

Thoughts Regarding Product Development Based on Customer-First Philosophy

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As everyone is aware, in late 2008 the U.S. subprime loan problem triggered a global economic crisis that spread quickly and resulted in dramatic changes in market environments and customer needs. Regarding the automotive industry, for example, the need to expand quickly into BRICs countries and heightened concerns over environmental issues have caused the shift to small cars, hybrids, fuel cell vehicles and electric vehicles to proceed much faster than expected. In industrial fields, expectations are high for the development of new technologies such as windmill power generators and solar power generators to enable reduced reliance on fossil fuels and decrease CO₂ emissions. Once markets recover from the current recession, there will be considerable changes in product needs, and the companies best able to foresee and meet those needs will be those that survive and succeed in the new era. The responsibility of our development engineers is to grasp the needs of customers accurately at an early stage and provide them with suitable products on a timely basis.

This brings to mind a personal experience I had more than 10 years ago. By that time, automatic transmissions had come into wide use in America and Japan, and it appeared this trend would proceed in Europe as well. However, many companies, seeking to retain the good efficiency of gear-type manual transmissions (MT), were competing to develop MTs with automatic control. In the case of MTs, the driver uses a manual shift lever situated in an H-shaped selection gate to select the appropriate gear. Engine force is not transmitted during the period of automatic gear selection, which worsens drivability, and therefore the most important task for engineers was to dramatically shorten this automatic selection time. The use of small motors and various other means reduced the time significantly, but still it was not short enough. At the time, the H-shape was the conventional pattern and was thought to be an indispensable structure, but a certain company that was strong in innovative engineering came up with the idea that "the important thing is that gear selection be possible, and if we change the H-shape to a structure

more suitable for automatic selection, selection can be simpler and many times faster than with the H-pattern." This impressed me deeply and reminded me that the basic philosophy of development should be devising simple, reliable solutions to problems by innovating thinking not limited to conventional technology.

In 2007, we revised our R&D Center organization in order to strengthen our basic technology capability, concentrating engineers in this organization that had been scattered throughout the company and adding five new sections such as the Evaluation & Visualization Technology Section and Numerical Processing Section. At that time we also improved our R&D equipment and clarified team member missions, which raised motivation to pursue challenges. In addition, we have received many research requests from internal departments and are continuing to grow as we pursue solutions. In order to cultivate engineering capability and raise motivation, we formed a small team of core engineers to pursue the development of new technology. While not all their projects succeeded, they learned the process of developing new technology and have achieved such results as reducing the time for a certain machining process by half. This team became an official part of the organization in 2009. The manager believes that patience is important in cultivating engineers and helping them succeed in innovative development. Excessive advice from the manager with his technical capability constrains young engineers and nips the creation of attractive new products in the bud. At the same time, while engineers have their own ideas about what they want to do or can do, it is important to guide them to ensure we develop innovative new products based on logical thinking in order to meet the true needs of customers, cultivating engineers that carry out required tasks with passion and perseverance.

Lastly, JTEKT, as a company dedicated to "monozukuri" manufacturing excellence, hopes to continue contributing to society by pursuing manufacturing innovation and providing new products with new value meeting the true needs of customers on a timely basis.

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