

Aiming to Accomplish Business Structural Reform to Survive Global Competition

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In order to contribute to the creation of an ideal society where people live in peace, safety, and comfort, the Toshiba Group is focusing on three business areas: energy, social infrastructure, and storage. We have also embarked on a program of structural reform that will enable us to win in the face of global competition.

Today, as represented by the advancement of information and communication technology (ICT), the world environment continues to change at an accelerating pace. At the same time, various complex issues are becoming more evident. These include resource and energy problems caused by the growth of the global population, as well as climate change and global environmental concerns.

Under these circumstances, the Toshiba Group is drawing on the technical expertise built up through its 140-year history in order to nurture the seeds of future growth, provide new value that meets the needs of the times, and deliver solutions for customers' issues. Examples of such assets include a new hydrogen-based energy system and a power control and monitoring system for the stable use of electricity.

The following is an outline of some of our achievements over the past year.

In the fields of energy and social infrastructure systems, we have delivered pumped storage and geothermal power generation systems overseas to contribute to the expanded use of renewable energy. We have also started a full-scale demonstration of hydrogen energy utilization. In addition, we have delivered power transmission and transformation systems and supported their commissioning. In the area of transportation infrastructure, we have supplied various types of rolling stock and a number of transportation-related devices and systems. We have also developed a meteorological radar capable of detecting signs of local torrential downpours as well as a postal

automation system with enhanced performance, contributing to the realization of a safer and more comfortable society.

Our efforts in the community solutions field have resulted in the development of an air-conditioning control system and a multiple air-conditioner system for building use designed to improve energy consumption efficiency. We have also released a light-emitting diode (LED) base light series that provides a selection of LED bar brightness levels and light colors, and an elevator series that meets the specific needs of overseas markets.

We have also been active in the field of electronic devices and components, as exemplified by the development of the BiCS FLASH three-dimensional flash memory fabricated using a 48-layer stacking process, the commercialization of solid-state drives (SSDs) for enterprise use with improved read performance, and enhancement of the performance and functionality of image recognition processors targeted at the expanding automotive market.

The lifestyle products and services segment has released the dynaPad N72 detachable PC with a 12-inch screen that expands the limits of lightweight design, and a new series of PCs for enterprise use.

Furthermore, we have established a unique Internet of Things (IoT) architecture as a common ICT framework to support new IoT innovation that allows the interconnection of numerous electronic devices over the Internet. We have also developed an IoT solution for manufacturing as well as a cross-functional solution for Japan's deregulated low-voltage electricity market.

This is just a brief overview of the technological innovations recently achieved by the Toshiba Group. We hope you will enjoy reading *TOSHIBA REVIEW Science and Technology Highlights 2016*, and would be gratified to receive your feedback, suggestions, and comments.