

Creating the technologies that will make Toshiba an even stronger global contender



SUDO Akira

Corporate Executive Vice President and CTO

Toshiba's basic management policies are aimed at transforming Toshiba Group into a top-level diversified electric/electronic manufacturer with strong global competitive power. Our mid- and long-term vision for generating the strong future growth of Toshiba Group is focused on the transforming our business structure and the restructuring of our businesses. To become an even stronger global contender, Toshiba is putting utmost priority on Total Storage Innovation and Total Energy Innovation. We are assiduously working to further speed up our pace of innovation by nurturing the technologies for next-generation business development and creating exciting new values through the introduction of World's First and expansion of World's No. 1 products and services in the global market.

To achieve these ambitious objectives, meet the challenges presented by the rapidly changing global economic conditions and market changes and accelerate the global expansion of our businesses, we are further strengthening and combining our strong technologies so as to offer a powerful, comprehensive range of solutions. We will offer value-added total solutions in our Smart Community business by taking excellent advantage of our long-standing systems technologies nurtured in such diverse areas as water, transportation, data processing and healthcare and built upon high-level information and communication technology (ICT) platforms. In Total Storage Innovation, in addition to the development of "integrated storage solutions" that combine NAND flash memory with HDD and SSD devices, we are providing applications/systems to meet the exacting requirements for managing and securing Big Data and cloud services, including those for "healthcare solutions," "fused digital products and services solutions," and "retail solutions."

Among our key technological achievements in Total Storage Innovation during the past fiscal year were: introduction of ultimate mobile notebook PCs that aimed to be the world's lightest and thinnest such products; LCD TVs that utilize cutting-edge technologies such as glasses-free 3D image processing; Toshiba tablets that can be linked with other media units such as TVs, smartphones, Blu-ray DVRs and PCs through its Apps Connect function; a home DVR that allows for the recording of 15 full days of HD content from six channels; the world's smallest 64Gbit 19nm process technology NAND flash memory chip; the industry's

largest capacity, compact 9.5mm, 2.5-inch HDD, which has a 1 Tbyte memory capacity; a whole-body computed tomography (CT) diagnostic system featuring high image quality and 75% lower radiation exposure; and an ultrasound system that allows clinicians to synchronize real-time ultrasound images with previously acquired 3D data sets from modalities such as CTs.

The need to assure a stable supply of efficient electric power and the necessity to prevent global warming by controlling the amount of carbon dioxide emissions have become increasingly important issues, and offering the optimal mix of energy, including renewable and new energy sources, has become essential. Through Total Energy Innovation, in addition to strengthening our No. 1 technologies in hydro and geothermal power generation, developing higher-efficiency, low-emission thermal power systems and introducing a new-generation of clean-energy nuclear reactors with enhanced safety, we are also expanding our technologies for diversified, smaller-scale renewable and new energy sources, for power electronics and electric vehicles low-emission solutions, for "home solutions" to promote energy saving and cut electricity costs through visualization and greater efficiency, and for energy management solutions for factories and buildings.

Among our key achievements in Total Energy Innovation during this past fiscal year were development of: a wide range of Smart-Community related technologies; a lighter, more efficient, low-noise permanent magnet synchronous motor (PMSM) propulsion system that achieves a 20% reduction in energy consumption; a silicon carbide (SiC) inverter that achieves 60% down-sizing in cubic volume and a 20% reduction in power consumption; and our leading-edge SCiB™ rechargeable battery modules for electric vehicles. We began commercial operation of large photovoltaic power generation projects at seven sites in Japan, and we worked all-out to contribute to the efforts to achieve the early stabilization of the Fukushima No. 1 nuclear power station.

TOSHIBA REVIEW Science and Technology Highlights 2012 describes and analyzes our key technological achievements in Total Storage Innovation and Total Energy Innovation during the past fiscal year. I hope you will find the ideas and information contained in this special issue, which focuses on technologies for the future, to be stimulating and useful.