

## Foreword

# Creation of Needs and Faith in Technologies

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Among so many manufacturers today, Komatsu may be one of a few manufacturers who cannot become a user of its products, because Komatsu produces construction equipment. As I am responsible for part of marketing now, I have accordingly become aware of this fact. I unconsciously ask “What about real needs?” in the product planning stage, because I feel that there is a big gap between our question as a manufacturer and customers’ understanding. Many responses from customers are complaints about the current conditions of machines, and many of our possible responses are countermeasures to defects at each time. I wonder how well customers understand technical trends and how much they can visualize the realizations of possibilities in the future. I don’t believe that they have enough information to imagine and predict, in most cases.

With respect to triggering the creation of needs, our engineers must continue to refine our technologies as strength, monitor technological trends in the world, think about how to combine technologies available outside of the company to provide innovation and solutions to customers, visualize future images by considering technological possibilities, hypothesize those images, and present them to customers. In this step, we can recognize the validity of our direction, learn about their needs from their responses for the first time, and become certain. Today we lead the industry with technologies, such as KOMTRAX, Autonomous Haulage System (AHS), intelligent Machine Control and hybrid models; none of these were started in response to the demands of customers. Rather, our engineers presented their ideas in the company, became certain about the needs, and developed these industry pacesetter products. Today, it is becoming increasingly important for them to better understand our customers, their work and the ways in which our machines are being used, and present as many hypotheses based on technologies as feasible to customers in order to create the needs.

When manufactures are committed to technologies and materialize in the forms of products, business models and systems, they will, for the first time, become able to offer solutions designed to meet customer needs. However, history tells us that the roadmap to customer satisfaction isn’t easy. Even when we thoroughly understand customers’ expectations and the ways of machine used by customers, set targets and start developing technologies, we need to continue our efforts for repeated improvements over a long period of time. This is the only way we should be able to reach a satisfactory level. In the aftermarket business, for which I am responsible, we have been able to considerably enhance our market presence with strengthened product competitiveness, thanks to continuous efforts of our engineers. While there are so many cases, one good example is found in the life of components, extending the usage time until overhauls. Over the last 10 years, it has been extended by 1.5 to 2.0 times, importantly contributing to the reduction of lifecycle costs (LCC) of mining equipment. The prolonged life of components has also contributed to not only increasing sales of machines but also expanding the aftermarket business.

To the present, we have enhanced the durability of our machines with every model change, reflecting our solid determination to achieve “DANTOTSU” (Unique and Unrivaled) LCC and our obsession for technologies. We have LCC “visualized” (quantified), analyzed them exhaustively, and diligently improved them by element and factors, without giving up. As I look back, we can find the CLSS (Closed-Center Load Sensing System) hydraulic system which was first installed in hydraulic excavators and later in many other machines, HST (Hydrostatic Transmission), intelligent Machine Control construction equipment (control of hydraulic excavators and bulldozers), advanced automatic transmission control, AHS (Autonomous Haulage System) and so forth. Although their aims are different, they are a direct result of state-of-the-art adjustment between our accumulated technology development for over 20 years and available advanced control and communication technologies. They also demonstrate the stubborn determination of our engineers to accomplish, by all means, their obsession for technology, and teamwork power which transcends the boundaries of divisions. I believe all this can be called innovation.

In technology development, objectives are set for customer needs and become the means for achieving our development themes. For some 10 years now, we have promoted the selection of our technology development by taking advantage of in-house developed and manufactured components, and by upholding the key concepts of Safety, Environment, ICT (Information and Communication Technology) and Fuel Economy. In the next 10 years, reflecting further progress of control and communication technologies, the concepts of IoT (Internet of Things) and AI (Artificial Intelligence) will be included as new development themes. With respect to the construction equipment market, it has clearly shifted to a buyer’s market against the backdrop of sluggish economies since the so-called “Lehman Brothers Shock”. The main segment of construction and civil engineering customers has continued to shift to rental equipment, while the proportion of customers who own equipment has grown among mining, making aggregate, demolition, forestry, scrap and recycling segments, which are more application specific. In this light, we need to have new approaches to our objectives. In other words, the importance of creating the needs has increased. We would like to take on the challenge of technology development to make dreams come true, as our engineers keenly detect market changes, such as energy sources and demographics, create anticipated needs as one of their important roles, have a broad range of approaches for objectives and technology development, and further refine technologies of their obsession.