



Promoting the uptake of TQM while contributing to DX. Aiming for Company-wide quality and efficiency enhancement, with a focus on standardization.

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Initiatives to Spread TQM Launched in Fiscal 2019

The serious incident involving a series N700 Shinkansen railcar bogie frame in 2017 prompted us to deeply reflect and reexamine our quality control system. As a result, we decided to set up a robust quality control system based on Total Quality Management (TQM) at the Company-wide level. Approaching the three years from fiscal 2019 to fiscal 2021 as a period for spreading TQM internally, we established the TQM Department within the Corporate Technology Division, bringing together the employees responsible for TQM at the internal companies to advance activities. In addition, we set up the Company-wide Quality Committee, where TQM promoters from each business segment meet once a quarter. The committee facilitates information exchange and helps ensure TQM policy compliance, thereby expediting activities and improving their efficiency. The TQM Department implements Company-wide education to foster awareness and understanding of TQM, evaluates the level of TQM at individual divisions, and encourages

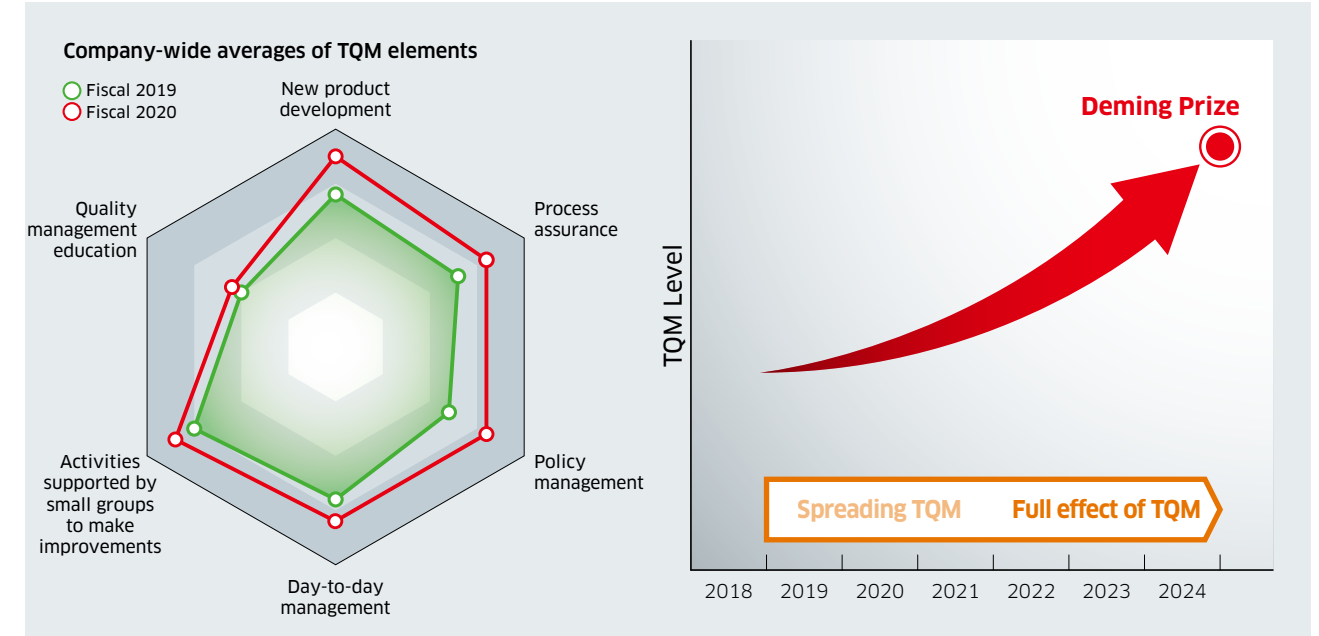
them to raise said level. These efforts are based on initiatives in policy management, day-to-day management, and quality management education. Policy management entails not only top-down communication of policy, but also bottom-up communication and horizontal coordination, expanding discussions beyond organizational boundaries. Day-to-day management is aimed at standardizing operations and is closely linked with digital transformation (DX). Standardization is a necessary prerequisite for transforming the Company using digital technologies. In that sense, TQM has a major role to play in advancing DX. In terms of quality management education, we have been holding ongoing TQM seminars for management and all employees and completed the creation of our own level-specific curriculum. Through such efforts, we are further bolstering motivation to advance TQM among everyone from new recruits to top management.

Promoting Awareness Using Surveys Based on TQM Techniques

To introduce and advance TQM, we must first understand the state of current activities and identify areas that require improvement. To this end, since 2019, we have been implementing surveys of the level of quality control using TQM techniques. The survey examines around 30 items (though the exact content varies by year), getting into the details of front-line operations to evaluate the level of TQM adoption. When we began these initiatives, major divisions were, on average, at the mechanism-building level. In fiscal 2020, however, the average had advanced to nearly the operating level, affirming that our TQM activities are beginning to take hold across a wide range of sections. For these evaluations, TQM Department staff meet with staff from the internal companies, score initiatives, and review the results with said staff. Even more than this,

however, we prioritize visiting workplaces to engage in dialogue with internal company staff. We believe that this helps to deepen mutual understanding and makes the evaluations themselves a valuable part of the process of advancing the uptake of TQM. Until now, each internal company had its own approaches to manufacturing and operating processes honed and improved over the course of their unique history. While this is in one sense a strength, it has also made assessing these companies using the same parameters difficult, as each was using different yardsticks and a different vocabulary. The TQM level survey was the first time that the Kawasaki Group quantitatively assessed all the internal companies and divisions using common indicators. Through this survey, we seek to share the strengths of each company while improving weak areas.

TQM Activities



The three years ending with the current fiscal year have been a period of foundation building. The three years beginning fiscal 2022 will be a period for realizing the full effect of TQM. We are advancing efforts to promote the uptake of TQM with the goal of quickly reaching the concrete result

level. We aim to see the emergence of divisions that can contend for the Deming Prize* in a few years' time. **Deming Prize: An award bestowed by the Union of Japanese Scientists and Engineers to organizations successfully implementing TQM.*

Enhancing Operational Quality and Efficiency Based on KPS and TQM

The foundation of the TQM approach is standardization. This is highly compatible with the Kawasaki Production System (KPS), which we apply in our manufacturing divisions. KPS is a unique Kawasaki-developed production management method that makes it easier to confirm operational conformity with standards. First adopted at the motorcycle division, KPS has been honed and further developed across the internal companies. KPS standardizes operational procedures and mandates that each procedure is observed and the outcomes of each process recorded. This ensures that any abnormality is swiftly addressed and any non-conforming process corrected. When an abnormality is detected, we pause operations to determine the cause so that we can then implement

improvements. The continuous implementation of this cycle is an aspect that TQM and KPS have in common. On the front lines of manufacturing, we implement quality control mainly through KPS, while for Company-wide operations and services, including those of back-office divisions, we apply the TQM approach to enhance quality and efficiency. Based on TQM and KPS, we thus seek to advance the adoption of better quality management and comprehensively improve all operational processes. We believe that these activities will help us break away from overreliance on manufacturing front lines, which was one of the major causes identified by our investigation and analysis of the serious incident mentioned earlier.

People Are the Core of TQM—More Creative Work through Standardization

With the advance of standardization through TQM, we will be able to ensure a certain level of quality regardless of who carries out a specific task. This may seem at first glance like it leaves no room for the value of experience or individuality. Quality improvement, however, is not implemented by techniques, but by people. Only people can discover problems, work to implement improvements, and constantly enhance quality. One of the tenets of TQM is respect for the contributions of workers as human beings. As this indicates, rather than forcing greater burdens on employees for the sake of quality, we seek to find more efficient ways of working so that they can redirect some of their capacity toward more creative tasks, thereby simultaneously increasing profitability and generating new professional fulfillment.

I wish to emphasize that these are, in this way, very human-centric initiatives. Under Group Vision 2030, we are targeting innovation that goes beyond the bounds of the internal companies. To that end, employees must be able to work together smoothly. This is another area where TQM, by advancing standardization, can be effective. In addition, by establishing a common awareness and understanding of manufacturing processes, we will be able to more nimbly move human resources to where they are needed. Improvements like this are the goal of TQM, and I am confident that TQM will contribute greatly to the realization of new solutions to social problems, as targeted in Group Vision 2030.