

IT solutions for workers with disabilities in the retail industry

Nomura Research Institute

WBCSD Future of Work case study

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Summary

The entire Japanese service industry, including the convenience store sector, has been facing serious labor shortages due to demographic changes. NRI is stimulating the employment of people with disabilities as an untapped workforce in the Japanese service industry through the development of workplace-based IT solutions, such as AI-based work support apps. These solutions promote store formats and work environments where employees with disabilities can thrive and execute their duties without barriers.

Company background

Founded in 1965, NRI is a leading global provider of system solutions and consulting services, including management consulting, system integration, and IT management and solutions for the financial, manufacturing, retail and service industries. Clients from all layers of these individual industries partner with NRI to tap NRI's research expertise and innovative solutions across the organization to expand businesses, design corporate structures and create new business strategies. NRI has more than 13,000 employees in more than 50 offices globally including New York, London, Tokyo, Hong Kong, Singapore, and Australia. NRI reports annual sales above \$4.6 billion. For more information, visit <https://www.nri.com/en>.



Future of Work challenge

With a continually declining population due to low fertility rates and an increasingly ageing population, Japan is facing an impending shortage of workers going forward, with direct impact on the economic vitality of the country. By 2030, 6.4 million workers in mainly blue-collar sectors, equal to nearly 10% of the working population, will exit the workforce.

Within the Japanese retail industry, convenience stores – which offer indispensable products and services for all – are particularly confronted with the challenge of labor shortage. As the owners who manage individual stores get older and the overall ratio of available jobs to workers reaches historic highs, it becomes more and more difficult to attract students and part-time employees for jobs in the retail trade.

In response to this issue, major convenience store and retail chains have implemented a variety of measures with the goal to reduce staffing needs, i.e. the number of workers required for store operations. FamilyMart, for instance, has begun to reexamine its policy of being open 24 hours; Lawson is using IT to pilot automated checkouts at nighttime in some stores; 7-Eleven has begun upgrading its stores with the intention to "improve the ease of working there" and attempting to reduce the workload at each store.

NRI, however, opted for an alternative solution and decided to train and hire from the talented but so far largely untapped workforce of people with disabilities. Although in 2019, the number of workers with disabilities increased by 7.9% from the previous year to 534 769, accounting for a record 2.05% of the total workforce, their retention rate remains low and up to 40% quit their jobs within one year. This indicates challenges in creating workplaces that are truly inclusive and accommodate workers with disabilities ([Japan Times 2019](#)).

Business case

To address the issue of labor shortage in Japan while operating under strict Japanese legal requirements for employment, more and more businesses are required to conduct focused research, offer services and develop solutions that maximize labor force efficiency.

Enhancing employment opportunities for people with disabilities in the retail industry is a way to increase labor supply, benefitting the employees themselves as well as the stores they are working for: tapping into the potential and unique value of this productive population not only leads to enhanced workforce productivity and Return of Investment (ROI) but also to more diversity and a stronger corporate culture. As research has shown, companies that embrace best practices in hiring and supporting people with disabilities in their workforce have historically outperformed their peers.

NRI's solution

NRI has a long history of collaboration in the retail industry, beginning in 1979 when NRI introduced the first Point-of-Sale (POS) system in Japan and developed 7-Eleven's enterprise infrastructure. Furthermore, in 2016, NRI established [NRI Retail Next, Ltd.](#) to advance research and development of store formats that can provide solutions to the challenges the convenience store and retail industries have been facing.

NRI Retail Next's current focus lies on addressing the issue of labor shortage by developing and incorporating AI and other advanced technologies that facilitate inclusion of people with disabilities in stores, with the possibility to scale this technology to all employees, helping them perform daily tasks more efficiently.

In 2018, NRI Retail Next started a feasibility study and test project involving snack stands (also known as "satellite stands") together with [NRI Mirai, Ltd.](#) at NRI's Yokohama Nomura office building. In six lounge areas for employees to take breaks and socialize, around a dozen snacks and drinks are provided to staff through sales points, and on each floor of the building a small pantry offers several foods and beverages.

To operate these stands, NRI Mirai employs a small number of staff with disabilities. Twice a week, a team of two people checks the stock at the stands, replenishes stocks, cleans the stands and arranges the snacks and drinks nicely. For the employees to carry out these tasks independently and without assistance from their supervisors, NRI involved people with disabilities in the development and prototyping of a work support system. This system consists of an easy-to-understand iPad app that provides people with intellectual disabilities detailed instructions to carry out their tasks.



A non-disabled person may quickly understand the required steps after reading the instructions, but for a person with an intellectual handicap or a mental disorder, the procedures need to be broken down into more specific steps and activities. So, instead of being told to do a task "properly," the app asks, for instance, to "wipe the surface five times."

As the application is very simple and user-friendly, it can not only be used by people with disabilities but also by people speaking different languages, elderly employees, or those who make their first experiences in a retail job. Based on the observation of individual characteristics, the application gives different employees different instructions on how to perform the same tasks.

The iPad app is still undergoing an internal proof of concept (POC) phase. Going forward, NRI aims to promote this initiative and scale up the solutions it develops by expanding its use to other retail stores. As an initial step in this direction, in 2019, NRI has conducted a first short-term trial with a retail industry client with the aim to support in-store work functions for employees with disabilities. A second trial was scheduled for April 2020 but has been postponed due to the global COVID-19 crisis.

Challenges and key success factors

As the project is currently in a test phase, proof of concept and scalability of this initiative within the Japanese retail industry remain to still be assessed.

From a technical perspective, applying the agile methodology is a fairly new concept in Japanese IT and requires to continuously improve the application in real time as its design and functionalities are based on ongoing user experience and feedback. As such, users are now part of the development process rather than just being given a tool to work with. They co-design the tool to meet their needs based on their individual situation. Furthermore, people with disabilities can directly interact with customers during the development stage of the project and help design the sales floors which not only leads to more inclusive work environments but also to a high level of skills development in the workplace.



While this participatory approach certainly proves to be challenging at times, it greatly contributes to the success of this work support system. It is empowering in nature and therefore enjoys a high level of acceptance and popularity among NRI Mirai employees. The application is being used by more and more clients in different areas of the retail industry, and the technology is validated as a tool to assist persons with disabilities in the workplace while at the same time adding value to the overall retail sector through increasing overall worker efficiency.

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