# FROM MIDEC TO NEW MIDEC: CAPACITY BUILDING AND THE FUTURE OF INDONESIA-JAPAN AUTOMOTIVE COOPERATION

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## ABSTRACT

This study analyzes the cooperation between Indonesia and Japan through the New Manufacturing Industry Development Center (New MIDEC) program in strengthening the capacity of Indonesia's automotive industry during the 2019–2024 period. As a continuation of the previous MIDEC under the Indonesia–Japan Economic Partnership Agreement (IJEPA), the program aims to enhance the competitiveness of the national automotive sector through human resource development, technology transfer, and industrial strengthening. Employing a descriptive qualitative method, data were collected through document analysis and in-depth interviews with officials from the Ministry of Industry. The findings reveal that New MIDEC has made a significant contribution to human resource capacity building, particularly through modular training and the empowerment of small and medium-sized enterprises (SMEs). Nevertheless, its implementation continues to face challenges, including technological gaps and limited adoption of advanced technologies by domestic industries. Accordingly, this study recommends strengthening cross-sectoral collaboration and optimizing technology transfer to ensure that New MIDEC delivers greater benefits for the development and global competitiveness of Indonesia's automotive industry.

**Keywords**: New MIDEC, IJEPA, Capacity Building, Automotive Industry

## *ABSTRAK*

*Penelitian ini menganalisis kerja sama Indonesia–Jepang melalui program New Manufacturing Industry Development Center (New MIDEC) dalam upaya penguatan kapasitas industri otomotif*

*Indonesia pada periode 2019–2024. Program ini merupakan kelanjutan dari MIDEC sebelumnya yang menjadi bagian dari Indonesia–Japan Economic Partnership Agreement (IJEPA), dengan tujuan meningkatkan daya saing industri otomotif nasional melalui pengembangan sumber daya manusia, transfer teknologi, dan penguatan sektor terkait. Penelitian menggunakan metode kualitatif deskriptif dengan teknik pengumpulan data berupa studi dokumen dan wawancara mendalam dengan Kementerian Perindustrian. Hasil penelitian menunjukkan bahwa New MIDEC berkontribusi signifikan terhadap peningkatan kapasitas sumber daya manusia, terutama melalui pelatihan modular dan penguatan industri kecil dan menengah (IKM). Meski demikian, implementasinya masih menghadapi sejumlah kendala, antara lain kesenjangan teknologi dan rendahnya tingkat adopsi teknologi oleh industri domestik. Oleh karena itu, penelitian ini merekomendasikan penguatan kolaborasi lintas sektor serta optimalisasi alih teknologi agar New MIDEC dapat memberikan manfaat lebih besar bagi pengembangan daya saing industri otomotif Indonesia di tingkat global.*

***Kata kunci**: New MIDEC, IJEPA, Capacity Building, Industri Otomotif*

## INTRODUCTION

Countries may engage in cooperation to achieve economic goals through international collaboration, particularly at the bilateral level. Bilateral cooperation within the framework of free trade agreements (FTAs) can enhance foreign investment, expand market access, and reduce both tariff and non-tariff barriers (Arif, 2022). FTAs are widely regarded as one of the most significant bilateral and regional agreements in the digital era (Chow, 2004).

Within bilateral or regional frameworks, FTAs tend to be more effective because of the trust built through direct interactions between participating states. With a limited number of member countries, such agreements allow for deeper arrangements and simpler monitoring mechanisms, thereby reducing the likelihood of treaty violations or withdrawal. Moreover, geographical proximity often strengthens trust and facilitates economic cooperation between states, ultimately reinforcing the implementation and benefits of the agreements (Plummer, M. G., Cheong, D., & Hamanaka, S., 2010).

Leveraging bilateral frameworks as an effective mechanism can accelerate economic transformation in a country, enhancing its

international trade and enabling it to become more productive and competitive in participating in global production systems (Malik, 2020).

The concept of an Economic Partnership Agreement (EPA) serves as a strategic foundation for many countries because of its broad coverage and its objective of supporting comprehensive economic growth. Essentially, an EPA is a form of free trade agreement that not only reduces or eliminates tariffs on goods but also encompasses investment, intellectual property rights protection, cooperation in the services sector, and other areas of economic collaboration (Japan External Trade Organization, 2009).

In strengthening economic partnerships with partner countries, Japan has adopted the EPA concept to cover cooperation in technology, human resource development, infrastructure, tariff elimination, and even customs procedures (Kawai, M., & Wignaraja, G., 2011).

In this context, Indonesia emerges as one of Japan's strategic partners, given its economic potential and the need to enhance competitiveness through deeper cooperation. Consequently, the Indonesia–Japan Economic Partnership Agreement (IJEPA) became a concrete step in implementing the EPA concept to establish mutually beneficial economic relations.

IJEPA represents a bilateral economic partnership agreement that links Japan with several developing countries, including Indonesia. To strengthen their economic partnership, Indonesia and Japan signed the IJEPA on 20 August 2007, which came into effect on 1 July 2008, with the objective of fostering mutually beneficial bilateral economic relations through trade cooperation and investment facilitation (Darmastuti, S., Bainus, A., Sumadinata, W. S., & Heryadi, R. D., 2022). Furthermore, IJEPA promotes economic relations between the two countries through capacity building, liberalization, promotion, and facilitation of trade and investment.

The automotive industry is a fundamental sector that contributes significantly to Indonesia's national economy. Its contribution is evident in value-added creation, large-scale employment generation, and sustained competitiveness resulting from participation in global supply chains. To strengthen the national automotive sector, it is essential to enhance the quality of human resources (HR) among suppliers so they can meet international standards and compete globally.

Automotive cooperation under the IJEPA framework has been implemented through the Manufacturing Industry Development Center (MIDEC), one of the cooperation areas stipulated in the agreement. MIDEC was designed to strengthen the competitiveness of Indonesia's domestic manufacturing industry across sectors. Indonesia seeks to enhance the competitiveness of its domestic industries, particularly in terms of production value. The IJEPA's implementation, especially through the User Specific Duty-Free Scheme (USDFS), which offers zero tariffs, creates competition between Indonesian and Japanese products in the market (Mursitama, T. N., Noerlina, & Sabrina, A., 2019). MIDEC covers human resource capacity building, trade tariff arrangements, basic studies, training for trainers and trainees, as well as technological advancement (Tunggal, A. R., & Nugroho, R. C., 2019).

Through MIDEC, Indonesia expects that local products can compete in the global market. The program is also intended to enhance the competitiveness and quality of Indonesian small and medium-sized enterprises (SMEs) through technology transfer and productivity-enhancing training supported by Japan. However, this objective has not been fully realized, partly due to mismatches between the needs of the automotive industry and the capacities of Indonesian SMEs, as well as technological gaps between Indonesian and Japanese SMEs. Another weakness in MIDEC's implementation lies in the limited effectiveness of Japan's knowledge transfer to Indonesia, which includes basic studies, training, and seminars/workshops. This reflects Japan's tendency to restrict knowledge transfer so that Indonesia's industry does not exceed Japan's technological capacity (Kambey, 2016).

In 2019, Indonesia and Japan signed the Framework Document on the New Manufacturing Industry Development Center (New MIDEC). In the same year, both governments began negotiations to review cooperative initiatives under the IJEPA and formulated New MIDEC as a renewed commitment to cooperation. Within this framework, both governments recognized the automotive industry as one of the priority sectors and a key focus of bilateral cooperation (Japan International Cooperation Agency, 2021).

The signing of New MIDEC marked a new chapter in Indonesia–Japan manufacturing cooperation. Human resource development also became a central focus. The Indonesian Minister of Industry proposed industrial workforce exchanges between the

two countries to enhance skills and competitiveness. Indonesian workers trained in Japan are expected to contribute to the domestic industry, whether in Japanese-owned companies or by supporting local startup ecosystems.

In particular, the automotive sector was selected as the first target of the "quick win" program, with two pilot initiatives: (1) the Human Resource Development Project in the Mold and Dies Sector for the Automotive Industry, and (2) the Human Resource and Manufacturing Operations Development Project in the Automotive Industry to support the "Making Indonesia 4.0" initiative. These projects aim to enhance Indonesia's global competitiveness by improving the quality and efficiency of local automotive component production, while also encouraging investment in environmentally friendly technologies such as electric and hybrid vehicles in line with Indonesia's commitment to reducing carbon emissions.

Given these circumstances, it is evident that IJEPA has had a positive impact on the automotive sector as a fundamental industry contributing to Indonesia's national economy. Nonetheless, challenges remain, as Indonesia has yet to achieve significant progress in developing its automotive manufacturing industry. To strengthen the sector through human resource development, technology transfer, and global competitiveness, the signing of New MIDEC in 2019 was expected to support the growth of Indonesia's automotive industry.

Thus, the central research question becomes: "How does capacity building through the New MIDEC program contribute to human resource development in Indonesia's automotive industry during 2019–2024?" This study specifically examines the case of New MIDEC as a bilateral cooperation initiative in the automotive sector under IJEPA.

The study seeks to provide insights for policymakers and industry stakeholders to optimize the IJEPA framework through New MIDEC, particularly in strengthening human resources in the automotive sector via training and technology transfer to enhance global competitiveness. Theoretically, this research contributes to the study of bilateral economic cooperation and capacity building in the context of strengthening Indonesia's automotive industry. Practically, the findings are expected to help the government and industry actors design more effective human resource development policies to support the sector's competitiveness in international markets.

In an effort to strengthen its economy through international trade, Indonesia engages in various collaborations with several countries. Research by Suwardi, Rustono, and Sudjarwo (2023) found that international trade has a significant positive impact on Indonesia's Gross Domestic Product (GDP).

International trade policies, including tariffs and trade agreements, have a major effect on the automotive industry, which in turn influences its contribution to GDP growth. Prior studies have also demonstrated that the Indonesia-Japan Economic Partnership Agreement (IJEPA) benefits Indonesia in both the short and long term, generating job opportunities, providing environmentally friendly automotive products, and fostering a correlation between the automotive industry and per capita GDP growth. Additionally, Japan's continued interest in investing in Indonesia's automotive industry and the resulting transfer of technology have helped improve the quality of domestic automotive products (Hidayat & Zahidi, 2023).

Avivi & Siagian (2020) further note that Japan's increased investment in strategic sectors, including automotive, has provided Indonesia with broader access for its exports to the Japanese market. Hidayat & Purwono (2022) also emphasize that IJEPA boosted Japanese investment in Indonesian manufacturing from 2008-2018 and had a significant impact on Indonesia's motor vehicle exports to Japan, despite the Indonesian automotive industry not being fully competitive on a global scale.

Furthermore, Khalidazzia (2024) found that Indonesian workers have benefited from training and technology transfer, which has enhanced domestic competitiveness and Indonesia's regional standing.

However, some research also highlights the negative impacts of this collaboration. Tunggal & Nugroho (2019) argue that Japan's dominance has hindered Indonesia's potential to build an independent automotive industry due to the limitations on implementing protectionist policies under IJEPA. Rivai (2017) suggests that IJEPA, through the Motorcycle and Parts Industry Development Cooperation (MIDEC), has not yielded significant results, primarily due to a lack of optimal technology transfer from Japanese companies like Toyota. This dependency on Japan is also seen as an impediment to the development of the national automotive industry.

## CONCEPTUAL FRAMEWORK

In qualitative research, theory not only clarifies the phenomenon under study but also serves as an analytical tool aligned with the objectives of the research (Tosepu, Y. A., 2018). Accordingly, this study employs three key concepts: international economic cooperation, the Economic Partnership Agreement (EPA), and capacity building.

**International economic cooperation**

International economic cooperation refers to inter-state relations in the economic domain aimed at enhancing economic welfare, accelerating growth, and strengthening national economic structures through cross-border collaboration (Handayani, 2024). According to Robert O. Keohane, international economic cooperation involves the creation of rules and mechanisms that enable states to coordinate economic policies despite having divergent interests. Keohane (1984) highlights the importance of international institutions in facilitating cooperation, as such institutions help minimize uncertainty, enhance transparency, and create predictability. These institutions may take the form of international organizations, international law, as well as bilateral or regional agreements—formal or informal in nature (Rosyidin, 2022).

Globally, international economic cooperation develops in several forms: bilateral, regional, multilateral, and interregional. Bilateral cooperation involves two countries sharing common interests in trade, investment, or industrial strengthening. Such cooperation is typically more flexible and directly oriented toward the strategic priorities of both parties. Regional cooperation occurs among several countries within a specific geographical area to reinforce shared economic interests. Multilateral cooperation involves more than two states across regions, collaborating within global forums such as the WTO or IMF to establish policies supporting free trade. Meanwhile, interregional cooperation seeks to strengthen economic ties between groups of countries or regions, such as ASEAN and the European Union (Handayani, 2024).

International economic cooperation thus becomes a key instrument for states to broaden their networks of interests—political, economic, security-related, and cultural. In recent developments, global issues such as the Fourth Industrial Revolution, economic digitalization, and security challenges have significantly shaped bilateral economic cooperation (Rana, 2007). Good relations between states serve as the

foundation for creating mutually beneficial cooperation, not only for political elites or large corporations but also for the broader welfare of society (Schuett, 2010).

**Economic Partnership Agreement**

The Economic Partnership Agreement (EPA) is a model of international trade agreement that extends beyond tariff liberalization to encompass aspects of development, regional integration, capacity building, and technical cooperation. EPAs are designed to assist developing countries, particularly those within the ACP (African, Caribbean, and Pacific) group, to integrate more effectively into the global economy, enhance competitiveness, and diversify exports (OECD, 2009).

Typically, EPAs cover trade in goods and services, intellectual property rights, customs procedures, government procurement, technical standards, and private-sector development support. In practice, EPAs aim to facilitate trade, address non-tariff barriers, and comply with WTO rules governing international trade agreements. EPAs are positioned as an extension of Free Trade Agreements (FTAs), with stronger emphasis on economic and social development as integral to trade liberalization (Schöning, 2007).

EPAs are built upon four key principles. First, partnership, reflecting mutual rights and responsibilities between parties. Second, regional integration, encouraging regional economic strengthening before entering the global market. Third, development, as the ultimate objective of EPAs, to build the capacity of developing countries to compete and improve welfare. Finally, WTO-compatibility, meaning that EPAs must adhere to WTO regulations while promoting freer and fairer trade across regions.

In Asia, EPAs have expanded into broader frameworks of economic cooperation, covering manufacturing, labor, technology, and innovation. Japan, as one of the pioneers of EPAs, has utilized this framework to strengthen bilateral relations with developing countries, including Indonesia. In such bilateral cooperation, EPAs provide opportunities for domestic industry development through capacity building programs, technology transfer, and the strengthening of production standards (Firdaus, 2014). EPAs are thus strategic instruments to help developing countries respond to globalization by enhancing industrial capacity, improving human

resource quality, and promoting industrialization.

Within this study, the Indonesia–Japan Economic Partnership Agreement (IJEPA) serves as a concrete example of EPA implementation, encompassing multiple dimensions of cooperation, including the strengthening of the automotive sector through New MIDEC. This demonstrates how an EPA extends beyond tariff issues to include technology transfer, human resource training, and industrial capacity building as part of a national development strategy.

**Capacity building**

Capacity building is a concept closely tied to efforts aimed at enhancing the capabilities of individuals, organizations, and institutions to achieve sustainable development goals. According to Soeprapto (2003), capacity building seeks to assist governments, communities, and individuals in developing the skills, knowledge, and resources necessary to improve performance and effectiveness. It may take the form of training, institutional reform, technology provision, or financial assistance (Haryono, B. S., Sumartono, Zauhar, S., & Supriyono, B., 2012).

Grindle (1997) divides the concept of capacity building into three main dimensions. First, human resource development, which focuses on enhancing technical and professional capacities through training, improved work systems, and the strengthening of individual competencies to compete globally. Second, organizational strengthening, emphasizing improvements in systems, structures, governance, and organizational culture to become more adaptive to external changes. Third, institutional reform, which relates to policy, regulatory, and legal changes to create an ecosystem conducive to comprehensive capacity building.

Capacity building is also closely linked to human resource management, which aims to improve workforce quality, productivity, and professionalism. Effective HR management fosters more competitive and adaptive organizational performance. As such, capacity building is often adopted as a long-term strategy by developing countries to strengthen strategic sectors, including the automotive manufacturing sector, which demands skilled human resources, advanced technology, and efficient production systems (Haryono, B. S., Sumartono, Zauhar, S., & Supriyono, B., 2012).

In this study, capacity building serves as the primary analytical framework for assessing how the implementation of New

MIDEC contributes to strengthening human resources in Indonesia's automotive sector. The program reflects the application of the capacity building concept through training, technology transfer, and organizational capacity strengthening of automotive suppliers. The three dimensions proposed by Grindle (1997) are applied to analyze the extent to which this program enhances HR quality, strengthens industrial institutions, and promotes reforms that bolster Indonesia's competitiveness in the global automotive market.

## RESEARCH METHOD

This study employs a descriptive qualitative approach using a case study method. Qualitative research aims to achieve an in-depth understanding of phenomena that cannot be reduced to statistical figures but rather require narrative explanations that emphasize context and the social meaning behind ongoing processes (Bogdan, R. C., & Biklen, S. K., 1998).

Through the case study design, the researcher seeks to provide a comprehensive account of policy dynamics, actors, and the process of implementing the New MIDEC program, including its contributions to strengthening human resource, organizational, and institutional capacity in the national automotive sector (Raco, J. R., 2010).

The research design was structured systematically to obtain a comprehensive picture of the contribution of Indonesia–Japan bilateral cooperation through the New MIDEC program. The focus of the study is directed at analyzing the linkages between this program and efforts to strengthen human resource and organizational capacity in Indonesia's automotive industry, particularly in enhancing national competitiveness in the global market. The object of this study is the implementation of New MIDEC as part of the IJEPA bilateral cooperation, with emphasis on strengthening the automotive sector. The selection of this sector is based on its strategic role in the national economy, both in terms of GDP contribution, employment absorption, and interconnections with other industrial sectors.

Data analysis in this study follows the Miles and Huberman model, which consists of three main stages: data reduction, data display, and conclusion drawing. Data reduction was carried out by selecting and simplifying relevant information in line with the study's focus, namely the contribution of New MIDEC to strengthening human resource and organizational capacity in the

automotive sector (Salim dan Syahrum, 2012).

The reduced data were then systematically presented in descriptive narrative form, enabling the researcher to identify patterns of relationships across the data and support further analysis. Conclusion drawing was conducted by interpreting the analyzed data to uncover the connections between New MIDEC implementation and capacity building outcomes. To ensure data validity, triangulation of sources, techniques, and timing was applied. This involved comparing data from different informants, integrating interview results with document studies, and examining the consistency of information across the research period (Creswell, J. W., 2009).

## FINDINGS AND DISCUSSION

### The Transformation of MIDEC into New MIDEC within the IJEPA Framework

Indonesia and Japan initiated their cooperation under the IJEPA through general tariff reduction schemes and trade facilitation via the User Specific Duty-Free Scheme (USDFS). As compensation for USDFS, Japan established the Manufacturing Industry Development Center (MIDEC) initiative to assist Indonesia in building industrial capacity. The MIDEC initiative began in 2008 as part of the IJEPA framework (Tarumingkeng, 2025).

As a member of the IJEPA Industrial Sector Implementation Team, MIDEC was established under the Ministry of Industry Regulation No. 77/M-IND/PER/9/2007 of 27 September 2007 (Kementerian Perindustrian, 2007). Under this framework, Japan provided reciprocal support in the form of MIDEC to enhance domestic industrial competitiveness and foster self-reliance through training, labor exchanges, study visits, and seminars related to industrial performance improvement (Tunggal & Nugroho, 2019).

In accordance with the Joint Statement of the IJEPA signing on 20 August 2007, under the cooperation section, both governments agreed to promote industrial development in various sectors, including automotive, electronics, steel, textiles, petrochemicals, and SMEs ((FTA Center, 2007).

Within MIDEC, the automotive sector was prioritized and organized into three Sub-Working Groups (SWGs): (1) Human Resource Development, (2) Cooperation in adopting UNECE standards, and (3) Strengthening Research and Development (R&D) (Nomura Research Institue, 2013).

These sub-groups sought to improve product quality, align domestic standards with international regulations, and strengthen automotive R&D capacities. For instance, the Human Resource Development SWG implemented quality control and productivity enhancement training through the Kaizen method, with direct mentorship from Japanese master trainers (Amirulah, & Masruroh, 2020).

Another program, International Recognition, supported the adoption of UNECE 1958 Agreement standards through seminars and workshops involving GAIKINDO and JASIC Japan. Meanwhile, the R&D SWG emphasized testing on noise, fuel alternatives, and materials, collaborating with Indonesian research institutions (Nomura Research Institue, 2013).

Despite these initiatives, MIDEC's implementation between 2008 and 2013 faced several challenges. Evaluations revealed that, although more than 80 training and technical assistance activities were conducted, the program's overall impact on industrial productivity was limited. Weaknesses included the absence of formal performance indicators, gaps between SME needs and technological capabilities, and limited effectiveness of Japan's knowledge transfer. This reflected Japan's cautious strategy to limit technology transfers, thereby maintaining its technological superiority over Indonesia (Tarumingi, A. C., Sushanti, S., & Nugraha, B. W., 2024).

Recognizing these shortcomings, Indonesia and Japan conducted a general review of IJEPA between 2013 and 2019. This culminated in the signing of the Framework Document on New MIDEC during the 2019 G20 Summit in Osaka. New MIDEC was formulated to align with the "Making Indonesia 4.0" initiative, focusing on industrial digitalization and strengthening competitiveness in priority sectors such as automotive, electronics, textiles, and food and beverages. Unlike the earlier MIDEC, New MIDEC placed greater emphasis on capacity building through digital transformation, lean manufacturing, and environmental sustainability (Kementerian Perindustrian, 2025).

Two pilot projects were launched in the automotive sector under New MIDEC:

1. Human Resource Development in Mold and Dies – aimed at improving the skills of vocational school teachers, engineers, and SMEs in designing and producing molds and dies to support local automotive production.

2. Human Resource and Manufacturing Operations Development – intended to

enhance SME competitiveness and support the adoption of Industry 4.0 through lean manufacturing, digital lean, IoT, automation, and smart inventory systems.

These pilot projects signified a new chapter in Indonesia–Japan cooperation, positioning the automotive sector as the first target for quick wins. They also emphasized Japan's continued role in providing technical expertise and Indonesia's efforts to localize component production, strengthen SMEs, and prepare its workforce for global competition (Kementerian Perindustrian, 2025).

**Capacity building through New MIDEC in Indonesia's automotive industry**

In June 2019, the Governments of Indonesia and Japan signed the Framework Document on New MIDEC as a cooperative initiative in industrial development. In the same year, both countries also began renegotiating existing cooperation under IJEPA, culminating in the establishment of the New Manufacturing Industry Development Center (New MIDEC) as a renewed commitment to strengthening collaboration. Within this framework, both governments agreed to designate the automotive industry as one of the priority sectors and a primary focus of bilateral cooperation (Japan International Cooperation Agency, 2021).

According to the framework document signed by Japan's Ministry of Economy, Trade, and Industry (METI) and Indonesia's Coordinating Ministry for Economic Affairs, the scope of cooperation includes strengthening the competitiveness of the manufacturing industry through improvements in management, technology, and research and development. Forms of cooperation include joint research, knowledge and technology exchange, capacity building, and the organization of seminars and dialogues. The tangible implementation of New MIDEC is reflected in two flagship pilot projects in the automotive sector (a) The Human Resource Development in Mold and Dies Industry Project, and (b) The Human Resource and Manufacturing Operations Development Project in support of the Making Indonesia 4.0 initiative (Kementerian Perindustrian, 2025).

**Human resource development project**

This project focused on transferring knowledge and skills through training for vocational school teachers, particularly those specializing in mechanical and electrical engineering. The initiative was jointly

organized by the Ministry of Industry, IMDIA Indonesia, and Panasonic, with the participation of school principals to ensure institutional support. The goal was to improve the skills of vocational educators in mold and dies technologies relevant to industry needs.

Additionally, the Japan External Trade Organization (JETRO) Jakarta, in collaboration with the Directorate of Industrial Resource Access and Promotion of the Ministry of Industry and IMDIA, organized seminars and exhibitions on mold and dies development in Indonesia. These events highlighted opportunities for domestic component production for the automotive and electronics sectors. Reverse Exhibitions were also held to connect local SMEs with large-scale industries, encouraging import substitution by showcasing the capabilities of Indonesian mold and dies companies. For example, Reverse Exhibition 3 involved 35 companies, six of which actively sought local partners. These initiatives demonstrated the strategic role of mold and dies in enhancing localization and reducing dependency on imports (Kementerian Perindustrian, 2025).

**Human reesource and manufacturing operations development project**

As part of supporting the Making Indonesia 4.0 roadmap, this project emphasized strengthening human resources through the adoption of Japanese digital manufacturing technologies, particularly Lean Automation, a hallmark of Japan's industrial efficiency. Training programs such as New Lean Manufacturing for Making Indonesia 4.0 (New LeMMI 4.0) were introduced to enhance workforce readiness for digitalized manufacturing processes (Kementerian Perindustrian, 2025).

Training content included Lean Monozukuri, Lean Manufacturing, Lean Maintenance and Automation (LCA), and Digital Manufacturing. Participants engaged in both theoretical and practical modules using demonstration tools, such as bottle cap production systems at STMI Jakarta and PIDI 4.0. The program was designed to prepare the automotive industry workforce to adapt to Industry 4.0 transformations (Kementerian Perindustrian, 2025).

From 2021 to 2024, New LeMMI 4.0 training was delivered to lecturers, students, industrial workers, and civil servants. More than 200 participants were trained through various methods, including Training of Trainers (ToT), demonstration-based learning, and industry-oriented modules. The establishment of PIDI 4.0 as an innovation hub and the construction of satellite facilities at STMI Jakarta further reinforced

Indonesia's commitment to strengthening its automotive human resources in alignment with Industry 4.0. (Kementerian Perindustrian, 2025).

**PPPVI and AOTS Japan collaboration**

Another significant initiative was the collaboration between PPPVI and AOTS Japan to strengthen vocational school teachers, university lecturers, and industrial workers through training in Japanese workplace culture, particularly the 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke) and Kaizen methods. From 2019 to 2024, over 600 participants joined these programs, which were conducted both domestically and in Japan (Subkoordinator Fungsional Pengembangan Pendidikan, 2025).

These training activities not only introduced best practices in Japanese manufacturing but also emphasized productivity improvement, energy efficiency, and defect reduction. Participants developed implementation plans and Key Performance Indicators (KPIs) for their respective institutions and companies, supported by follow-up mentoring. This comprehensive training structure reinforced Indonesia's efforts to embed Japanese productivity culture into its manufacturing workforce (Astuti, 2024; Sugara et al, 2021).

**Reflection on capacity building**

The New MIDEC program illustrates the practical application of Grindle's (1997) three dimensions of capacity building:

1. Human Resource Development – Evident in training initiatives such as New LeMMI 4.0, mold and dies training, and Kaizen/5S programs, all of which enhanced technical competencies, professional skills, and workforce productivity.

2. Organizational Strengthening – Achieved through support for tier-2 and tier-3 automotive suppliers in adopting lean manufacturing systems, improving internal management, and enhancing adaptability to market changes.

3. Institutional Reform – Reflected in aligning vocational standards, creating competency certification systems, and formulating industrial policies consistent with the Making Indonesia 4.0 vision under Indonesia's 2020–2024 National Medium-Term Development Plan (RPJMN).

Overall, New MIDEC has contributed significantly to advancing Indonesia's human resources, organizational structures, and institutional frameworks in the automotive sector, thereby reinforcing its integration into global supply chains.

**Analysis of New MIDEC through economic cooperation**

International economic cooperation generally refers to bilateral, regional, or multilateral agreements between countries with the objective of enhancing mutual economic benefits. In the case of Indonesia–Japan relations, the implementation of the Indonesia–Japan Economic Partnership Agreement (IJEPA) has been pivotal in supporting industrial development, particularly through the New MIDEC program. This cooperation framework is not only limited to tariff reduction but also encompasses industrial collaboration, technology transfer, and human resource development (Dewi & Kezia, 2023).

The New MIDEC program demonstrates the strategic role of economic cooperation in strengthening Indonesia's automotive industry. First, in terms of bilateral cooperation, the program reflects the mutual interests of both Indonesia and Japan. Indonesia benefits from training, technology adoption, and improved competitiveness, while Japan secures its position as a key investor and technological partner in Indonesia's manufacturing sector. The bilateral structure enables more direct negotiations, faster decision-making, and targeted capacity-building initiatives compared to multilateral agreements.

Second, the New MIDEC illustrates the principle of partnership and reciprocity within Economic Partnership Agreements (EPAs). Under the IJEPA framework, Indonesia granted Japan tariff exemptions and preferential trade schemes through the User Specific Duty-Free Scheme (USDFS). In return, Japan provided technical assistance, training, and technology transfer through the MIDEC and subsequently New MIDEC. This reflects the balance of rights and obligations as the foundation of EPA cooperation, where trade liberalization is accompanied by measures to enhance the competitiveness of partner countries.

Third, the program also highlights the developmental dimension of economic cooperation. In line with Grindle's capacity-building framework, New MIDEC is not merely about reducing barriers to trade but also focuses on improving Indonesia's human resource capacity, organizational efficiency, and institutional readiness. This developmental aspect is crucial in helping Indonesia reduce dependency on imported automotive components, strengthen SMEs as local suppliers, and expand its role in global production networks.

Fourth, the implementation of New MIDEC demonstrates the role of international institutions and norms in facilitating cooperation. As Keohane (1984) argues, international cooperation is strengthened when institutions create transparency, predictability, and monitoring mechanisms. In this case, IJEPA serves as the institutional framework that governs New MIDEC, providing mechanisms for joint committees, sub-working groups, and evaluation processes. These institutional arrangements minimize uncertainty and ensure continuity of cooperation between Indonesia and Japan.

Nevertheless, challenges remain in realizing the full benefits of New MIDEC. The technological gap between Japanese and Indonesian industries continues to pose limitations, especially in advanced automotive technologies such as electric and hybrid vehicles. Furthermore, Indonesian SMEs often lack the capital and infrastructure necessary to adopt digital manufacturing technologies introduced through New MIDEC. Another challenge lies in the sustainability of training programs, as many initiatives remain dependent on Japanese assistance rather than being fully institutionalized within Indonesia's vocational and industrial systems.

Overall, the analysis of New MIDEC within the framework of international economic cooperation reveals both opportunities and limitations. While the program has successfully advanced capacity building in Indonesia's automotive industry, further efforts are needed to institutionalize knowledge transfer, reduce technological dependency, and strengthen local innovation capacity.

## CONCLUSION

This study examined the implementation of the New Manufacturing Industry Development Center (New MIDEC) program within the framework of the Indonesia–Japan Economic Partnership Agreement (IJEPA) as a form of capacity building in Indonesia's automotive industry during 2019–2024. The findings indicate that New MIDEC has made a significant contribution to strengthening the capacity of human resources, organizations, and institutions in the automotive sector through training, technology transfer, and the promotion of lean manufacturing practices.

The human resource development dimension is evident through initiatives such as the Mold and Dies training program, the New LeMMI 4.0 project, and Kaizen/5S-

based industrial culture training. These programs have improved the technical skills and productivity of Indonesia's workforce, especially in vocational schools, universities, and SMEs. In addition, organizational strengthening has been achieved by encouraging tier-2 and tier-3 automotive suppliers to adopt more efficient management systems, while institutional reform is reflected in policy alignment with the Making Indonesia 4.0 roadmap and the National Medium-Term Development Plan (RPJMN) 2020–2024.

From the perspective of international economic cooperation, New MIDEC demonstrates the strategic value of bilateral collaboration between Indonesia and Japan. The program not only reflects reciprocity in trade agreements but also embodies the developmental goals of Economic Partnership Agreements (EPAs). Japan's role in providing technical assistance and Indonesia's efforts to enhance domestic competitiveness highlight the mutually beneficial nature of this cooperation.

Nevertheless, the program continues to face several challenges. The technological gap between Japan and Indonesia remains substantial, particularly in advanced automotive technologies such as electric vehicles and hybrid engines. Indonesian SMEs also face structural constraints, including limited capital and infrastructure, which hinder the adoption of Industry 4.0 technologies. Furthermore, many of the training programs remain heavily dependent on Japanese support, raising concerns about sustainability and institutionalization within Indonesia's industrial ecosystem.

In conclusion, New MIDEC has played a positive role in supporting Indonesia's automotive industry by advancing capacity building through human resource development, organizational improvement, and institutional reform. To maximize the long-term benefits, Indonesia must strengthen cross-sectoral collaboration, increase investment in domestic research and innovation, and ensure that technology transfer is fully institutionalized. By doing so, Indonesia can reduce its dependency on foreign expertise, enhance the global competitiveness of its automotive industry, and secure a stronger position in international production networks.

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