

New Technologies Improve Efficiency

Awareness of the need for good eating habits is growing among customers and society at large.

In its drive to further strengthen its core competence and proactively engage in the resolution of social issues, Nichirei will draw on such current production technologies as AI, IoT, autonomous driving, and robotics.

Automated Optimal Production, Personnel Plan

https://www.nichireifoods.co.jp/news/2020/info_id8338/
(Japanese only)

Nichirei Foods has collaborated with Hitachi, Ltd. to create a system that automatically formulates optimal production and personnel plans using AI. The system, introduced at four factories in Japan in January, uses advanced AI technology to reproduce and advance plans that experts have formulated based on complex constraints.

In addition to the legal regulations involved in creating personnel plans, these include a variety of other conditions must be considered, including individual abilities, overtime, and paid leave.

Until now, experts have relied on experience-based intuition to formulate plans based on these prerequisites. The new system, however, has allowed us to automate planning and achieve optimal solutions using AI, which takes into consideration prerequisite conditions.

As a result, the time now required for planning can be reduced to about one-tenth that of that formerly needed and, since non-expert employees can also engage in planning, the system is expected to contribute to work style reforms such as a reduction in the number of hours worked and more employees taking advantage of paid leave.

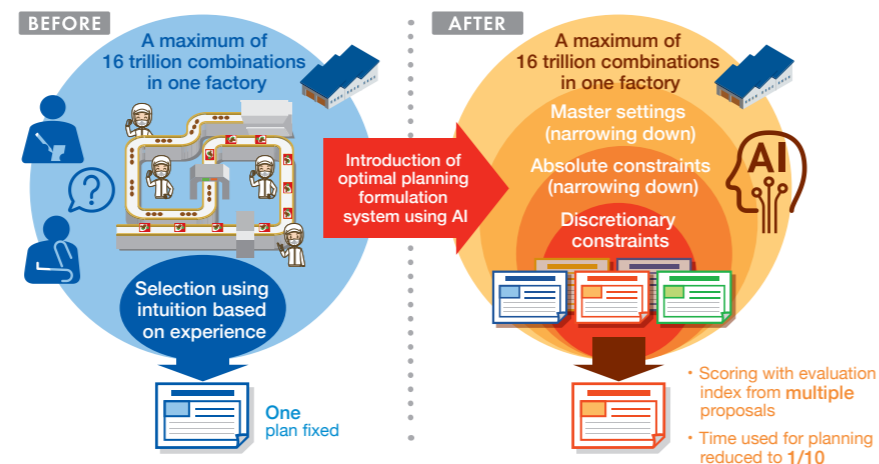
In recent years, as food manufacturers have been required to produce and supply products in response to fluctuations in demand, the system is expected to improve customer satisfaction by utilizing advanced digital technology and creating efficient production systems. The system is planned to be gradually used in other domestic plants.

Nichirei Foods will use digital technologies to promote further improvements in productivity, reductions in lead time and inventories, as well as work style reforms.



From a maximum of 16 trillion combinations in one factory, production plans encompassing daily production products and volumes for each line and personnel plans involving shift schedules are formulated automatically.

Production Planning Formulation Image



Food Waste Reduction

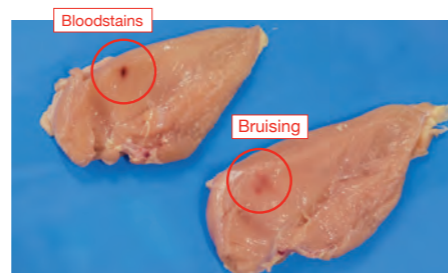
https://www.nichireifoods.co.jp/news/2018/info_id5715/
(Japanese only)

In February 2018, in partnership with Kindai University, Nichirei Foods developed technologies powered by artificial intelligence (AI).

We maintain and control the quality of the ingredients for processed chicken products as we receive them, by using such sorting technologies as metal detection, X-rays, near-infrared rays, optics, and colors.

However, additional manual or visual inspection is often required, since the accuracy of these methods in distinguishing the quality of ingredients decreases depending on the position and angle of the foreign matter and impurities.

In the selection of the ingredients for cuts of chicken, in particular, the three major impurities that must be eliminated are bones, feathers, and bloodstains. Due to its ability to locate such impurities with pinpoint accuracy, AI-powered technology does not remove unnecessary amounts of impurity-free meat, leading to reduced food waste.



Expiration Date Reader for Tablet Inspections*

<https://www.nichirei-logi.co.jp/news/2020/20200713.html>
(Japanese only)

The Nichirei Logistics Group is in the process of introducing, at its bases nationwide, an AI solution to automatically read expiration dates on captured images. As part of the Group's efforts to fully digitize warehouse operations, tablet devices are being used to introduce AI and expand functionality.

Previously done manually, expiration date input now can be completed using AI, enabling highly accurate readings of 93% or more and fast processing speeds of about two seconds. This has led to improved quality control enabling anyone to capture expiration date images, simplifying overall operations, and facilitating stress-free work.

Nichirei Logistics is also collaborating with the AI solution's developer, Automagi Inc., to demonstrate image analysis.

Amid concern regarding labor shortages in Japan, the Nichirei Logistics Group will continue its efforts to realize sustainable logistics to support customer supply chains by promoting business innovation with the goal of digitization and efficiency.



* Automated expiration date reader AI solution: AI-OCR (Optical Character Recognition/Reader) recognizes images using image preprocessing technology to identify the characters of the expiration date from the image and match the recognized expiration date with information in the cloud, to enable more accurate readings.

Demonstration of Unmanned Forklift

Since January 2018, the Nichirei Logistics Group's Kyokurei Daikoku Distribution Center has been conducting demonstrations of unmanned forklift operations to move cargo in refrigerated warehouses. The aim is to save labor at refrigerated warehouse sites, given the industry-wide labor shortage.

Unmanned forklifts can be operated using a tablet device, making it possible for employees lacking physical strength or operating skills to use it without making mistakes. We thus plan to increase the number of warehouses where unmanned forklifts can be used, to shorten working hours and improve occupational safety and health.



Unmanned forklift operation

Truck Reservation System

<https://www.nichirei.co.jp/news/2017/298.html>
(Japanese only)

At distribution centers, truck deliveries are concentrated at certain times, and because the cargo on each truck is not known, smooth unloading and loading is hard, leading to long wait times for truck drivers and rising concerns in surrounding communities.

To alleviate and eliminate the problem of waiting trucks, in October 2017 the Nichirei Logistics Group launched an advanced truck reservation system.

The system allows the truck side (shipper or shipping company) to reserve a desired time for loading or unloading trucks, in line with the loading and unloading time slot framework at each distribution center.

We are attempting to improve efficiency through the introduction of a system related to procedures after trucks arrive, and involving the sending of cargo details from the truck side to the distribution center side ahead of time. The introduction of the system has led to reductions in the time required for unloading and loading, truck operations, and truck emissions (CO₂ reductions).

