

The White Paper on Monodzukuri 2020 analyzes the current status and challenges of Japanese manufacturing industries and presents four strategies, including strengthening dynamic capabilities and promoting digital transformation, that those industries should employ in a world of heightened uncertainty as seen in the novel coronavirus pandemic and growing geopolitical risks.

1. Outline of White Paper on Monodzukuri 2020

The White Paper on Manufacturing Industries is a statutory report based on the Basic Act on the Promotion of Core Manufacturing Technology (enacted under the sponsorship of lawmakers and put into effect in 1999). This is the 20th annual report, jointly written by the Ministry of Economy, Trade and Industry (METI), the Ministry of Health, Labour and Welfare (MHLW) and the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

2. Contents

General: Dynamic Capabilities of Manufacturing Industries in the Age of Uncertainty

Part I Current Status and Challenges of Manufacturing Infrastructure Technology

Chapter 1 Challenges facing Japan's Manufacturing Industries and Its Future (METI)

Chapter 2 Securing and Developing Manufacturing Human Resources (MHLW)

Chapter 3 Education, Research and Development Supporting Manufacturing Infrastructure (MEXT)

Part II Policy Measures Taken in FY2019 for Promoting Manufacturing Infrastructure Technology

3. Key Points of the 2020 White Paper on Manufacturing Industries

The white paper presents the following new strategies that Japanese manufacturing industries should employ as they confront the need for dramatic changes, e.g., reorganization of supply chains, amid continuous uncertainty as seen in expansion of the novel coronavirus disease, the trade disputes between the United States and China, and growing geopolitical risks.

(i) Need to strengthen dynamic capabilities

In a world in which companies are experiencing changes in their surrounding environments and many situations are difficult to forecast, it is important for them to strengthen dynamic capabilities, or capabilities to change themselves in accordance with those changes, by reorganizing internal and external resources as a way to maintain a wellspring of competitiveness.

(ii) Need to promote digital transformation as a factor that strengthens dynamic capabilities

Dynamic capabilities can be strengthened by using digital technology to collect and analyze real-time data. Therefore, in the future, it will be important to promote data collaboration between business divisions, including design, manufacturing, sales and services divisions, and between customers and suppliers while taking advantage of Japanese manufacturing industries' strength in factory-floor skills.

(iii) Need to enhance design ability

In manufacturing industries, it is said that 80% of the quality and cost of products depends on the design stage. Therefore, promoting data collaboration between business divisions and between companies and

realizing virtual engineering by digitizing the design process is important for strengthening dynamic capabilities. However, at present, digitalization and data collaboration have not advanced sufficiently in the manufacturing industries.

(iv) Need to fortify human resources

It is essential to focus on the importance of personnel with digital skills who can enable collaboration between business divisions and between processes in digital transformation and personnel capable of systems thinking, which looks at the whole of a business while taking into consideration total optimization, rather than individual optimization for specific business divisions.