Manufacturing Capital

In addition to improving productivity, we are channeling our manufacturing capital to reinforce our global competitiveness, support our human resources strategy, rebuild our training system, and create new value through collaboration with Group companies.

Naoki Goto Executive Vice President, Head of Manufacturing Strategy Division HQ

Measures aimed at optimizing manufacturing capital

Uncertainty has continued to plague the business environment in which NSK operates in recent years. Against this backdrop, the biggest challenge we face is how to improve our earnings structure. To overcome this challenge, we must consider how best to transform our portfolio and how to secure a global facility capacity that exceeds demand. Taking into consideration the current sluggish nature of demand, rebuilding the production system in line with our business strategy is a matter of considerable urgency. Turning to our activities overseas in particular, measures aimed at reducing fixed costs are already under way. We are also making headway with efforts to optimize our workforce in line with the balance between supply and demand.

As an important issue going forward, NSK recognizes the need to accelerate the reorganization and ultra-stable production under its Mid-Term Management Plan. Super stabilization entails maximizing the performance of existing facilities and ramping up improvements through the use of digital technologies. In addition to the conventional *Sangen* principle, or "the Three Actuals" (*gemba*: actual places, *gembutsu*: actual things, and *genjitsu*: actual situations), we have introduced innovative improvement methods that leverage data analysis and AI.

Progress in achieving ultra-stable production and the use of digital technologies

Efforts to promote ultra-stable production began in 2022 at a model plant in Japan with plans to replicate activities overseas. While productivity and output at model lines have met targets, the pace of improvements lagged behind the decline in sales volumes as of FY2024 due to the economic downturn. Especially in Japan, excess production capacity has led to surplus personnel, which has in turn raised questions regarding a decline in profitability. To address these concerns, we are accelerating efforts to secure improvements using digital tools.

NSK is systemizing facility capacity management while visualizing the balance between global supply and demand in a bid to expedite investment decisions. As a result, business divisions can now bolster facility capacity and optimize operations in line with regions earmarked for sales growth. Historically, each plant and regional headquarters utilized data on a stand-alone basis making it difficult to engage in uniform strategic planning. Today, we have significantly improved the precision of budgets and production strategies by employing a common global database.

While numerous tasks are automated, moving quickly to identify all remaining manual operations is also important. A check of ultra-stable activities at nine plants in Japan uncovered more than 1,000 manual tasks. Further automation will help enhance the efficiency of operations. Here, we will selectively leverage both in-house facilities and external resources while evaluating the cost-effectiveness of automation. Making the most of the Group companies engaged in the manufacture of facilities, we are steadily building a mechanism through which to reflect this improved expertise in equipment.

Moreover, we are clarifying investment amounts and maintenance costs by equipment while assessing and analyzing actual costs through the introduction of a facility management system. This has reduced the time required for assessment and analysis. With the subsequent increase in available capital investment options, we can now better align investment decisions with product added value. We are considering such strategic investments as the use of external equipment for commodity products and in-house facilities for value-added products. In this manner, the accelerated pace of decision-making attributable to digital technologies is proving highly effective.

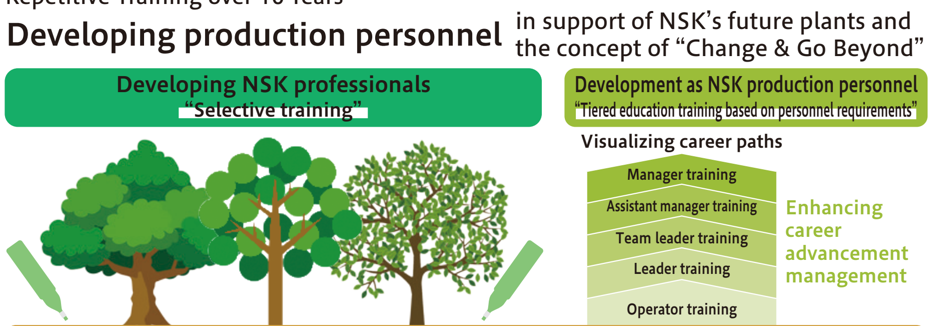
Visualization and Ultra-Stable Production Initiatives at South Korean Plants

Addressing labor shortages and rebuilding the training system

The number of employees at NSK's domestic business sites is projected to fall below the level required around 2030, leading to a severe labor shortage. It is therefore important that we accelerate automation over the next five years. In doing so, securing further advances in measurement technology is of particular importance. While manual measurement was previously the norm, steps have been taken to enhance quality management by automating the inspection process thanks to a variety of measures, including the introduction of 3D measuring equipment. This has in turn helped reduce the number of inspectors required and is expected to increase the efficiency of quality management.

As one related initiative, analyzing personnel data using DX is facilitating staffing forecasts as well as strategic automation. As far as the training system is concerned, there is a critical need to shift from conventional on-the-job training to digital education. Employees at domestic plants undergo repeated training on improvements and core values up to their first 10 years. Moreover, we continue to review the NSK Manufacturing Education and Training Center Glossary curriculum and provide training with respect to the use of digital analysis and AI to ensure skills are passed on the next generation.

Repetitive Training over 10 Years



Fundamentals of NSK Core Values and Manufacturing

"Creating a common language for manufacturing – repetitive learning for 10 years"

For all plant employees

Item	Year 1	Year 4	Year 7	Year 10
Advanced Production System (APS)	Basic APS Learning	Intermediate APS Learning	Intermediate APS Learning	Intermediate APS Learning
Quality	Basic Quality Learning	Intermediate Quality Learning	Intermediate Quality Learning	Intermediate Quality Learning
Safety	New employee Safety Learning	Intermediate Safety Learning	Intermediate Safety Learning	Intermediate Safety Learning
Fire prevention	New employee Fire Prevention Learning	Intermediate Fire Prevention Learning	Intermediate Fire Prevention Learning	Intermediate Fire Prevention Learning
Environment	New employee Environmental Learning	Intermediate Environmental Learning	Intermediate Environmental Learning	Intermediate Environmental Learning
Carbon neutrality	Carbon Neutrality Learning	Carbon Neutrality Learning	Carbon Neutrality Learning	Carbon Neutrality Learning
Compliance	Basic Compliance Learning	Intermediate Compliance Learning	Intermediate Compliance Learning	Intermediate Compliance Learning

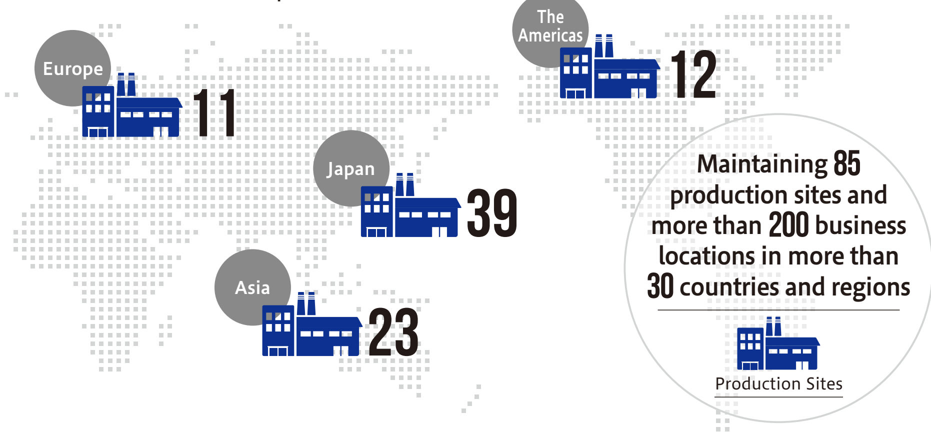
Climate change (CN training) P.43

Reorganization of production sites and related strategies

Working to optimize the location of its production sites, NSK is promoting reorganization. Taking into consideration labor and energy costs, we are enhancing our cost competitiveness by selecting the most suitable place for production. This includes exporting products manufactured in Japan in response to rising energy costs in Europe when required.

For such products as normal size ball bearings, we are able to flexibly position global bases. NSK is building a strategic production system while considering the cost balance by region.

Global Production Base Expansion



Note: Including all equity-method affiliates

NSK's strengths and future challenges

NSK's strengths lie in its flexible structure that can accommodate diverse and small-lot production. Having built a supply chain that is capable of providing the same product lineup in each region, we possess the ability to address customer needs.

However, we are at a slight cost disadvantage compared to mass-production competitors and are competitively weak when it comes to commodity products. With this in mind, NSK plans to differentiate itself by focusing resources on value-added products leveraging its technological capabilities. In addition, the NSK Group includes companies that can manufacture facilities. As such, another key strength stems from our extensive expertise in various improvements and our ability to leverage this knowledge to manufacture equipment.

We plan to transform the earnings structure of the Group companies by leveraging monitoring systems, including CMS Glossary , to identify added value in equipment overhauls and new development.

NSK's manufacturing capital initiatives extend beyond the simple improvement of productivity. In addition, we are channeling our manufacturing capital to reinforce our global competitiveness, support our human resources strategy, rebuild our training system, and create new value through collaboration with the Group companies.