have introduced teleworking, whereby subsidies are provided to partially cover the costs required for installing the necessary communications equipment and reviewing employment rules. For example, the Ministry of Health, Labour and Welfare offers a workplace awareness

improvement grant (telework course) for small and medium-sized companies. On the other hand, there is no system in place to directly provide employers (companies) with support exclusively for their employees with disabilities who wish to work from home. To realize a society in which all citizens are dynamically engaged, such a system is essential.

Nevertheless, despite no support from the government, some companies have taken various measures allowing them to employ people with disabilities through teleworking. Among these companies, some have been recognized with the Telework Promotion Award, an annual award presented by the Japan Telework Association. These companies and workplaces have been honored for their tremendous efforts to promote the employment of people with disabilities through teleworking.

(4) Issues associated with teleworking from the perspective of the employment of people with disabilities

There are three issues that are regarded as being particularly important when considering teleworking for people with disabilities, namely, (i) education, (ii) attendance management and (iii) communication. Although none of these issues are unique to people with disabilities, specific examples of how the issues affect people with disabilities, together with appropriate measures, are presented below.

(i) Education

In the first instance, before people begin teleworking, it is necessary to educate them about their jobs and provide training so that they have the skills needed to perform the work assigned to them. As mentioned in Item (1), however, many persons with disabilities, especially persons with severe physical disabilities, are greatly challenged by commuting, which does not present any issues to able-bodied persons. Therefore, for them, it is often difficult to apply an educational program whereby “new recruits are required to be on the company premises for group training.”

Furthermore, for persons with intellectual disabilities, a need sometimes arises for complete training from A to Z, depending on the nature and extent of their disabilities, which makes it difficult for them to telework.

(ii) Attendance management

Time management is very important in teleworking. In particular, persons with disabilities are likely to be unable to work on certain days or at certain times due to illness or hospital appointments. It is relatively common for people in their condition to have to suspend or stop their work suddenly because they got sick on the job. When such is the case, employers cannot depend on these workers to report by themselves the actual hours that they worked.

As a measure to address this issue, the work start and end times of workers could be determined from their PC access logs. Also, rules should be established requiring workers to check in with the company when starting or ending work, when taking a break and at other important times (for example, they would need to send an email to a manager at such timing). In the absence of these “check-ins,” the company should contact the teleworker to be aware of the situation. Similarly, operational procedures should also be clarified to require teleworkers to contact and notify their managers about their state of health before starting work.

(iii) Communication

Because teleworking does not involve direct communication, it is important to institute such a means of communication between the company and teleworkers. In the case of non-disabled teleworkers, the company may have them visit the office several times a month so that they can communicate face-to-face. However, for persons with disabilities, even having to commute only a few times would likely pose a major physical and mental burden. Therefore, it is essential to create mechanisms and systems allowing teleworkers to perform their work smoothly, and thereby produce results and value, while at the same time minimizing the need for commuting and face-to-face communication.

(5) Solving the issues associated with teleworking from the perspective of the employment of people with disabilities

As a case example, the following paragraph introduces the efforts of Oki Workwel Co., Ltd., a special-purpose subsidiary of Oki Electric Industry Co., Ltd. and the 2004 recipient of the Telework Promotion Award mentioned in Item (3). Oki Workwel is very active in promoting the use of teleworking for people with severe physical disabilities. On its “work-at-home system” website ^{Note 2}, the company describes the features of the system in detail.

The company has developed and is using Workwel Communicator, a voice/email communication system. This voice-centric system does not demand the large data capacity required by video. With an always-connected mode, the system provides a solution to the issue of communication between the company and teleworkers. In addition, the system sends mass emails to all teleworkers at the start and end of their workdays as part of attendance management, and provides a mechanism that shows a list of teleworkers currently on the job. In this way, the company manages teleworkers’ time and attendance efficiently. Using Workwel Communicator, coordinators conduct interviews twice a year for the purpose of training and hold in-house online study sessions.

Data should be gathered on companies such as Oki Workwel that have developed their own teleworking

systems for persons with disabilities ahead of other companies, and the data published. At the same time, systems and programs should be developed to provide support in terms of finances, knowledge and skills to those companies that intend to introduce teleworking as well as to persons with disabilities who wish to work from home.

III Change in Jobs and Roles Taken On by Workers with Disabilities

In Chapter II, the authors looked to new technologies in discussing the possibilities for many more persons with disabilities to be able to make better use of their abilities through the adoption of such technologies, changing how work is done. In this chapter, the authors consider how the way that people work will change, from the perspective of jobs and roles.

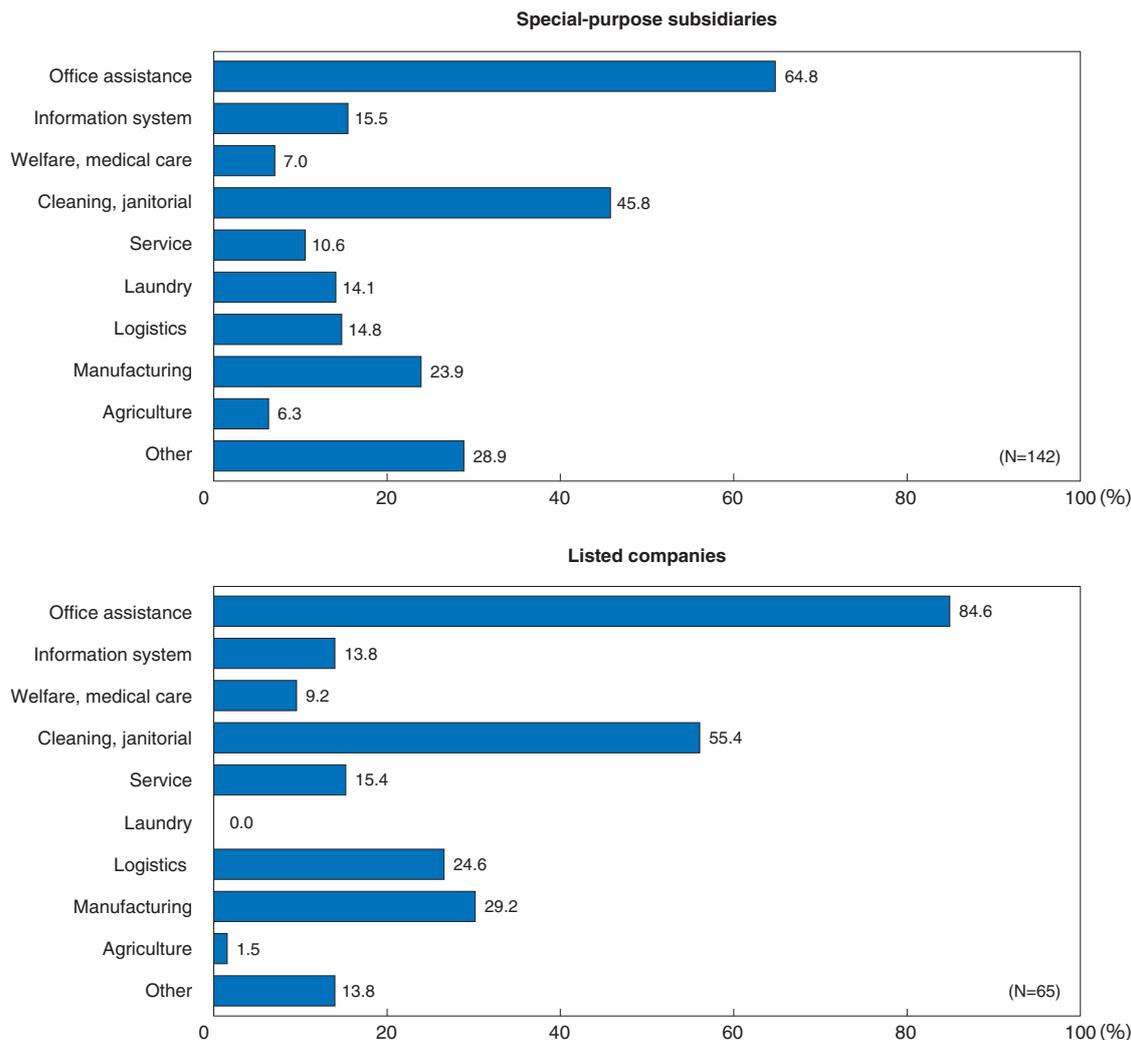
1 Changes in jobs performed by people with disabilities

(1) Jobs currently consisting of mostly ancillary work such as office assistance, cleaning and janitorial services

First, let us describe the work currently being done by persons with disabilities at listed companies and special-purpose subsidiaries. According to the Fact-Finding Survey on the Employment of People with Disabilities from the Management Perspective conducted by NRI, among those working in special-purpose subsidiaries, the most common job duties were “office assistance” (64.8 percent), followed by “cleaning and janitorial services” (45.8 percent) and “manufacturing” (23.9 percent). Similarly, in listed companies, the most common tasks were “office assistance” (84.6 percent), with “cleaning and janitorial services” accounting for 55.4 percent and “manufacturing” 29.2 percent. Specific examples of the tasks in “office assistance” and “cleaning and janitorial services” include inputting data, shredding or filing documents such as contracts, delivering internal documents and postal mail, digitizing files, printing documents and stuffing envelopes to be mailed by post, cleaning the office and taking care of the building (Figure 2).

As described above, the most common jobs performed by people with disabilities are “office assistance” and “cleaning and janitorial services,” which are the two types of jobs that pose problems in sustainability. For the most part, the special-purpose subsidiaries and many listed companies that have hired physically challenged persons started off by employing persons with disabilities to take care of ancillary work (office assistance,

Figure 2. Types of jobs performed by workers with disabilities in special-purpose subsidiaries and listed companies



Source: Nomura Research Institute, "Fact-Finding Survey on the Employment of Persons with Disabilities from the Management Perspective," 2015 (in Japanese)

cleaning) in their back-office departments. Generally, at the initial stage of employment of persons with disabilities, each department places job orders for office assistance and cleaning jobs as part of its corporate social responsibility (CSR) activities. When consideration is given to the characteristics of the disabilities, office assistance jobs are suitable for physically challenged workers because the jobs allow employers to give adequate consideration to their disabilities before employment and make preliminary plans for appropriate work arrangements. Similarly, these jobs are also suited to intellectually challenged workers because they often excel at jobs demanding accurate repetition.

However, to enable workers with disabilities to perform their work successfully, their departments incur costs to provide training, education and support depending on the nature and extent of the disabilities of individual workers. Concomitantly, each department is constantly under pressure to reduce costs in areas such as clerical support and cleaning. Given that outsourcing to external specialist companies is often less expensive

than engaging the services of these workers employed by special-purpose subsidiaries or listed companies, each department is very likely hesitant to engage their services. As such, office assistance, cleaning and janitorial jobs that are incidental to the operation of parent companies and listed companies depend on the company growing larger and are thus greatly affected by corporate performance.

With the statutory quota for the employment of persons with disabilities expected to rise in the future, it is necessary to rethink the jobs performed by workers with disabilities in order for them to remain active and useful within a company.

(2) Importance of collaboration between companies and support organizations such as NPOs to respond with an increasing number of jobs that meet corporate needs and contribute to corporate value

As described in Item (1), currently, workers with disabilities are mostly engaged in incidental work such as

office assistance, cleaning and janitorial jobs, and there is little chance of the number of such jobs substantially rising. On the other hand, plans have called for an increased legal employment rate through an amendment of the law, meaning that the number of persons with disabilities that a company must employ will increase. Given this situation, the authors consider that the jobs assigned to persons with disabilities are going to increasingly shift from incidental tasks, which are far removed from a company's considerations of profitability, to tasks that better contribute to corporate value. For this shift to become a reality, it will be necessary to make the most of each individual's capabilities and characteristics. This need will give rise to a need for vocational ability development. The authors believe that one way of dealing with these needs is to further promote cooperation between the companies employing persons with disabilities and the non-profit organizations (NPOs) and other support organizations dedicated to the skill development of these people.

Here, let us consider the cases of two organizations in the United States, Best Buddies (BB) and Ken's Krew, both of which provide us with examples of the cooperation between NPOs (support organizations) and companies (employers).

BB was established in 1989 by social activist Anthony K. Shriver. It is an NPO that is dedicated to fostering one-to-one friendships between people with and people without intellectual and developmental disabilities (IDD), creating opportunities for the employment and leadership development of people with IDD. By creating the 2020 initiative, BB aims to open offices in all 50 states by the end of 2020, train 4,000 instructors, develop 1,000 jobs and provide 2,500 school-based programs. As part of these efforts, BB successfully placed people with IDD into jobs at companies such as Walgreens and Fifth Third Bank.

Within these companies, people with disabilities are performing jobs in distribution centers, operation centers and the like. For example, at Walgreens' distribution centers in Connecticut and South Carolina, about 40 percent to nearly 50 percent of the employees have IDD. Logistics constitute an extremely important function to retailers like Walgreens, so what is notable to the authors is that many persons with disabilities are actively involved in such important jobs.

Ken's Krew is a non-profit organization launched in 1997 by a group of parents of children with disabilities [Note 3](#). Its mission is to provide vocational training and job placement services to individuals with disabilities. The candidates for job placement and support must demonstrate an ability to function independently in the workplace. Ken's Krew gives, through work, meaning and purpose to the lives of these individuals. Soon after its foundation, Home Depot stepped in with an offer to provide job opportunities in its stores. In 2007, CVS Caremark joined Ken's Krew as an employment partner,

providing employment in 19 stores. In and after 2011, Ken's Krew began relationships with Outback Steakhouse and four other corporate partners. As to what type of work is involved, at Home Depot stores, for example, trained individuals perform a variety of jobs including stocking shelves, maintaining product displays and providing customer support.

Ken's Krew's program covers a wide range of support areas, including one-on-one intensive training. After identifying appropriate candidates based on its networks with local schools, state employment agencies and other service organizations, Ken's Krew vocational trainers spend 6 to 8 weeks training each candidate to ensure workplace readiness before employment. Only those individuals who demonstrate the ability to complete the intensive training successfully can work in Home Depot or CVS stores. After they start their jobs, they get additional training and support from Ken's Krew vocational trainers, who work closely with store managers to address any problems. Ken's Krew also provides continuing education through monthly group meetings for all participants in the program. Other activities include making sure that families are involved and connecting with the community.

Based on these two cases, the authors consider the three points described below important to advancing collaboration between companies (employers) and NPOs and other support organizations and to enabling workers with disabilities to engage in jobs that make a greater contribution to corporate value.

The first point involves work design to accommodate persons with disabilities in the workplace. At Walgreen distribution centers where workers with IDD account for nearly 50 percent of all employees, they perform labor-intensive jobs. Considering the characteristics of persons with IDD - they are good at repetitious and standardized work - the work designs adopted in the centers appear to involve a high level of standardization.

The second point relates to a phased approach toward employment whereby persons with disabilities are employed after they are trained. In the case of Ken's Krew, candidates receive one-on-one training before they are employed. Even after they start working, Ken's Krew requires all participants in the program to attend monthly group meetings for continuing education. They also provide management support. The program appears to be designed so that Ken's Krew trainers, by working closely with store managers and identifying each participant's situation, can set step-by-step goals for these employees to achieve further growth.

The third point is related to the necessity for NPOs to have continuous relationships with companies that offer employment opportunities. Such relationships are considered the basis of Ken's Krew's engagement in training. Ken's Krew constantly checks in with corporate employment partners to confirm their needs as employers of persons with IDD. By building job

pipelines with corporate employment partners, NPOs clarify the job skills that are needed so that persons with disabilities can develop the required skills and abilities under the guidance of the NPOs.

2 Changes in organizational roles taken on by workers with disabilities

(1) Among the very few workers with disabilities who hold managerial and leadership positions, physically challenged workers account for the largest proportion

Section 1 discussed changes in the types of jobs performed by persons with disabilities. This section looks at possible changes in their organizational roles as a result of these changes. Currently, there are only a limited number of employees with disabilities who are assigned to managerial positions (managers and leaders). Among them, physically challenged employees make up the largest proportion.

NRI's Fact-Finding Survey on the Employment of Persons with Disabilities from the Management Perspective revealed that out of all the full-time regular employees at special-purpose subsidiaries (8,840 persons including indefinite-term and fixed-term contract workers), 1,769 employees had physical disabilities, 3,364 employees had intellectual disabilities and 696 employees had mental disorders. The proportion of employees with disabilities among all full-time regular employees was 65.9 percent. Out of all the employees holding managerial positions, 8.1 percent were physically challenged employees. Among all the employees assuming leadership roles, 24.1 percent had disabilities; the breakdown of these employees is 18.9 percent with physical disabilities, 3.4 percent with intellectual disabilities and 1.8 percent with mental disorders (Figure 3).

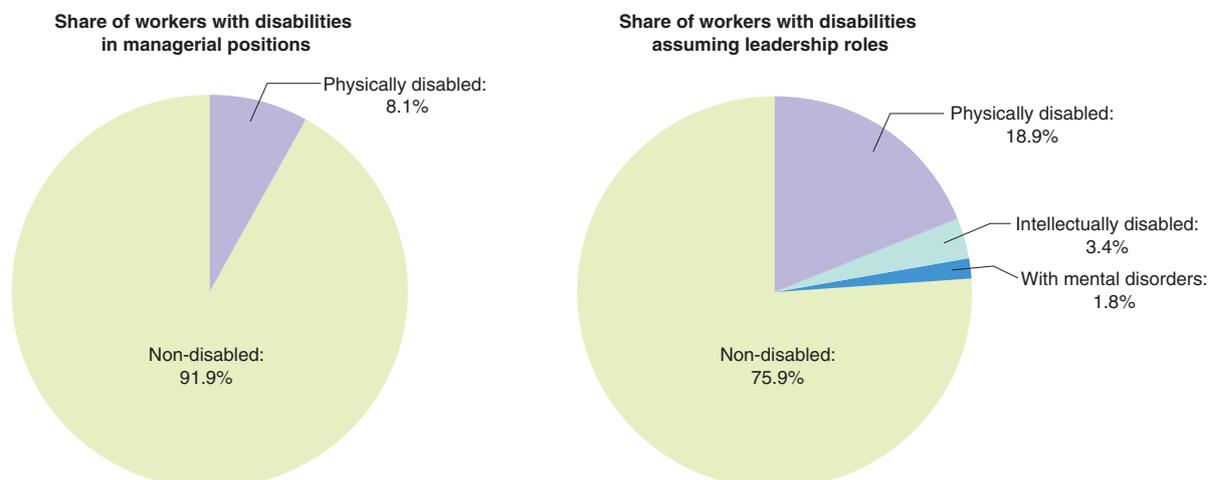
(2) An increasing number of employees with disabilities are going to hold managerial and leadership positions in the future

As described in Item (1), currently, very few workers with disabilities hold managerial or leadership positions. Among them, physically challenged workers account for the largest proportion. Will this situation continue into the future?

The authors believe that it is highly likely that a greater number of employees with disabilities will assume managerial and leadership roles. Our discussions with companies that are pioneers in the employment of persons with disabilities revealed that they are actively assigning employees with disabilities to leadership roles to help these individuals achieve further growth. Naturally, there are employees who are unable to take on these roles because of the extent and nature of their disabilities. It is also true that becoming a manager and leader is not the sole purpose of working, which is the same in the case of non-disabled workers too, of course. What is important, as the authors would like to emphasize here, is the emergence of role models leading to workers discovering the potential for change in their future regardless of whether or not they have disabilities.

In the NRI survey, 46.8 percent of special-purpose subsidiaries answered that more of their employees with disabilities are in managerial positions or leadership roles today as compared to five years ago (or compared to when the company was established if the company has not existed for five years). The percentage is 20.5 percent in the case of listed companies. In nearly 50 percent of the responding special-purpose subsidiaries, the numbers of these managers and leaders have been increasing. This fact is, in the first place, attributable to the high employment rate of persons with disabilities in special-purpose subsidiaries, but even so, the authors are paying attention to future changes in the figures. In fact, not a few of the special-purpose subsidiaries and

Figure 3. Current roles of workers with disabilities at special-purpose subsidiaries



Source: Nomura Research Institute, "Fact-Finding Survey on the Employment of Persons with Disabilities from the Management Perspective," 2015 (in Japanese)

companies actively promoting the employment of persons with disabilities have been working assiduously to appoint persons with disabilities as leaders of teams, each consisting of several employees. As they become appointed team leaders, more and more employees with disabilities will be demonstrating their leadership skills and thus become more active in the workplace.

We have already seen the arrival of a person with disability as president. Mr. Tatsuo Yamashita, who has severe physical impairments, serves as Chairman of the Board at Mitsubishi Shoji & Sun Co., Ltd., a special-purpose subsidiary of Mitsubishi Corporation. Mr. Yamashita was able to carve out his own career as an executive despite his physical challenges. His example will encourage many more persons with disabilities to pursue career paths that include managerial and executive positions as career options that suit their own characteristics.

3 Importance of programs for developing the capabilities and leadership skills of persons with disabilities

(1) Effectiveness of social skills training

An important factor in the empowerment of workers with disabilities is the availability of programs for skills development. The NRI survey found that 85.8 percent of special-purpose subsidiaries and 63.1 percent of listed companies have some sort of skills development program. In particular, in order for intellectually challenged employees to continue to be active in the workplace, it is considered important to provide training in basic business etiquette and communication and interpersonal relationship skills in addition to work skills training.

The following paragraphs present the case example of Sanofi K.K., an affiliate of the French multinational pharmaceutical company Sanofi. Sanofi K.K. has been continuously providing social skills training (SST) for intellectually challenged employees in Japan. The sources of details include the April 2014 issue of *Jinji jitsumu* (HR Practice Magazine) and a paper written by Nakada et al. (2015) ^{Note 4}.

According to the definition of SST by the Japanese Association of Social Skills Training, SST involves training in ‘social life skills’ to develop interpersonal skills and also training in ‘independent living skills’ to enhance daily living skills, such as self-management and illness management.

As part of company-wide efforts, Sanofi set up La Maison Service Center in 2009 to promote the employment of persons with disabilities. At the center, employees with intellectual disabilities carry out work such as printing business cards and managing the inventory of photocopier paper. In 2013, this center was renamed La Maison Business Support Center (LMBC). In 2010, the year after the center was established, Sanofi implemented SST with support received from outside

Table 3. Examples of SST items at Sanofi

Item	Description
Communication at work	<ul style="list-style-type: none"> • Answering phone calls • Reacting when an employee makes a mistake at work • Sending business emails
Lifestyle	<ul style="list-style-type: none"> • Dealing with stress • Examining eating habits • Seeking medical care
Teamwork	<ul style="list-style-type: none"> • Creating a workplace etiquette manual • Participating in team meetings

Source: Compiled from “*Jinji jitsumu*” (HR Practice Magazine), April 2014

specialized organizations. In practice, the company provides SST twice a month, with each session lasting two hours. As of August 2015, none of the employees with disabilities had quit their jobs.

Table 3 lists examples of items covered by Sanofi’s SST. The training program is designed to have trainees confirm the purposes and rules of activities through role play and review.

A major aspect of the SST provided by Sanofi is its inclusion of lifestyle-related training. The SST is thought of as effective because the improvement of lifestyle-related skills is considered important to intellectually challenged employees if they are going to continue to work. Actually, as a result of the continuing SST, Sanofi has not seen any of these employees quitting their jobs at the company. Bearing in mind the costs incurred for recruiting and training new employees, SST twice a month is considered fully cost-effective.

(2) Importance of leadership development of employees with disabilities

In addition to the skills training described in Item (1), the authors consider that the development of leadership skills will be important to empower employees with disabilities so that their skills advance along with their changing roles at different stages, including those before employment.

In the context of developing the leadership skills of persons with disabilities, DO-IT (Diversity, Opportunities, Internetworking and Technology) Japan is introduced here. DO-IT Japan is a program offered by the Research Center for Advanced Science and Technology, University of Tokyo, for students with disabilities. With the utilization of technology placed at the core of all activities, the program aims to find and develop future leaders.

The program began in 2008. The program is open to applications from students with many types of disabilities (physical, developmental, dyslexia, etc.) who intend to go on to higher education. The program is offered to the selected applicants. Centering on the “utilization of technology,” the program focuses on themes including “self-advocacy” (to help people with disabilities speak up for themselves about their own interests and rights

and take actions to protect their own and others' rights), "understanding disabilities" and "independence and self-determination." For these themes, the program offers workshops and lectures.

Among the themes, the authors consider "understanding disabilities" and "self-advocacy" particularly important. By learning about their own and others' disabilities, students with disabilities will be able to understand these disabilities and enhance their skills to speak up for environmental improvements and their ability to achieve the improvements. In the near future, more and more persons with disabilities will be working at companies, increasing opportunities for collaboration with non-disabled employees. To facilitate this collaboration, employees with disabilities should take the initiative to create a better working environment. To this end, leadership skills will be more important to persuading other employees.

(3) Mutual understanding between people with and people without disabilities

As described in Item (2), by developing their own understanding of the importance of speaking up for themselves and by advancing support technologies, persons with disabilities will be able to help others gain a deeper understanding of them, that is, someone with a disability will be better understood by non-disabled persons and persons with different types of disabilities. The authors believe that this mutual understanding is the first step toward building a future society empowering more and more persons with disabilities.

At the same time, because companies are profit-making organizations, there is a limit to what they can do, even though they can promote leadership development and mutual understanding within the scope of work as part of their corporate social responsibility (CSR) activities. For example, in order for employees with disabilities to demonstrate leadership in the workplace, they must first be able to look after themselves

and manage their own lives, and this includes money management. So that they can achieve these goals, there is a greater need for society as a whole to get involved, which includes companies assisting them in their work lives and support organizations providing assistance in their personal lives in collaboration with their families.

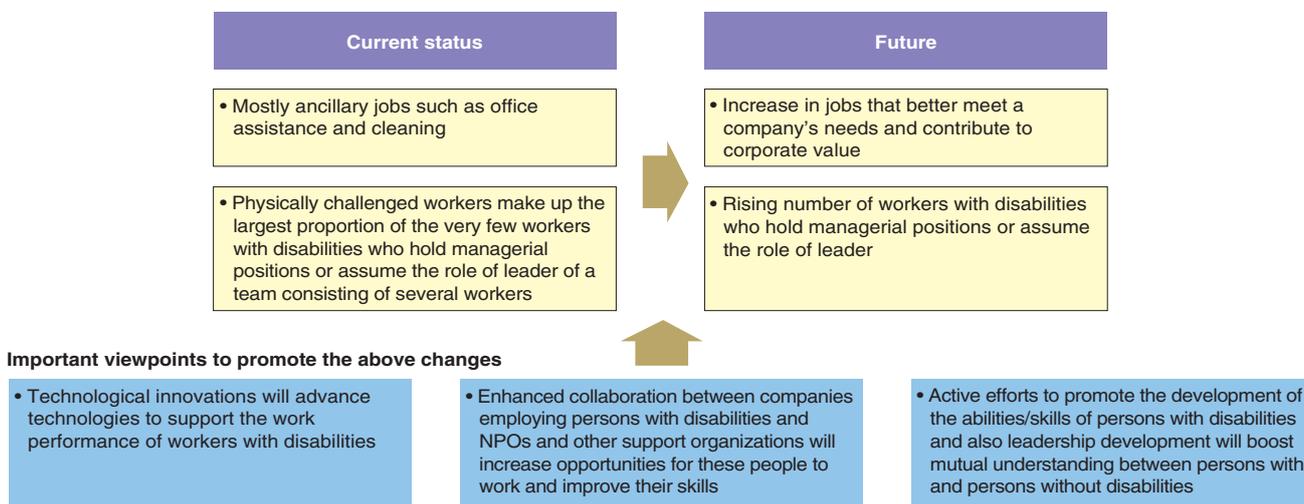
IV Moving toward a Society with Increased Mutual Understanding between Employees with and Employees without Disabilities

This paper has discussed the possibility of empowering persons with disabilities from the two perspectives of technological innovations and work style reforms.

As to technological innovations, advances in the Internet of Things (IoT) as well as in devices such as smartphones will continue to enhance work performance support for workers with disabilities. As specific examples, we presented products/services such as Transcense, which is the app that converts speech into text in real time for deaf and hard-of-hearing workers, and Assist Smartphone, which enables intellectually challenged workers to easily create email messages to contact someone or report something by simply tapping a situation and a set phrase. While teleworking is effective in supporting work performance by persons with disabilities, challenges still remain in terms of education, attendance management and communication.

Regarding work style, the authors consider that the jobs assigned to workers with disabilities are going to increasingly shift from the current incidental tasks to tasks that better contribute to corporate value. We also pointed out the possibility of an increasing number of

Figure 4. Jobs performed by workers with disabilities and work style: current status and future



workers with disabilities holding managerial positions or assuming the role of leaders for teams, each consisting of several workers.

For these changes to actually occur, we believe that increased cooperation is important between the companies employing persons with disabilities and the non-profit organizations (NPOs) and other support organizations that match workers' abilities with companies' needs. What is also important is, among others, the development of the abilities/skills of persons with disabilities and their leadership development. In particular, there are basic requirements that must be met for employees with disabilities to assume tasks that meet corporate needs. For example, they require the development of abilities with which they can understand their own disabilities and manage themselves to a greater extent than they currently do. They should also be better able to communicate with non-disabled employees to let these employees know their own situations and needs. Another one of those requirements is leadership development. Proper communication between employees with disabilities and non-disabled employees about their respective needs in performing their respective work will lead to increased mutual understanding. Such understanding will accelerate technological innovations and will eventually help build a society in which persons with disabilities are more active at the workplace (Figure 4).

Note:

- 1 The Fact-Finding Survey on the Employment of Persons with Disabilities from the Management Perspective is a questionnaire-based survey conducted by NRI and its special-purpose subsidiary, NRI Mirai, Ltd., from August to September 2015. This survey consists of two surveys: a survey of special-purpose subsidiaries (142 responses; a response rate of about 46.4 percent) and a survey of listed companies (217 responses; a response rate of about 6.7 percent). The survey examined the actual status, challenges faced and future prospects concerning the employment of persons with disabilities from the management perspective.
- 2 The source is the Oki Workwel website, the "work-at-home system" section: (<http://www.okiworkwel.co.jp/system/>).
- 3 The source of the statements about Ken's Krew is its website (<http://kenskrew.org/program.htm>).
- 4 The sources of details include: "Shogaisha koyou sokushin heno michi" (A Path to the Promotion of the Employment of Persons with Disabilities), *Jinji jitsumu* (HR Practice Magazine), pp. 54-60, April 2014 (in Japanese); and Yoshiaki Nakada, Fumie Sugimoto and Akitaka Onoe, "Gaibu shien kikan niyoru SST wo chushin tosuru shien kara mietekita seicho to kadai" (Growth and Challenges Identified through SST-based Support by Outside Support Organizations), "SST wo katsuyo shita jinzai ikusei program" (Human Resources Development Program Using SST), 11th Subcommittee Meeting, Second Session, 23rd Vocational Rehabilitation Research and Practice Presentation (in Japanese)

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