Foreword

The Challenge for ICT Engineers

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A number of companies have formed partnerships to develop products and run businesses in the field of information and communication technology (ICT). They are taking advantage of each other's technologies and products in order to coexist and prosper. They describe this condition of the ICT sector as an ecosystem — a reference to the scientific concept of a community of living things that co-exist and co-prosper. The key to success for a business ecosystem is growth through direct or indirect cooperation, and equal distribution of earnings is a basic rule. In past years, alliances of manufacturers of operating systems and manufacturers of central processing units determined computers' basic architecture. Many application developers and service providers organically joined together on top of that architecture to provide users with diverse forms of value. Today, their contested arena has grown to encompass the smartphones and tablets. As evidenced by its impact on music distribution and mail order, it is bringing huge changes to the business world. Also, advances in social media are widely impacting, from the way we lead our lives to the political activities.

Komatsu is a machine manufacturer, but we seek not just to sell machines, but also to provide the best possible services and solutions for our customers' business processes for which they use our machines. In the past, we had a strong tendency to perform development and production entirely in-house in order to create machines with superior performance and quality. KOMTRAX and the Autonomous Haulage System (AHS) (pioneering examples of our superior services and solutions) reflect that strong tendency. But if we are to exploit the rapid advances in ICT in order to continue to provide pioneering services and solutions, we must, like firms in the ICT industry, innovate by swiftly drawing on knowledge and skills outside our organization. For example, it may become possible using cutting-edge ICT to rapidly collect and analyze huge amounts of constantly changing data pertaining to the operational processes and cost structures of customers, dealers, and Komatsu in addition to the related market and social conditions, and finally to devise activities that equally benefit customers, dealers, and Komatsu. By efficiently and responsibly sustaining such a cycle, we can innovate. This is to create and sustain a vast ecosystem encompassing not only Komatsu but also customers and dealers.

It goes without saying that determination, wisdom, and constant effort are vital among the people who want to achieve such an ecosystem. And powerful ICT solutions made possible by cutting-edge technologies are what effectively support those people. Once computers had become tough enough to work in vehicles in the early 1980s, Komatsu's ICT engineers used them to control machine components. Komatsu's ICT engineers targeted control of entire machines in the 1990s. In the following decade, they targeted control of groups of machines by means of offerings such as the AHS and machine life-cycle management by means of offerings such as KOMTRAX. Today, Komatsu's ICT engineers aim to help establish an ecosystem including customers and dealers — and they have begun to address the challenges. What they want to control is immeasurably complex, and their goal — maximizing value for all stakeholders — represents a difficult, multidimensional problem. This control must be a lofty and vast challenge for them.