Megatrends

For sustainable growth, face the megatrends

As we approach 2030, and the various social changes that are expected to occur, from the perspective of the degree of certainty, the social impact, and the effects on Panasonic’s business, the Company is particularly focusing on the three megatrends of demographics, urbanization, and consumption change. Another, technology innovation, is also a focus as it forms the basis for these social changes.

Panasonic’s Core growth business is an area where sustained growth will be possible by actively concentrating resources as businesses that confront various issues.

In addition, the Co-creation and Revitalization businesses will take on these megatrends, promoting strategies according to business conditions and its characteristics, and working to improve competitiveness.

By facing these megatrends, the Company will move ahead with reforms such as to its business portfolio and business model from the medium- to long-term perspective, aiming to improve its medium- to long-term corporate value and achieve sustainable growth.

* Please refer to the “Points for the New Mid-term Strategy” in the CEO’s message for details of the Core growth, Co-creation, and Revitalization businesses.
1. Demographics

Megatrend
The global population is steadily increasing, especially in newly emerging nations, and China and India, with their massive internal demand, will drive consumption.

However, China and the current advanced nations will all increasingly face declining birthrates and aging populations, and while the potential for growth in housing, consumer electronics, and so on slows, automation will become increasingly important to cope with labor shortages, beginning with labor-intensive industries such as the service industry.

Panasonic’s initiatives
As Panasonic works to expand its businesses in nations and regions where growth is expected in the medium to long term, the Company aims to break away from the conventional style of selling individual products, and establish new business models such as a service business by deepening connections with other companies.

Panasonic will actively obtain new growth opportunities by making industry “smart” (both in manufacturing as well as services such as logistics) and engaging in process innovation in the supply chain through drawing on the manufacturing know-how the Company has accumulated over its history.

World Population
(Billions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Americas/Europe</th>
<th>China/India</th>
<th>China</th>
<th>India</th>
<th>Japan</th>
<th>Asia</th>
<th>Australia</th>
<th>Europe</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>0.5</td>
<td>0.7</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>1960</td>
<td>0.7</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>1970</td>
<td>0.9</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>1980</td>
<td>1.1</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>1990</td>
<td>1.3</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>2000</td>
<td>1.5</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>2010</td>
<td>1.7</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>2020</td>
<td>1.9</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>2030</td>
<td>2.1</td>
<td>3.1</td>
<td>3.1</td>
<td>3.1</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Source: Prepared by Panasonic based on United Nations’ predictions

Wealthy and upper middle class households by country
(%)

<table>
<thead>
<tr>
<th>Year</th>
<th>Americas/Europe</th>
<th>China/India</th>
<th>China</th>
<th>India</th>
<th>Japan</th>
<th>Asia</th>
<th>Australia</th>
<th>Europe</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>20%</td>
<td>10%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>2020</td>
<td>25%</td>
<td>15%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>2030</td>
<td>30%</td>
<td>20%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Source: Prepared by Panasonic based on Euromonitor International’s predictions

Aging rate by country
(%)

<table>
<thead>
<tr>
<th>Year</th>
<th>Americas/Europe</th>
<th>China/India</th>
<th>China</th>
<th>India</th>
<th>Japan</th>
<th>Asia</th>
<th>Australia</th>
<th>Europe</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>5%</td>
<td>15%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>2020</td>
<td>10%</td>
<td>20%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>2030</td>
<td>15%</td>
<td>30%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Source: Prepared by Panasonic based on United Nations’ predictions

* Excluding the Middle East and part of Africa

Megatrends

Panasonic Annual Report 2019

02
2. Urbanization

Megatrend
As the world’s population becomes increasingly urbanized, infrastructure development and renewal will be unable to keep up, and major social issues such as housing shortages, traffic paralysis, and air pollution will only worsen. In newly emerging nations, environmental awareness will increase as the economy grows, and investments into environmental measures will proceed at the national and the global levels.

Already in the mobility field, the next-generation wave, known as CASE*1, has arrived, and EV, autonomous driving, and MaaS*2 will become much more widespread, significantly affecting the automobile industry.

Panasonic’s initiatives
Panasonic is focusing on creating spaces for offices, commercial facilities, and housing that uses air-conditioning and air quality technology that can provide both environment friendliness as well as safety, peace of mind, and comfort.

Panasonic considers the evolution of transport services as a vital part of supporting optimal lifestyles for people, and is moving ahead with initiatives such as a range of devices for the autonomous driving, next-generation ITS, and EVs that are behind the expansion of MaaS.

The Company aims to create towns that utilize electronic technologies from the dual aspects of lifestyles and mobility.

*1 An acronym for Connected, Autonomous, Shared, Electric
*2 An acronym for Mobility as a Service
3. Consumption Change

Megatrend
By 2030, Millennials and Generation Z, the so-called “digital natives,” will be more than 70% of the global population, and be the main consumers. The characteristics, unique economic rationality and social awareness that are the values of these generations will spread globally via the internet, accelerating sharing and personalization.

In line with this, companies will also need to transform their business models to keep pace with the shift to the “as a service” business model.

Panasonic’s initiatives
Panasonic will propose solutions that fit lifestyle changes by making use of the understanding of consumers and the digital technologies it has accumulated over its history.

Specifically, along with further deepening understanding of the lifestyles and health of users using sensing technology, Panasonic aims to provide value optimized for each person’s individual needs by using AI and IoT.

Changes in global population by generation

Scale of the global sharing economy market

Scale of the global e-commerce market

Source: Prepared by Panasonic based on United Nations predictions

Source: Prepared by Panasonic based on PwC predictions

Source: Prepared by Panasonic based on eMarketer’s “Retail Ecommerce Sales Worldwide, 2016-2021”
**4. Technology Innovation (Digitalization)**

**Megatrend**

With the spread of 5G, network speeds will become even faster, and semi-conductors, software, AI, sensors and other computing technology will evolve as well. These two changes will bring about the IoT society, where everything is interconnected.

Massive amounts of data obtained from a range of situations will not only pose a threat to existing industries, but contain the possibility of bringing about new value creation. In the manufacturing industry, dramatic improvements in R&D and the production process through simulations are expected.

**Panasonic’s initiatives**

Panasonic is working to innovate its existing processes based on data, such as the development of consumer electronics and devices based around virtual reality simulations, or searching for new materials by utilizing AI. The Company is tackling the challenge of breakthroughs in lead times, costs, and functionality.

Panasonic is also working on constructing a new business model that will provide solutions and/or services, including things like IoT platforms that respond to business characteristics (B2C/B2B). In addition, the Company is strengthening its initiatives for providing devices and solutions that underpin these technology innovations.

**Technological development of AI based on deep learning**

Source: Prepared by Panasonic based on Yutaka Matsuo (*The Future of Artificial Intelligence,* Ministry of Internal Affairs and Communications)

**Increases in data transmission amounts**

Source: Prepared by Panasonic based on Cisco VNI’s "Predictions and Trends 2017–2022"

**Die shrinkage for semiconductor processes**