Monozukuri Supporting Toyota’s Competitiveness

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Toyota Motor Corporation
I. Period of Once-in-a-Century Revolutionary Change

Electrification, connected technology, automated driving, etc. The automobile industry is undergoing a period of once-in-a-century revolutionary change.

Major crises for the company in the past:
- 1970s oil crisis
- Vehicle emissions regulations
- Japan-U.S. trade friction
- Collapse of the “bubble economy”
- 2008 global financial crisis
- Great East Japan Earthquake
- Recall problems in the U.S., etc.
I. Period of Once-in-a-Century Revolutionary Change

The Toyota Way

- **Challenge**
  - We set a vision and approach for each challenge with creativity and courage toward the realization of our dreams.

- **Kaizen**
  - We always pursue progress and innovation and continuously work on improvement.

- **Genchi Genbutsu**
  - We “go to the source” and check the facts ourselves to identify the true cause. We quickly come to an agreement, make decisions, and execute to the fullest.

- **Respect for People**

- **Communication**

- **Continuous Improvement**

- **Mutual Trust Between Labor and Management/Long Term Stability**

- **Jidoka**
  - (Automation with a human touch)
  - Building Quality into the Process

- **Just-in-Time**
  - Making only what is needed, when it is needed, and in the amount needed

Manufacturing professionals who successfully take on challenges and changes
## I. Revolutionary Once-in-a-century Period of Change

<table>
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<tr>
<th>Production Process</th>
<th>Products</th>
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<tr>
<td><strong>Ring Gear</strong></td>
<td>![Ring Gear Image]</td>
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<tr>
<td>![Manual work Image]</td>
<td>![Automated machine Image]</td>
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<td><strong>HV T/A</strong></td>
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- **Production Process**
  - Manual work
  - Automatic machine

- **Products**
  - Ring Gear
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I. Revolutionary Once-in-a-century Period of Change

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II. Efforts toward Competitiveness Enhancement

Targeted Way of Jidoka

1) Completely establishing work with manual operation until safe work can be securely conducted
2) Thoroughly simple, compact, flexible, easy-to-use, and inexpensive machine/machines that rarely produce defective products
To make a robot write a character beautifully, human (skilled personnel) skill is required.

II. Efforts toward Competitiveness Enhancement

Robot Calligraphy

Person
(Person who has never studied calligraphy)

Robot
(Teaching a robot)

(Person who has studied calligraphy)
II. Efforts toward Competitiveness Enhancement

Snowball Effect of Skills and Technologies

Incorporating into robots the “skills of a craftsman” in manual spraying

Case example of teaching human movement

After improvement

1) Reduction of turning movement at the ends
2) Simultaneous painting on general surface and the ends
II. Efforts toward Competitiveness Enhancement

- Completely establishing production lines with manual work
  - Learning the principles of manufacturing
  - Application of the principles at the manufacturing site

Accumulation of improvement ➞ craftsman’s skill

*Jidoka/Karakuri*

Simple, compact, flexible line
Company’s continuous growth
⇒ For the happiness of individuals 50 years from now

Continuously developing manufacturing professionals who successfully take on challenges and changes