Message from the CTO

Supporting the Group’s Sustainable Growth through Innovation and Speedy Commercialization

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Promoting innovation creation from Group-wide viewpoint

The major direction indicated by Panasonic’s brand slogan, “A Better Life, A Better World,” also extends unchanged to technological development. To continue to create technologies that contribute to “A Better Life” and “A Better World,” the technology sector formulated its R&D 10-Year Vision as a guiding principle for future research and development (R&D). We are now promoting a variety of initiatives in two fields, the IoT/Robotics field and the Energy field.

With regard to our development system, which covers technologies and materials as well as products, we are promoting the move of R&D to the front lines, by which we conduct R&D more closely with our customers, and strengthening our systems and structure to realize more flexible, cross-sectional management. We are also working on

Headquarters-driven organizational reforms to promote innovation creation, which is indispensable for the sustainable growth of the Panasonic Group, from a Group-wide perspective.

Newly established in April 2017, the Business Innovation Division aims not only to develop technologies but also to launch new businesses itself and thus contribute to rapid commercialization. The Technology Innovation Division, which was renamed from the Advanced Research Division in January 2018, also promotes innovation by means of innovative technologies, primarily in the fields of energy and sensing, and aims to contribute to business growth. With the world changing dramatically from an industrial society and information society to a super-smart society, the Panasonic Group will take the lead and accelerate its innovation creation.
Panasonic Technological Capabilities and Manufacturing Capabilities

Technological capabilities and manufacturing capabilities accumulated in consumer electronics
Having diversified from the manufacture of wiring equipment in 1918, Panasonic has been expanding its business scope mainly in consumer electronics. The variety of technological capabilities and range of expertise accumulated and refined in the course of manufacturing that shows a close affinity for the customer are our great strengths.

From visual/imaging, audio/voice to mechatronics (mechanisms) and materials/devices, Panasonic has created a number of products that make society better and more convenient by skillfully combining and amalgamating advanced technologies in a wide variety of fields.

We cannot, however, produce superior products through technological capabilities alone. Advanced manufacturing capabilities are indispensable in the utilization of technology in the pursuit of performance, quality and usability. The advanced manufacturing capabilities include coating, molding, measurement, mounting, machine processing, control, CAE (simulation) and quality control, as well as the adjustment and integration of technologies that interlink these processes. These manufacturing capabilities are another major strength that Panasonic has cultivated, and their importance will not change even in the era of artificial intelligence (AI), IoT and robots.

We will promote innovation based on the two strengths of our technological capabilities, which span a wide range of fields, and manufacturing capabilities, which enable us to make products reliably, while continuing to create new businesses.

Manufacturing from user viewpoint also utilized in B2B
One of the greatest strengths we have cultivated in the field of consumer electronics is knowledge.

"Diverse technological capabilities are Panasonic’s great strength"

Examples of products that have improved Panasonic’s technological capabilities and manufacturing capabilities
and know-how on usability. This is a unique strength of consumer electronics manufacturers who have always considered manufacturing based on the viewpoints of users.

In the world of consumer electronics, before putting products on the market we will thoroughly verify their usability from the viewpoints of users, not only a product’s functions but also its ease of use, including design, and ease of understanding its operation. For example, we conduct drop tests on notebook PCs. This idea is not on the assumption that a notebook PC is a precision machine and will break if dropped and thus is to be handled carefully, but because we regard notebook PCs as consumer electronics and develop them from the viewpoints of users. I think notebook PCs have been accepted by many users for that very reason.

Panasonic currently has many businesses in the B2B field but, as in the case of consumer electronics, we believe that “enabling ordinary people to use machines effortlessly” will be the key to success. In fact, we have received particularly high praise in the services industry area, where consumers come into contact with equipment and systems. One such example is the face recognition gates selected by the Immigration Bureau of the Ministry of Justice. Developed in response to the rapid increase in the number of visitors to Japan, this product is helping to solve the problems associated with a desire to streamline the departure and return procedures for Japanese citizens. One feature of our system is that even if mistakenly placed facing the opposite direction, the passport will still be readable. Although this is a function that would be unnecessary if the system were for professionals, such considerations are important for machines used by ordinary customers. Here, the knowledge and know-how of usability accumulated over many years in consumer electronics is put to use.

As in this case, in accordance with the more widespread use of IT, it is expected that equipment and systems that were traditionally targeted only at experts would be brought to the forefront and that scenarios in which ordinary customers would directly operate them would increase more and more in the future. In such B2B used by C* scenarios, we should be able to demonstrate our strengths further.

* B2B, but where a consumer is the end user

“Enabling ordinary people to use machines effortlessly” is key to success
Message from the CTO

Initiatives to Accelerate Innovation

Picking up the pace of innovation to adapt to changes in the operating environment

Today we are in an era that is undergoing a rapid transition to a super-smart society, and amidst this, a transformation to digital and IoT is taking place across a range of fields. To come out on top when faced with dramatic change, it will be critical to transform overall business processes in a way that the times demand.

In the past, with mass production and large sales volumes, products became independent of their makers as soon as they were shipped from the factory. Now, however, we are in the era of IoT, where all kinds of things are connected to the Internet. Even after a product is shipped, it serves as a way to link a maker with its customers, enabling usefulness to be provided in an ongoing manner. We can say that this is technology that rebuilds what was once the bond between people. By moving quickly to expand this kind of “fusion-type business of hardware and networks” we are bringing to bear our wide-ranging accumulation of technological and manufacturing capabilities that, we are confident, will lead to the creation of value for our customers.

Going forward, the very way we bring about technological development will itself need to change. Technology in the age of mass production for “unspecified and large numbers” of customers was expected to be perfect. However, in the age of IoT, where it is possible to target a “specified and large number” of customers, the most important aspect of technology development is, rather, in “the process whereby customer value is realized.” Looking for perfection right from the start, as in the past, is something that will actually impede innovation. It will be essential to nurture a culture in which “imperfection” will be permissible. For that reason last year we established Panasonic β in Silicon Valley as a test site for innovation creation. We believe that this initiative will be a starting point that works across Business Divisions, and we intend to spread this culture throughout the Group.

TOPICS

Panasonic β, Test Site for Innovation Creation

Established in Silicon Valley in the United States in July 2017, Panasonic β is a new initiative for undertaking collaboration that transcends organizational and functional boundaries. Having commenced activities driven primarily by young engineers and designers brought together from each Divisional Company and the head office, the organization was formally established in April 2018.

Creating new business models and solutions from a global perspective requires the promotion of cross-sectional collaboration across various functions and Business Division frameworks as well as the processes to “mass produce” cross-value innovation.

As a model factory geared toward those needs, Panasonic β realizes ways of working and a working environment akin to those of a start-up company. With a sense of urgency, its young, talented employees are promoting diverse projects that will give shape to ideas, and output from, firstly, the HomeX project to create the future of living spaces is ongoing.

Based on the breadth of our business areas and the strengths of our diverse human resources and technological capabilities, we will quickly make an unprecedented “business model for the digital networking era” and roll out that model across the entire Group by digitally transforming the processes involved in our supplier and workforce relationships.
Panasonic possesses a range of widely diverse manufacturing sites. We have factories that are primarily engaged in processes related to materials/devices, and factories that assemble rice cookers, refrigerators, and others. There are also locations responsible for installing software. This diversity is a characteristic of Panasonic’s manufacturing, and I believe it to be a major strength in meeting the wide-ranging customer demands in these times when the operating environment is changing at a bewildering pace.

The mission of the Manufacturing Technology and Engineering Division for which I am responsible is to leverage the manufacturing strengths that we have cultivated in the course of the Company’s long history in resolving the problems faced by customers and society. Innovation — by bundling, combining or bringing about the evolution of a wide variety of core technologies, and amalgamating them with newly developed technologies and external technologies — will lead to new solutions, products and businesses. To that end, we are currently promoting innovation in manufacturing from two aspects.

First are our efforts to further refine the Business Division-based manufacturing that is the Company’s forte. In developing smart manufacturing through efforts that fully utilize IT, we are aiming to speedily supply products in a way similar to mass-produced products to fulfill diverse customer orders. At the production preparation stage, we will utilize digital technologies, such as IoT and AI, derive the optimal production method and conduct process design. After the start of production, by means of dynamic production management compatible with order status we will resolve the bottlenecks in low-volume, high-mix production by the optimization of lot size and production sequences, shortening lead times. Through IoT, we will also gather and store all of the enormous amounts of factory information, while utilizing AI to find the mechanisms that cause defective products. By these means, we will conduct predictive management and aim for zero defective products.

Second are our efforts to combine core technologies from inside and outside the Company to thereby create new value. These are our efforts in Cross-Value Innovation. We are lending our support from the manufacturing angle to new trials that cross Business Divisions, like Panasonic β. As a part of these efforts, we are currently giving form to new ideas/concepts as quickly as possible and working on “rapid manufacturing” to collaborate with customers.

In addition to the aspects mentioned above, we are also promoting efforts in so-called circular economies, such as the recycling of resources and energy and waste-free production, from the environmental point of view. After having made things and delivered them to customers, they are turned back into materials again by recycling and lead to the design of the next product. Taking all of this into consideration, we will promote efforts towards a recycling-oriented society, such as easy-to-recycle designs. Efforts toward factories that emit zero CO2 are also of importance. In conjunction with the Panasonic Environment Vision 2050, in addition to minimizing energy at the time of manufacturing, we will also work on the energy-saving qualities of our products and on energy creation.

Since its foundation, it has been the Company’s policy to honestly respond as customers and their issues have become clear. As the Company’s business shifts to B2B, we are proud of our ability to be in tune with our new customers and will continue to solve the issues they face in a consistent and honest manner. For example, we are able to manufacture automotive batteries with high quality and safety features that meet our customers’ needs. You can do a good job if you have points of contact with customers, and the same applies to manufacturing. Backed by the wide-ranging manufacturing and technological strengths that the Company has accumulated, we will face and collaborate with customers to accelerate the creation of innovation.
I think that the most important thing for researchers is to find problems to solve. In anticipation of the practical applications of products that bring about innovation, we set the issues that must be solved and objectives, and it is important to clearly indicate the specific methods used to resolve issues by the very best, original or leading technologies. Technological developments must be commercialized and lead to social contributions. I personally joined Panasonic after working for an overseas national laboratory and switched to thinking that, since it is a corporate research institute, it is important to know how to connect advanced research to business and how to convert that research into cash. Only when we have achieved that does it become possible for us to contribute something to the Company that leads to a contribution to society. Creating something of merit in technological development involves asking two questions: what is lacking to bring this into the world and of what value will this be to customers? For innovation to occur, the answers to these questions have to be provided first. The Technology Innovation Division aims to create new businesses that will become Panasonic’s growth engine over the medium-to-long term. For that reason, we are looking at where we should make changes and what areas should be extended and are making progress with reforms.

We engage in technological development in four layers. The layer that takes up the most in terms of resources is the “core technology for energy & sensing” layer, in which we aim to make a contribution to business in three years or so. Taking around half of the remaining resources is the “emerging technology for new markets” layer that addresses roughly five-year aims. The other two are the layer that changes an R&D process itself and the layer that aims to create the seeds of completely new kinds of game-changing technologies in an international competitive environment. Panasonic has at its disposal a vast array of technologies and enormous amounts of data that the Company has accumulated in the course of its long history. Its talent pool is equally vast. These are the Company’s major strengths. For example, in fields such as batteries and image sensors, the level of in-house engineers is already high, and we are setting precise KPIs and making progress in making a contribution to business. On the other hand, we are actively incorporating wisdom from outside the Company into the development of new fields and new core technologies. Moreover, rather than aiming for a completely new market with a completely new technology, I believe that a “go beyond halfway” approach would be effective. One example is exploring the possibilities in future mobility for the practical use of the strong technologies we possess in rechargeable batteries for automobiles. This approach would be based on our core technologies, such as approaching other markets by drawing on the hydrogen and energy-related technologies that are regarded as our strongpoints.

We are also putting efforts into measures designed to increase the pace of R&D. For example, we are promoting “Materials Informatics” to quickly search for innovative materials to improve the performance of energy devices such as rechargeable batteries by utilizing AI. I believe that the era of relying on a single technology is about to end. I also believe that future technological development should bring about the amalgamation of technologies, not only from electronics but also from different fields, and focus on a world interlinked by AI and IoT. The Company is taking on the challenges in a variety of technological developments in wide business fields, and I myself joined the Company 10 years ago having developed a fascination in this area. Taking full advantage of this strength, we aim to create world-changing innovations.
“R&D 10-Year Vision,” a Policy for Research and Development

The development of technology requires decisions to be made on what path to take while constantly imagining what the destination will be in 10 years’ time. Taking this into account, Panasonic’s “R&D 10-Year Vision” was revamped and announced in fiscal 2016 as a policy for R&D with an eye toward the future. Panasonic has determined two key areas, “IoT/Robotics” and “Energy,” as business fields in which we should apply Group-wide efforts, and this vision lays out our mid-term direction for R&D.

Within IoT/Robotics, we are working to advance the development of technologies associated with AI and sensing, user interface (UI) and user experience (UX). We aim to bring about solutions that contribute to AI robotics home appliances and autonomous driving, as well as the rationalization of store management and logistics.

In the field of Energy, we seek to utilize technologies associated with storage and hydrogen energy with the goal of providing energy solutions for homes and buildings, and for vehicles. Through these efforts our aim is to contribute to solving the issues that face society on the environmental front, such as achieving a low-carbon society.

Panasonic will continue to accelerate innovation creation while looking toward the future, as we aim to realize “A Better Life” and “A Better World.”