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► Enabling a just transition for Japanese automotive parts SMEs



- ▶ **Enabling a just transition for Japanese automotive parts SMEs**

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► Foreword

The global automotive industry is undergoing a period of significant structural transformation as countries pursue climate objectives and adapt to advances in digital and clean technologies. These developments are reshaping production systems, employment structures and the skills required of workers. In Japan, where the automotive supply chain is extensive and deeply embedded in regional economies, this evolution presents both significant opportunities and important challenges. SMEs, which constitute the majority of firms in the sector, remain central to maintaining innovation, competitiveness and employment.

The transition towards connected, autonomous, shared and electric or CASE vehicles requires enterprises to adapt long-established production models and to integrate emerging technologies. It also requires workers to learn new competencies and to navigate changes in job tasks, employment prospects and workplace practices. Supporting this transformation in a manner that safeguards rights at work, advances decent work opportunities and promotes social dialogue is essential to ensuring a just transition for all.

This report, *Enabling a Just Transition for Japanese Automotive Parts SMEs*, provides new evidence on how enterprises and workers are experiencing and responding to these industrial changes. Drawing on enterprise data, worker perspectives and interviews with sectoral stakeholders, the study offers an in-depth assessment of the levels of preparedness among automotive supplier SMEs and identifies the conditions that either enable or hinder adaptation.

The findings show that, while some enterprises are taking proactive steps to prepare for CASE-related developments, many continue to face structural and practical constraints. These include limited access to information, restricted internal capacity for skills development, financial pressures and uncertainty regarding future market directions. Workers also report concerns about job security, training availability and the effectiveness of existing support systems. These insights highlight the importance of strengthening the enabling environment for SMEs and ensuring that no enterprise or worker is left behind as the sector evolves.

This report is intended to inform policymakers, employers' and workers' organizations and other relevant partners in their efforts to design evidence-based responses that advance decent work and support the resilience of SMEs. By providing empirical insights from both enterprises and workers, the study contributes to ongoing discussions on how to achieve a just, inclusive and sustainable transformation of the automotive sector.

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► Table of contents

► Foreword	iii
► Abbreviations and acronyms	x
► Executive summary	xi
► 1. Introduction	1
1.1 Background of the study	1
1.1.1 ILO's just transition and global industrial shifts	1
1.1.2 Global automotive industry in transition	1
1.1.3 Japanese automotive industry: An overview of the supply chain	2
1.2 Problem statement	3
1.3 Study objectives	3
► 2. Literature reviews	4
2.1 Foundational frameworks and macro-level analyses	4
2.2 Research gap in Japanese context	4
2.3 Comparative insights and worker perspectives	5
2.4 Synthesis and contribution of the study	6
► 3. Methodology	7
3.1 Research approach	7
3.1.1 Literature review	7
3.1.2 Key informant interviews (KIIs)	7
3.1.3 Online survey	7
3.1.4 Review and validation	8
3.2 Data processing and analysis	9
3.2.1 Data processing	9
3.2.2 Analytical framework	9
► 4. Sample profiles	12
4.1 Profiles of key informants	12
4.1.1 Confederation of Japan Automobile Workers' Unions	12
4.1.2 Japan Finance Corporation Research Institute	12
4.1.3 Japan Automobile Manufacturers Association, Inc.	12
4.1.4 Central Japan Industries Association	13
4.1.5 Interviewed enterprises and workers	13

4.2 Profiles of surveyed SMEs	14
4.3 Profiles of survey respondents	17
4.3.1 Enterprise form respondents	17
4.3.2 Employee form respondents	18
► 5. Findings	21
5.1 Overview of SME transition groups	21
5.1.1 SME characteristics defining the transition groups	21
5.1.2 Market and business profiles of SME transition groups	23
5.2 SME adaptation and operational response to industry challenges	27
5.2.1 Conceptual frameworks for SME adaptation in the Japanese automotive sector	27
5.2.2 Factors influencing SME transition	27
5.2.3 Business transition support	33
5.3 Just transition in Japan's automotive sector: A stakeholder assessment	38
5.3.1 Japan's auto employment: Estimated CASE job changes	38
5.3.2 Labour market challenges: Aging and shortages	40
5.3.3 Employer and worker perspectives on job changes	42
5.3.4 Skill development and retraining	46
5.3.5 Social protection: A two-sided reality	52
5.3.6 Social dialogue and worker representation in transition	56
► 6. Discussion and recommendations	60
6.1 Discussion	60
6.1.1 SME transition pathway	60
6.1.2 Synthesis of key findings	61
6.1.3 Implications for a resilient sustainable and inclusive transition	62
6.1.4 Comparative implications for global automotive parts manufacturing	64
6.2 Policy recommendations	65
6.2.1 For government and policymakers	65
6.2.2 For OEMs	67
6.2.3 For employers and industry associations (for example, JAPIA)	68
6.2.4 For worker organizations (for example, JAW)	69
6.2.5 Recommendations for further research and survey	69
► 7. Conclusion	72
► 8. Limitations	73
► References	74

► Annexes	75
Annex 1: Interview guides	75
A1.1 Interview guide for organization	75
A1.2 Interview guide for regional support centres	79
A1.3 Interview guide for enterprise managerial position	84
A1.4 Interview guide for enterprise technical and technological position	89
Annex 2: Online questionnaire	92
A2.1 Enterprise survey	92
A2.2 Worker survey	107

► List of boxes

► Box 1: The Green Transformation (GX) Framework: Operationalizing decarbonization	5
► Box 2: The automotive decarbonization pyramid: Path to net-zero	11
► Box 3: SME transition lifecycle: Phased challenges and capability gaps	30
► Box 4: Environmental initiatives and the carbon neutrality imperative in Chubu SMEs	32
► Box 5: Utilization paradox and equity gaps in transition support	37

► List of tables

► Table 1. Number of sample SMEs and workers in our dataset disaggregated by region, prefecture and sources	9
► Table 2. SME grouping criteria	10
► Table 3. Profiles of surveyed SMEs	14
► Table 4. Profiles of enterprise form respondents	17
► Table 5. Profiles of employee form respondents	19
► Table 6. Profile of SME transition groups	21
► Table 7. Defining characteristics of SME transition groups	22
► Table 8. Product and market characteristics of SME transition groups	23
► Table 9. Business and supply chain profile of SME transition groups	25
► Table 10. Four-wheeled vehicle sales in selected countries and new passenger car sales in Japan (2023)	28
► Table 11. Perceived disruption and adaptive strategy development stage of SME transition groups	29
► Table 12. Operational priorities and carbon neutrality actions	31
► Table 13. Awareness and utilization of external support	33
► Table 14. Mikata project participation, support utilization and reasons for non-participation	35
► Table 15. Employment in the automobile manufacturing and auto-related industries in Japan (2023)	39
► Table 16: Employer perspectives on job creation, skills shift and groups of at-risk workers	45
► Table 17: Worker perspectives on job security and changes at workplaces	46
► Table 18: Employer perspectives on skills development, training and barriers	50
► Table 19: Worker perspectives on skill development and training	52
► Table 20: Employer perspectives on social protection measures	55
► Table 21: Worker perspectives on job loss support	55
► Table 22: Employer perspectives on social dialogue practices	58
► Table 23: Employer perspectives on selection criteria and dialogue	58
► Table 24: Worker perspectives on job loss support	59
► Table 25. Employer feedback on the survey form	70
► Table 26. Worker feedback on the survey form	70

► Abbreviations and acronyms

BEV	Battery electric vehicle
CASE	Connected, autonomous, shared and electric
CD	Clean diesel vehicle
ChuSanRen	Central Japan Industries Association (Chubu Region)
EVs	Electric vehicles
FCV	Fuel cell vehicle
GX	Japan's 2023 Green Transformation Basic Policy
HEV	Hybrid vehicle
HR	Human resources
ICE	Internal combustion engine
ILO	International Labour Organization
JAMA	Japan Automobile Manufacturers Association, Inc
JAPIA	Japan Auto Parts Industries Association
JAW	Confederation of Japan Automobile Workers' Unions
JFCRI	Japan Finance Corporation Research Institute
KIIs	Key informant interviews
METI	Ministry of Economy, Trade and Industry
OEMs	Original equipment manufacturers
OJT	On-the-Job training
PHEV	Plug-in hybrid vehicle
RSC	Regional Support Centre
SEQCD	Safety, environment, quality, cost, delivery
SMEs	Small and medium-sized enterprises
ZEV	Zero CO ₂ emission vehicle

► Executive summary

Overview

The Japanese automotive sector in Japan is facing a profound transformation, driven by global decarbonization targets and the shift toward Connected, autonomous, shared and electric (CASE) vehicles. This transition is of national significance, given the industry's scale. In 2023, the automotive sector and its related fields employed 5.58 million workers, accounting for 8 per cent of Japan's total employment. This critical shift to electrified and autonomous vehicles will directly impact a vast portion of the workforce. We estimate that approximately 1.6 million individuals within component manufacturing, raw materials and electronics supply chains are likely to be affected by the necessary industrial restructuring. A successful and just transition is therefore essential to national economic stability.

The challenge

The just transition in Japan's automotive sector faces significant challenges, particularly among the small and medium-sized enterprises (SMEs). A profound lack of empirical, primary data from the most vulnerable stakeholders — automotive part supplier SMEs and their workers — means policymakers and industry leaders lack a clear understanding of the on-the-ground realities. As a result, many SMEs are stuck in a reactive wait-and-see posture, and existing support systems are often misaligned with the specific needs of businesses and workers. This creates a high-risk scenario: the current informal safety net, which depends largely on the ability of strong regional labour market to absorb displaced workers, is fragile and offers no long-term security against widespread job changes.

Context and analytical approach

To rigorously assess adaptation to global industry changes and structure the key findings, this report established two core analytical lenses. First, we categorized the SME sample into four distinct transition groups based on zero CO₂ emission vehicle (ZEV) parts sales, technology level (digitalization/automation) and the existence of a formal transition plan: leading (high ZEV sales, high technology, proactive plan), technologically ready (high technology and plan, but low ZEV sales), reactive (some ZEV sales/technology, but lacking a formal strategic plan and reacting to conditions) and lagging (no ZEV sales, low technology, no formal plan and highly vulnerable). Second, the analysis is structured around core policy areas, including automotive sector's operational standards (SEQCD: safety, environment, quality, cost, delivery), SME strategic response, workforce adaptation and social equity/well-being. This foundation provides a clear, actionable blueprint of the sector's risk and opportunity landscape.

Methodology and foundation

The findings of this report are grounded in a rigorous mixed-methods approach, designed to capture diverse perspectives across the automotive supply chain. Data was collected through key informant interviews (KIIs) in February 2025 in Tokyo and Aichi Prefecture (Central Japan) with eight national and regional stakeholders (including the Confederation of Japan Automobile Workers' Unions (JAW), the Japan Automobile Manufacturers Association, Inc. (JAMA), the Japan Finance Corporation Research Institute (JFCRI) and the Central Japan Industries Association (ChuSanRen). This was supplemented by a comprehensive online survey of enterprises and workers, distributed through the Ministry of Economy, Trade and Industry's (METI) network and deployed for three weeks between June and July 2025. The analysed responses came from firms and workers across six prefectures (Aichi, Iwate, Miyagi, Kyoto, Shiga and Osaka).

The full dataset, created by merging KIIs and survey responses, comprises observations from 23 automotive parts SMEs and seven employees. This mixed-methods approach enabled systematic data triangulation, cross-referencing senior management's views against the practical experience of workers and the strategic insights of related stakeholders.

Key findings

Based on a pilot study and unique primary data, our report confirms that a successful transition requires a shift to a tailored and collaborative approach, and that addressing the vast scale of industrial restructuring requires aligning social safety net evolution with the government's emerging new trinity labour reform. We identified key issues that clarify this necessary alignment: the reform comprises three main components: reskilling/upskilling, inter-company mobility and job-based employment. Our findings directly inform these three components.

1. Adaptation, operational excellence and disruptive impact

This section details the nature of SME adaptation and the factors driving strategic decisions.

- **Leadership is critical:** A firm's transition is primarily driven by visionary leadership and co-creation signals from original equipment manufacturers (OEMs); supply chain position (for example, being a Tier 1 supplier) alone is insufficient to guarantee a proactive strategy.
- **The hybrid electric vehicles (HEV) market buffer:** The Japanese new car market is dominated by HEVs, which account for 46.18 per cent of new passenger car sales. This focus acts as a key buffer for parts manufacturers, as it allows them to leverage long-standing expertise in HEV technology, contributing to the less urgent timeline and wait-and-see posture of many SMEs.
- **Disruptive impact and strategic readiness:** SME awareness of industry disruption directly correlates with strategic readiness. Leading transitioners anticipate moderate or significant disruption and are acting proactively (planning/adapting), while lagging groups, perceiving low disruption, have largely not started formal adaptation plans. Successful transition requires recognizing and leveraging core technological strengths; however, interviews with ChuSanRen experts in Aichi revealed that less than 10 per cent of SMEs fully utilize this advantage.
- **Technology-skills gap:** There is a critical skills mismatch between workers' traditional expertise and the new demands of CASE technologies. This is worsened by an ageing workforce and labour shortages. The acute shortage of male workers in traditional roles has created a distinct gender dimension, with women entering both high-skill analytical positions and high-risk routine production roles.
- **Digitalization and ZEV segmentation:** The level of digitalization and ZEV sales provides a clear segmentation: All leading and reactive transitioners have existing ZEV-related sales, but none of the lagging or technologically ready ones do. Furthermore, the lagging groups rely heavily on paper-based records and manual labour, highlighting a severe technological deficit.
- **Customer concentration vs. autonomy:** Strategic autonomy is linked to customer concentration. Leading transitioners are the most diversified, with 50 per cent relying on their largest customer for less than 20 per cent of their revenue, granting them the flexibility to invest proactively. In contrast, nearly half of the reactive transitioners receive 50–79 per cent of their revenue from a single customer, which significantly limits their ability to invest without explicit external signals.
- **Advanced decarbonization:** Leading and the technologically ready transitioners are highly focused on improving energy efficiency and developing ZEV parts, whereas reactive and lagging groups show minimal to no engagement in advanced decarbonization efforts.

- Global reach and dependence: Leading transitioners are the most globally integrated (75 per cent have manufacturing outside Japan), providing diverse market exposure and reduced reliance on domestic signals. Conversely, a vast majority of the reactive (71 per cent) and lagging (100 per cent) transitioners are domestic-only, reinforcing a rigid, traditional supply chain model that is more susceptible to single-customer shocks.

2. Transition processes and effectiveness of support

This section highlights the barriers to preparation and the failure of existing support mechanisms.

- Unequal access to support: A major divide exists in business support. Proactive companies are not only highly engaged with external resources (like the METI Mikata project), but they are also active members of relevant business support networks and aware of multiple support options. This contrasts sharply with less prepared companies, which are typically outside of these networks and often completely unaware of available government guidance and help.
- Failure in policy diffusion: A fundamental disconnect exists between broad national policies and the reality (such as green transformation basic policy and labour market reform) on the factory floor. This is a major failure in the diffusion of support, as policies often fail to translate into locally tailored, practical advice that effectively reaches and address the immediate, specific needs and constraints of SMEs who are isolated from business networks.
- Internal training barriers: The effectiveness of reskilling is crippled by internal SME deficiencies, specifically, lack of internal expertise (cited by 67 per cent of leading firms), uncertainty about future skill needs (71 per cent of reactive firms) and an overwhelming lack of time or resources (100 per cent of technologically ready firms).

3. Worker security and social risk

This section evaluates the social and human resources (HR) challenges through the lens of the ILO's just transition framework.

- Deep people management problems: HR challenges are severe. Firms rely on short-term fixes (like hiring retired workers) instead of long-term planning. Moreover, a major disconnect exists where employers see the transition as distant, but workers are already feeling the pressure of job changes. This employer-worker perception gap increases insecurity and undermines the trust required for effective collaboration.
- Anxiety persists despite formal help. Even though formal systems (like worker representation) are in place, anxieties over job security persist because workers do not feel those mechanisms are actively addressing their concerns.
- Mismatch in training delivery: A critical skills mismatch is worsened by inadequate training delivery. While all workers share a strong preference for practical, hands-on learning like on-the-job training (OJT), less proactive firms fail to leverage this, indicating a need for a policy that incentivizes and support work-based training models.
- Fragility of the de facto safety net: The current over-reliance on the tight regional labour market to absorb displaced workers creates a fragile, short-term safety net. This system lacks long-term security and is highly vulnerable to an economic downturn or a sudden acceleration of the transition, placing the entire burden of adjustment on national and regional systems.

4. Broader implications and global relevance

This section highlights the predictive value of the Japanese experience for international policymakers and industry.

- **Crucial precedent for Asia:** The findings on adaptation and vulnerability in Japan serve as a crucial leading indicator for other automotive manufacturing hubs in Asia, particularly Thailand. The wait-and-see approach observed among Japanese SMEs could be a pattern that plays out among their Thai counterparts, implying that delays in technology transfer or relocation by Japanese OEMs or upper tiers will directly exacerbate challenges for suppliers in those regions.

Recommendations

To address these pressing challenges, this study provides a comprehensive set of recommendations. The solution lies in building a collaborative ecosystem of support that empowers leaders and effectively bridges the gap between policy and practice. Key recommendations include:

1. Government and policymakers

- **Systemize social dialogue and Green Transformation (GX) funding:** Formalize and mandate the inclusion of employer and worker organizations in the design and allocation of GX funds to ensure policy is realistic, covers all transition areas and is effectively translated to the local level.
- **Strengthen regional support hubs:** Empower regional centres (like ChuSanRen) to deliver expert consultation on business diversification, market analysis and leadership. Mandate that technology adoption (automation/digitalization) is always coupled with proactive reskilling.
- **Targeted labour reform for equity:** Refine the intergenerational approach by reinforcing anti-discrimination policies and ensuring that remuneration systems reflect skills, competencies and performance rather than age, with particular focus on re-employment arrangements for workers aged 60 and above. This focus is critical because, while Japanese law requires employers to offer continuous employment up to age 65 after the mandatory 60-year retirement, these post-60 re-employment contracts typically involve a substantial wage reduction, regardless of the workers' continued skills and duties.
- **Gender-sensitive transition:** Apply gender-sensitive criteria to reskilling programmes to proactively finance pathways that move women from automation-vulnerable roles (for example, inspection) into high-skill, future-proof technical and analytical positions.

2. OEMs

- **Integrate just transition into supply chain:** Provide clear, multi-year technology roadmaps for suppliers. Integrate just transition metrics into supplier evaluations, specifically by auditing internal communication transparency and ensuring management's outlook aligns with the actual job security felt by the workforce.
- **Provide financial and technical support:** Create dedicated programmes to provide financial assistance, technical expertise and subsidized training to suppliers. This support must explicitly require suppliers to implement transition-related social dialogue and clear job change communication.

3. Employers and worker organizations

- ▶ Mandate effective social dialogue and advocated for representative empowerment: Champion mandatory, structured labour-management collaboration to close the employer-worker perception gap. This collaboration must be supported by empowering worker representatives (by providing them with the necessary authority and resources) and ensuring their effective utilization to embed the worker voice in transition planning, moving beyond the current symbolic role of designated representation.
- ▶ Prioritize actionable skills development: Guide employers to overcome internal barriers (lack of time/expertise) by adopting standardized skills assessment checklists and template career roadmaps. Prioritize a blended learning approach that emphasizes OJT and mentorship, which workers find most effective.
- ▶ Expand SME outreach and partnerships: Industry associations must strategically expand membership and support programmes to un-affiliated SMEs in deep supply chain tiers to combat network isolation and encourage partnerships with consortia (like the Japan Reskilling Consortium) and academia.



► 1. Introduction

1.1 Background of the study

1.1.1 ILO's just transition and global industrial shifts

The International Labour Organization (ILO), a specialized agency of the United Nations, is dedicated to promoting decent and productive work for all. Its core objectives include advancing rights at work, fostering employment opportunities, enhancing social protection and strengthening dialogue on labour-related issues. In response to global industrial transitions, the ILO has championed the concept of a just transition. This principle asserts that the shift to a resilient, sustainable, low-carbon economy must be inclusive, fair and respectful of human rights, especially for workers and communities affected by these changes. This commitment is reflected in the 2023 resolution adopted by the International Labour Conference — the ILO's highest decision-making body — which states that “just transition involves maximizing the social and economic opportunities of climate and environmental action, including an enabling environment for sustainable enterprises, while minimizing and carefully managing challenges” (ILO 2023). The commitment is also reflected in foundational initiatives like the ILO's (2015) *Guidelines for a just transition towards environmentally sustainable economies and societies for all*, which stress the importance of decent work and social inclusion.

1.1.2 Global automotive industry in transition

The global automotive industry is a central player in this transition, undergoing a profound and multifaceted transformation. This shift is propelled by three interconnected trends: the green transition, digitalization and the CASE¹ framework. This seismic change goes beyond simply adopting electric vehicles; it involves a fundamental reconfiguration of value chains, from sustainable manufacturing practices and new battery technologies to the integration of advanced software, data analytics and autonomous driving systems.

Japan, as one of the world's leading automotive manufacturing hubs, stands at the forefront of this change. However, while major automakers are adapting, their vast supply chains, which heavily rely on thousands of SMEs², face significant challenges. These SMEs often lack the financial resources and technical expertise necessary to invest in the new technologies and reskilling or upskilling required by the CASE trend and the broader digitalization and green transition.

¹ CASE is a strategic framework for the major technological shifts in the automotive industry, a term widely attributed to Daimler AG in 2016. For auto parts SMEs, this transition poses a significant challenge, particularly for skill development as the industry moves away from traditional internal combustion engine (ICE) components. The new CASE paradigm requires a fundamental retraining of the workforce to handle electronics, software and new materials for EVs and autonomous vehicles. The acronym encompasses vehicles becoming increasingly connected to their environment, the move towards autonomous driving capabilities, the rise of shared mobility services and the shift to electric powertrains.

² In Japan's manufacturing, construction and transportation sectors, SMEs are companies with a capital of 300 million Japanese yen or less or 300 employees or fewer.

1.1.3 Japanese automotive industry: An overview of the supply chain

The auto parts industry in Japan is characterized by a highly integrated, multi-tiered and geographically clustered supply chain. While precise, publicly available data on the number of targeted SMEs in each prefecture is unavailable, the industry's structure and employment patterns provide a clear picture of its regional distribution.

1.1.3.1 The multi-tiered system and the role of SMEs

The Japanese automotive industry is structured like a pyramid. At the top sits a small number of major automakers, known as assemblers, such as Toyota, Honda and Nissan. These companies are supported by a vast network of suppliers, which are organized into tiers³:

- Tier 1 suppliers: These are large, major parts manufacturers (for example, Denso and Aisin) that supply components directly to the automakers' assembly lines. In 2016, there were an estimated 800 first-tier component manufacturers (Shi 2024).
- Tier 2 and Tier 3 suppliers: The majority of companies in this sector are SMEs, which make up the lower tiers of the pyramid. They specialize in specific parts, materials or manufacturing processes, such as metal stamping, moulding and forging. These firms supply parts to Tier 1 companies, which then assemble them into larger components for the final vehicle. In 2016, there were approximately 4,000 second-tier and 20,000 third-tier component manufacturers (Shi 2024).

This multi-tiered system has enabled the industry to achieve high efficiency, quality and a just-in-time production model. The sheer number of these smaller firms is staggering, with more than 25,000 companies estimated to be related to the automotive industry in Japan, the vast majority being SMEs. The total automotive sector, including manufacturing, sales and service, employed approximately 5.5 million people across Japan in 2022, demonstrating its massive economic significance.

1.1.3.2 Geographic distribution of the supply chain

The concentration of auto-related SMEs is not random; it is heavily concentrated around the main production hubs of major automakers, creating distinct industrial clusters crucial to the industry's success.

- Chubu region (Aichi Prefecture): This is the undisputed heart of Japan's automotive manufacturing. With Toyota's headquarters and a dense network of its suppliers located here, Aichi has the highest concentration of auto-related firms and generates the highest value of manufactured goods in the country.
- Kanto region (Greater Tokyo Area): This region is a significant manufacturing hub for automakers such as Nissan and Honda. It hosts a large number of parts suppliers that benefit from the region's strong economic and technological infrastructure.
- Tōhoku region: This area has become an important and growing cluster, particularly in Miyagi and Iwate prefectures. This growth was spurred by companies like Toyota Motor East Japan establishing a presence, leading to the development of a local supply chain.
- Kansai region (Osaka, Hyogo, Kyoto): While not as dominant as Chubu for final vehicle assembly, the Kansai region is a key manufacturing base for various components, especially in high-tech and electronic parts.

³ Tier companies are automotive suppliers organized in a hierarchical structure based on their directness to OEMs. Tier 1 suppliers deliver directly to OEMs, Tier 2 suppliers provide components to Tier 1, and Tier 3 suppliers provide raw materials to Tier 2 companies.

1.2 Problem statement

Despite the clear mandate for a just transition, a significant research gap exists in understanding the specific challenges and support needs of automotive parts supplier SMEs in Japan. Without targeted support, these enterprises and their employees risk being left behind, potentially leading to economic instability and hindering a resilient, sustainable and inclusive transition within a critical global industrial sector. To address this gap and promote resilient value chains, the ILO's Micro, Small and Medium Enterprises Branch, in collaboration with the ILO Office for Japan, initiated this study.

1.3 Study objectives

This report, titled *Enabling a Just Transition for Japanese Automotive Parts SMEs*, aims to assess the readiness of SMEs in Japan's automotive sector for a just transition, identify their unmet needs and challenges and pinpoint the policy supports that have enabled or are needed to further sustain a just transition in this key industry. To achieve these aims, the study pursues the following specific objectives:

1. Objective 1: To analyse how Japanese auto parts SMEs are adapting to the challenges of CASE technologies and Japan's 2050 carbon neutrality target. This includes evaluating their operational excellence using the safety, environment, quality, cost, delivery (SEQCD) framework⁴, identifying distinct adaptive patterns based on their characteristics (for example, location and supply chain position) and assessing the perceived impact of these industry disruptions.
2. Objective 2: To investigate the processes by which these SMEs prepare for the transition. The focus will be on their strategies for adopting new technology, developing human capital and securing financial resources. This objective also involves gathering feedback on the effectiveness of existing supports, to understand the factors behind the observed low uptake of such initiatives.
3. Objective 3: To evaluate the worker-related aspects of adaptation plans within Japanese auto parts SMEs. Using the ILO's (2015) *Guidelines for a Just Transition* as a framework, this objective will assess current practices, identify gaps in worker support mechanisms and gather data from both employers and workers to gain a comprehensive understanding of the situation.
4. Objective 4: To synthesize the findings from the previous three objectives to identify the critical support needed to bridge the needs of businesses and workers. This analysis will draw out lessons learned from existing projects and develop policy and programmatic recommendations for a successful just transition.

⁴ SEQCD is a foundational framework used by automotive manufacturers to manage their priorities: S - Safety: Keeping workers and customers safe; E - Environment: Minimizing environmental impact; Q - Quality: Making reliable products that meet expectations; C - Cost: Keeping costs low to remain competitive; and D - Delivery: Getting products to customers on time.

► 2. Literature reviews

This study is situated within the growing body of literature on the green transition and the concept of a just transition, particularly as it applies to the global automotive industry. While extensive research has focused on the macro-level impacts of electrification and digitalization, a significant gap remains regarding the experiences of vulnerable sub-sectors, such as SMEs, and the perspectives of their workforces. This review synthesizes key findings from international frameworks, broad industry reports and comparative studies to position the present research and highlight its unique value.

2.1 Foundational frameworks and macro-level analyses

The conceptual foundation for this study is the ILO's (2015) *Guidelines for a Just Transition*. This seminal document establishes a policy framework that emphasizes social dialogue, skills development, social protection and more generally decent work as essential components for a fair and equitable shift to a low-carbon economy. It provides the international benchmark against which the transition's "justness" can be evaluated.

At the macro-level, reports such as the one from Oxford Economics (Oxford Economics 2024) highlight the significant economic challenges facing Japan's automotive sector. These reports discuss the estimated impacts on nominal output and total employment as the transition to electric vehicles (EVs) proceeds, noting that the magnitude of these impacts will depend on the nature of the transition. Such analyses, however, often remain at a high level, merely acknowledging that "parts suppliers will need to adapt" but providing limited insight into the specific strategies, barriers and worker-related challenges at the micro-level. This broad perspective underscores the need for a more granular, on-the-ground investigation.

2.2 Research gap in Japanese context

The existing literature on Japan's engagement with the just transition concept is still in its nascent stages. A report from The British Academy (Mabon et al. 2022) explicitly notes that the term just transition is still emerging in Japan and lacks a long history of explicit use in policy. However, the core principles of managed industrial change, such as preserving employment and promoting worker reskilling or upskilling, are frequently addressed through existing policies and long-standing industrial relations practices. The explicit term first appeared in the revised 2021 Nationally Determined Contribution (NDC), with its formal integration into domestic strategy following in the 2023 Green Transformation (GX) Basic Policy. This short history reinforces the critical need for empirical research that provides evidence of how these transitions are being understood and implemented at the ground level. While the report identifies a need for finer-scale assessments, few studies have filled this gap by providing primary data from the SME level.

The policy landscape itself presents a unique research context. Japan's 2023 GX Basic Policy, a key government initiative, provides a broad signal by focusing on electrified vehicles rather than exclusively on battery electric vehicles (METIa, n.d.). This policy nuance, which includes a mix of hybrid, plug-in hybrid and fuel cell technologies, directly influences the market signals received by parts suppliers.

Moreover, existing research on Japanese SMEs often focuses on general resilience, innovation or management strategies. It rarely applies a direct just transition lens to the combined challenges of decarbonization and the CASE framework. This study seeks to bridge this gap by focusing specifically on how SMEs' adaptive strategies are being shaped by these profound technological shifts.

► Box 1: The Green Transformation (GX) Framework: Operationalizing decarbonization

The 2023 GX Basic Policy is Japan's 150 trillion Japanese yen public-private investment plan, serving as the legally-backed economic roadmap to achieve net-zero by 2050 while strengthening industrial competitiveness. This framework directly addresses the principles of a just transition through the following mechanisms:

► Investment incentives and financial support:

The government issues GX Economic Transition Bonds (20 trillion yen over ten years) to provide bold, upfront investment support for private sector decarbonization, including specific, multi-year subsidies for SMEs. This financial support is designed to minimize economic disruption and sustain regional industrial capacity during the shift.

► Just transition components (workforce and community support):

The policy explicitly promotes skill acquisition and smooth labour mobility in growth areas through reskilling support and other measures. Furthermore, it emphasizes revitalizing local economies through initiatives like the Fukushima Innovation Coast Framework and supporting the creation of new businesses to leave no one behind in the transformation process.

► Pro-growth carbon pricing:

GX introduces a gradual carbon pricing mechanism (emissions trading scheme from FY2026 and a carbon levy from FY2028) to incentivise investment in clean technologies, effectively funding the transition bonds while accelerating the shift to a cleaner, more resilient industrial structure.

Source: Basic Policy for the Realization of GX (Cabinet Secretariat, February 2023)

2.3 Comparative insights and worker perspectives

To further highlight the unique contribution of this study, it is valuable to compare it with research from other regions. For instance, a study on the automotive sector in the UK's West Midlands (De Ruyter et al. 2024) provides crucial insights into workers' perceptions of job insecurity and retraining needs in the face of the EV transition. This British Academy-funded research offers a strong point of comparison for the challenges and anxieties faced by workers in a restructuring industrial region.

Furthermore, while some studies have focused on SMEs in other contexts, their findings are often not directly transferable or are now outdated. For example, Kiriya Kulkolkarn's paper (2020), *Impact of the Transition to Electrical Vehicles on Workers in Automotive Parts Manufacturing in Thailand*, is an important early study that employed a similar data collection approach to ours. However, the rapid pace of change in the EV sector means its findings are now somewhat outdated, and the Thai automotive context — with its distinct government policies and supply chain structure — differs significantly from Japan's.

Given the close relationship between the Japanese and Thai automotive industries, the challenges, adaptation strategies and policy needs identified in this study could serve as a valuable indicator for what suppliers in Thailand might face. Therefore, this research, by gathering direct employer and worker perspectives from Japanese SMEs, provides a much-needed, up-to-date analysis specific to the Japanese context, while also offering crucial and timely insights for policymakers in both countries.

2.4 Synthesis and contribution of the study

In summary, the existing literature provides a strong theoretical and macro-level understanding of the just transition in the automotive sector. However, there is a clear and compelling need for a study that provides empirical, primary data from the most vulnerable stakeholders: automotive parts supplier SMEs and their workers in Japan. This research will contribute significantly to the literature by:

- providing a micro-level perspective that complements macro-economic reports;
- offering direct worker perspectives, which are currently rare in the Japanese context;
- analysing the intersection of enterprise and worker views to identify disconnects and common ground;
- supplying concrete, actionable policy recommendations based on ground-level evidence, moving the discussion from conceptual to practical.

► 3. Methodology

3.1 Research approach

This study employed a mixed-methods approach to gather diverse information from a wide range of stakeholders. The research process included the following methods:

3.1.1 Literature review

Relevant documents and literature were sourced online and from stakeholders during the field mission. A comprehensive review was conducted throughout the research process to inform and contextualize the study.

3.1.2 Key informant interviews (KIIs)

Interviews were conducted in February 2025 in two geographic locations: the Tokyo metropolitan area and Aichi Prefecture in Central Japan (Chubu region). A total of eight interview sessions were completed with national and sub-national stakeholders, including representatives from JAW, the JFCRI, JAMA and ChuSanRen.

The selection of these organizations was a non-probability sampling process, combining purposive and snowball methods. JAW and JAMA were chosen to represent worker and employer organizations, respectively. The JFCRI was selected for its role in SME research and ChuSanRen was included for its key role in supporting SMEs in the Chubu region and its active participation in a support project for SME transition to the CASE framework.

In Aichi, the mission team had the opportunity to interview the management of three auto part SMEs located in the north, central and south of the prefecture. These SMEs were recommended by the METI's Chubu branch and ChuSanRen. One of the three SMEs also allowed the team to interview three of their workers.

Interviews lasted 1–1½ hours and were conducted by the consultant with a translator. Four interview guides (see annex 01) were used: two guides for related organizations and regional associations, and two for enterprises and their workers. The enterprise guide focused on human resources management, development and transition challenges, while the worker guide focused on workers' impressions of changes in their working conditions during the transition period.

3.1.3 Online survey

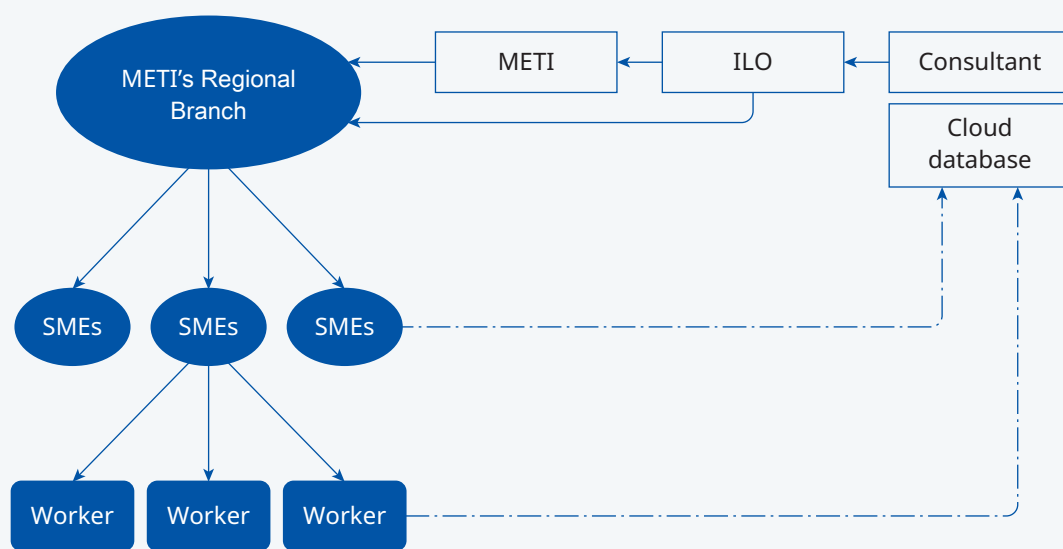
The study utilized two online questionnaires (see annex 02): one for enterprise owners and another for their employees. This survey was a collaborative effort between the responsible ILO branch and the Automobile Division of METI's Manufacturing Industries Bureau throughout the tool development and distribution process. The survey forms were distributed to targeted SMEs and their workers using METI's organizational network, with the enterprises asked to circulate the survey among their employees. Responses to both the enterprise and worker survey were therefore voluntary, classifying this selection method as a convenience sample. The diagram below illustrates the flow of online form distribution and responses.

The questionnaires were initially developed in English, translated into Japanese and then converted into an online format using Kobo Toolbox. The enterprise form consisted of five parts: (1) respondent and company background; (2) strategic response and workforce adaptation; (3) external support landscape;

(4) operational standards, worker safety and sustainability actions; and (5) social equity and workforce well-being. The employee form had seven parts: (1) worker profile; (2) company profile; (3) awareness and impact of industry changes; (4) impact on employment and job quality; (5) training and skill development; (6) social protection and support; and (7) rights, social dialogue and consultation.

The online survey was deployed for three weeks between June and July 2025. It received 20 submissions from owners of automotive parts SMEs and four submissions from employees.

► Distribution of online questionnaires and data collection to cloud database



Source: Author's own elaboration

3.1.4 Review and validation

Both the interview guides and survey questionnaires underwent a review process, receiving comments from both the ILO and METI. METI's Chubu branch (Central Region) suggested the SMEs for interviews and observed the sessions. Furthermore, feedback on the online questionnaires was received from ten regional organizations (two government and eight non-government agencies) during a dedicated review session conducted between May 26 and June 6, 2025.

3.2 Data processing and analysis

3.2.1 Data processing

To increase the number of observations, data from the KIIs was incorporated into the main dataset. This resulted in a total of 23 automotive parts SMEs and seven employees for analysis.

It is important to note that the mixed-methods approach inherently resulted in datasets with different levels of detail. To ensure a robust analysis despite the demographic bias in the enterprise sample, data on strategic and human resource management from the enterprises was systematically triangulated with the quantitative and qualitative data received from workers and related stakeholders. This process ensured that the policy recommendations are not based solely on the views of senior management.

The merged dataset contains gaps primarily due to the necessary differences between the qualitative interview guides (designed to capture detailed narrative and contextual data) and the quantitative online survey questionnaires (designed for systematic, measurable data collection). Furthermore, to protect participant anonymity, the research team intentionally avoided identifying the specific workplaces of surveyed workers, instead only documenting their prefecture and the parts they produce. As a result, of the seven employees in the dataset, only the workplaces of the three workers from Aichi could be identified.

► **Table 1. Number of sample SMEs and workers in our dataset disaggregated by region, prefecture and sources**

Region	Prefecture	Sample SMEs	Sample workers	Sources
1. Hokkaidō-Tōhoku	Iwate	8	1	Online survey
	Miyagi	6	1	Online survey
	Unknown ¹	1	0	Online survey
2. Chūbu-Kinki-Tōkai	Aichi	3	3	Interview
	Kyoto	1	0	Online survey
	Shiga	3	1	Online survey
	Osaka	1	1	Online survey
Total	–	23	7	–

Note: The prefecture data is unknown because, while the region selection was mandatory in the online survey, the subsequent prefecture selection was designed for free entry (non-mandatory), and the respondent did not record a value.

Source: Compilation by authors based on data of RAIS and transparency portals.

3.2.2 Analytical framework

Due to the limited number of data points, both qualitative and quantitative data are utilized where necessary to provide a more credible and comprehensive analysis for this study. The processing of quantitative data and basic statistics were performed using STATA.

We assume that assessing the level of transition among SMEs is essential for analysing just transition within target enterprises. To achieve this, we categorized our SME sample into four distinct groups based on three key criteria: their involvement in ZEV part sales, their level of digitalization and automation and availability of their strategic planning for the business transition.

3.2.2.1 Three key criteria

- ZEV sales: SMEs that earn 1 per cent or more of their total sales from ZEV-related parts.
- Technology level: SMEs that have reported a moderate to high level of digitalization and automation.
- Transition plan: SMEs that have reported engaging in the planning, implementation or adaptation of a formal transition plan.

► Table 2. SME grouping criteria

Group name	ZEV sales (1%+)	Technology level (moderate to high)	Transition plan (planning to adapting)
1. Leading transitioners	Yes	Yes	Yes
2. Technologically ready	No	Yes	Yes
3. Reactive transitioners	Yes	Varies	No
4. Lagging transitioners	No	No	No

Source: Author's own elaboration.

3.2.2.2 SME groups

Group 1: Leading transitioners. These SMEs are at the forefront of the transition. They have successfully shifted their product focus to ZEVs, invested in the necessary modern technology and are actively managing the process with a clear strategic plan. They represent the most comprehensive and proactive approach to the transition. This group also includes the SME that reported 51–70 per cent of its total sales from ZEV-related parts.

Group 2: Technologically ready. These SMEs have invested in a high level of technology and have a formal transition plan, but they have not yet secured significant ZEV-related sales (less than 1 per cent of their sales). Their readiness may also be demonstrated by extending their core technology to other industries outside the automotive sector. They are well-prepared for the transition and are poised to become leading transitioners once market opportunities materialize.

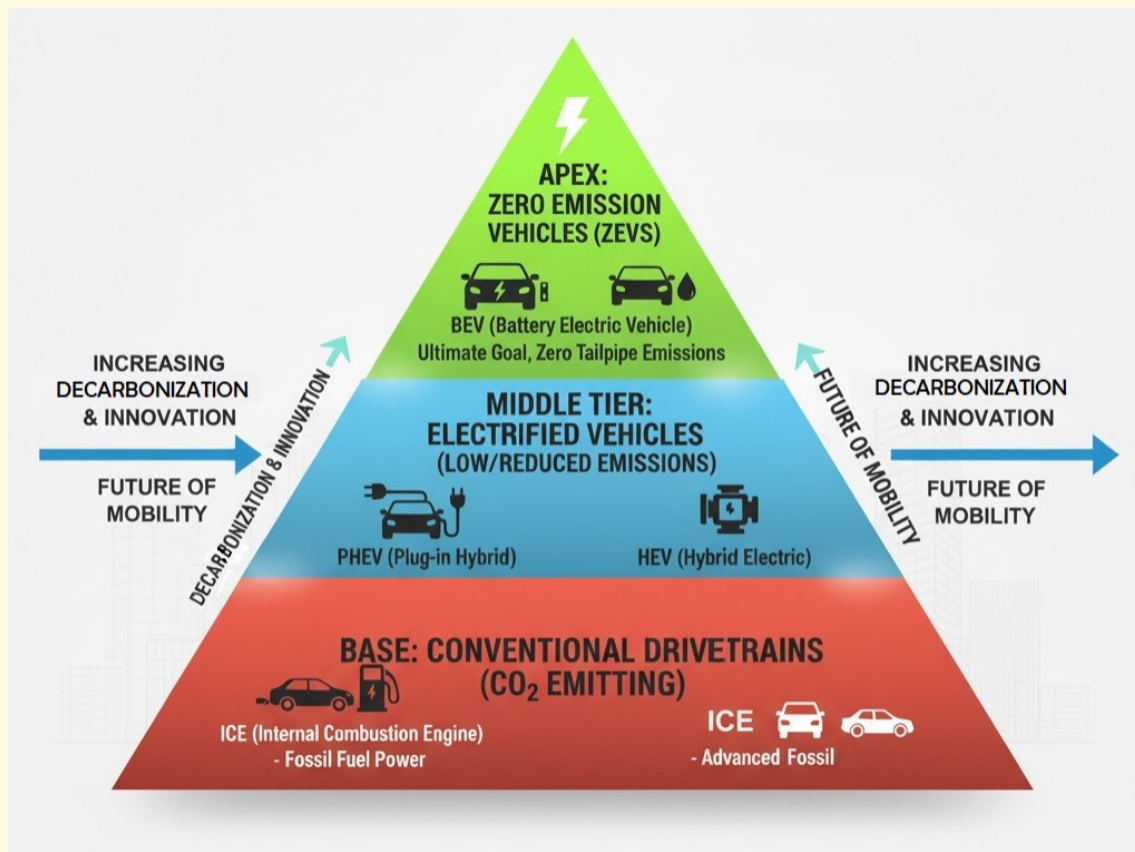
Group 3: Reactive transitioners. This group is defined by its action- and opportunity-driven approach, as it lacks a formal strategic plan. All of these SMEs have successfully entered the ZEV market through sales, and some have also invested in modern technology, but they are doing so without a long-term roadmap. Their transition is characterized by reacting to current conditions rather than proactively shaping their future.

Group 4: Lagging transitioners. These SMEs are not yet participating in the transition. They have no ZEV sales, a low level of technology and no formal plan to adapt. This group is the most vulnerable to future market disruption and represents a significant challenge for a just transition.

► **Box 2: The automotive decarbonization pyramid: Path to net-zero**

The transition in the automotive sector towards carbon neutrality can be effectively visualized as a pyramid of decarbonization, illustrating the hierarchy of vehicle technologies based on their CO₂ emission profiles. This structure highlights the progressive shift required across the industry, moving from conventional fossil fuel reliance towards advanced zero-emission solutions.

- **Base: Conventional drivetrains (CO₂ emitting):** This foundation consists of vehicles solely or primarily powered by fossil fuels, namely internal combustion engine (ICE) and clean diesel (CD) vehicles. They inherently produce CO₂ tailpipe emissions and represent the starting point for the industry's transition.
- **Middle tier: EVs (low/reduced emissions):** This transitional tier integrates electric power with combustion engines. It includes hybrid electric vehicles (HEV) and plug-in hybrid electric vehicles (PHEV). These vehicles offer significant emission reductions and improved fuel economy, balancing immediate environmental gains with infrastructure readiness.
- **Apex: ZEVs:** At the pinnacle, ZEVs — battery electric vehicles (BEV) and fuel cell vehicles (FCV) — produce zero tailpipe CO₂ emissions during operation. They represent the ultimate goal and long-term vision for a fully decarbonized transport sector.



Source: Author's own elaboration, adapted for a Japanese market perspective.

► 4. Sample profiles

4.1 Profiles of key informants

4.1.1 Confederation of Japan Automobile Workers' Unions

The mission interviewed three informants from the International Affairs Bureau at JAW. JAW is an industry-wide organization representing unions across Japan's automotive sector, including those from auto manufacturers, parts makers, sales dealers, transportation companies and other related firms.

The confederation is active in industrial policy, working conditions (including wages), social welfare and promoting national and international solidarity. Recently, JAW has contributed input for a METI SME support project (detailed in section 5.2.3.2), advocated for an industry-wide minimum wage and pushed for the inclusion of a just transition in the 2023 GX Basic Policy⁵. JAW has also implemented the Good Cycle Movement⁶ to encourage fair business-to-business transactions.

JAW comprises 12 federations with 784,000 members, representing 14 per cent of the total auto-related workers in Japan (as of September 2024). According to the informants, 65 per cent of JAW's enterprise members are SMEs. JAW's union federations are typically formed by multiple enterprise-based unions, which regularly engage in negotiations and discussions with their respective management counterparts on wage increases and the improvement of working conditions.

4.1.2 Japan Finance Corporation Research Institute

The mission met with two lead economists from the SME Research Group II at the JFCRI. As a research arm of the Japan Finance Corporation, the JFCRI specializes in conducting studies and surveys on financial and related issues affecting Japanese SMEs, including their workers, entrepreneurs and organizations.

In 2022, the institute surveyed 1,666 SMEs on their decarbonization efforts, leading to the publication of a study titled, "Actual State of Greenhouse Gas Reduction by SMEs" (Fukanuma and Harasawa 2023). This publication discusses the needs and difficulties SMEs face when implementing green initiatives.

The meeting served two main purposes: to obtain the JFCRI's views on the opportunities and obstacles Japanese SMEs face during various transitions, especially those related to enterprise financing, and to gain a better understanding of the issues involved in data collection from these businesses.

4.1.3 Japan Automobile Manufacturers Association, Inc.

At JAMA, the mission interviewed two leaders from the General Policy Affairs Division.

JAMA is an association of 14 leading Japanese car makers or OEMs, which include iconic brands such as Toyota, Honda, Nissan and Mazda. These major car manufacturers employ 190,000 workers. They sit at the very top of the automotive industry's supply chain, responsible for designing, assembling and selling the finished vehicles. As such, they are the key drivers of the entire industry's direction and exert a powerful influence on the firms in the tiers below.

⁵ The Green Transformation (GX) Basic Policy (February 2023) is a refined and strengthened version of Japan's 2020 Green Growth Strategy, providing detailed measures, incentives and regulations to accelerate decarbonization, particularly in the automotive manufacturing and transport sectors.

⁶ The Good Cycle Movement is an initiative to promote fair business-to-business transactions. The cycle starts with a price-pass through mechanism for corporate growth and capital investment, followed by an increase in wages, personal income and consumption and finally improving the Japanese economy.

JAMA actively recommends that its members pursue a multi-pathway approach to achieving carbon neutrality. They not only promote various types of electrified vehicles but also focus on several ways to improve energy efficiency and reduce CO₂ emissions throughout the life cycle of the vehicles they produce.

To facilitate a just transition among SMEs (their lower-tier companies), JAMA works closely with its suppliers' association, the Japan Auto Parts Industries Association (JAPIA), on supply chain resilience. This collaboration includes promoting fair business transactions using a cost pass-through mechanism.

The meeting with JAMA provided a clear direction from Japanese OEMs regarding the transition to CASE.

4.1.4 Central Japan Industries Association

In Central Japan, the mission team conducted an interview with ChuSanRen. This association supports 600 member SMEs across the prefectures of Aichi, Mie and Gifu, with 240 of these members being automotive-related. As an organization representing the interests of regional SMEs, ChuSanRen serves as a focal point for numerous development projects.

Among its various member supports, the association acts as the secretariat for the METI SME support project (Mikata project). (See section 5.2.3.2 for more details). From 2022 to December 2024, ChuSanRen provided project support to 164 automotive-related SMEs in the Chubu region. The mission team received a presentation by the Mikata project's secretariat and coordinator team from METI's central branch, followed by a question-and-answer session with two ChuSanRen project experts.

The interview provided the mission with valuable insights into the practical experiences of auto parts SMEs in one of Japan's most vibrant industrial clusters. It also offered a comprehensive overview of the target SMEs' overall situation and preparedness for the transition to CASE.

4.1.5 Interviewed enterprises and workers

In Aichi Prefecture, the mission team interviewed three auto parts SMEs that manufacture components for Tier 1 suppliers. All of these companies, recommended by METI, are currently transitioning to CASE and have received support from the METI Mikata project.

- The first company is a Tier 2 auto parts supplier located north of Nagoya. It currently generates 70–80 per cent of its sales from engine parts for hybrid vehicles. The company employs 80 workers (15 per cent female), with 90 per cent being regular employees and 10 per cent on contract. The mission team interviewed the General Manager and a manager from the Planning Division.
- The second company, also a Tier 2 auto parts supplier located near Nagoya, derives 30–40 per cent of its sales from brake and engine parts for battery electric and hybrid vehicles. The company operates both domestic and international factories; its Japanese factory employs 230 workers (30 per cent female). The team conducted interviews with the company president and a general manager at the management level, as well as with two male mechanical engineers and one female sales representative.
- The third company, located south of Nagoya, is also a Tier 2 auto parts supplier. It currently generates a small percentage (2.5 per cent) of its sales from engine parts for next-generation vehicles⁷, particularly battery electric vehicles. The company employs 417 workers (15 per cent female and 80 per cent local). The mission team interviewed a general manager at this company.

⁷ Next-generation vehicles refer to advanced transport focused on energy efficiency and carbon neutrality, including electrified vehicles (xEVs), such as HEVs, PHEVs, BEVs and FCVs.

For quantitative analysis, some of the data collected from these interviewed enterprises and their employees has been integrated into the survey dataset as observations from Aichi Prefecture. This data will be used to calculate aggregated figures and will be presented in subsequent sections of the report. In the report's running text and quotes, these companies will be referred to as SME number 21, 22 and 23, respectively.

4.2 Profiles of surveyed SMEs

The table below provides a detailed profile of the 23 SME respondents.

A key characteristic of the sample is the longevity of the businesses, with a majority (65 per cent) having been in the automotive industry for over 30 years. The companies are predominantly structured as stock companies or corporations (96 per cent) and exhibit a diverse distribution in company size, with a significant portion of firms employing between 30 and 299 full-time employees.

Geographically, the sample is concentrated in specific industrial sub-regions of Japan: the Tohoku sub-region and the Chubu and Kansai sub-region. Due to this small and non-representative distribution, the subsequent analysis will focus on the companies' transition groups rather than their location.

The workforce demographics reveal a relatively traditional composition, with a significant proportion of companies reporting a low percentage of female and foreign employees and a notable presence of workers over 60. Lastly, a majority of SMEs (61 per cent) engage in formal social dialogue through a designated worker representative, or Rōdōsha Daihyō⁸, while a smaller proportion have a labour union or structured labour-management dialogue.

► Table 3. Profiles of surveyed SMEs

Category	No.	%
Total SME respondents	23	100
1. Location	–	–
Tohoku sub-region	–	–
- Iwate	8	35
- Miyagi	6	26
- Unknown (prefer not to say)	1	4
Chubu and Kansai sub-region	–	–
- Aichi	3	13
- Kyoto	1	4
- Shiga	3	13
- Osaka	1	4

⁸ A designated worker representative or Rōdōsha Daihyō, is an employee who represents workers in a non-unionized workplace on matters required by Japanese labour laws, such as overtime and holiday work agreements.

► Table 3. Profiles of surveyed SMEs (Cont.)

Category	No.	%
Total SME respondents	23	100
1. Location	–	–
Tohoku sub-region	–	–
- Iwate	8	35
- Miyagi	6	26
- Unknown (prefer not to say)	1	4
Chubu and Kansai sub-region	–	–
- Aichi	3	13
- Kyoto	1	4
- Shiga	3	13
- Osaka	1	4
2. Years in automotive business	–	–
Less than 5 years	1	4
5–10 years	2	9
11–20 years	2	9
21–30 years	3	13
More than 30 years	15	65
3. Ownership structure	–	–
Stock company / corporation / public limited company	22	96
Limited liability company	0	0
Limited company	1	4
Sole proprietorship	0	0
4. Capital (Japanese yen)	–	–
Less than 10 million yen	1	4
10–50 million yen	11	48
51–100 million yen	8	35
101–300 million yen	3	13
More than 300 million yen	0	0
5. Number of full-time employees	–	–
1–29 employees	3	13
30–99 employees	7	30
100–299 employees	8	35
300–999 employees	5	22
1000 or more employees	0	0

► Table 3. Profiles of surveyed SMEs (Cont.)

Category	No.	%
6. Employee demographics	–	–
<i>6.1 Female (% of total)</i>	–	–
Less than 10%	3	13
10–19%	8	35
20–29%	5	22
30–49%	6	26
50% or more	1	4
<i>6.2 Elderly/over 60 (% of total)</i>	–	–
0 per cent	2	9
1–9%	9	39
10–19%	6	26
20–29%	3	13
30% or more	0	0
Missing	3	13
<i>6.3 Foreigner (% of total)</i>	–	–
0%	14	61
1–4%	4	17
5–9%	0	0
10–19%	1	4
20% or more	1	4
Missing	3	13
7. Formal social dialogue (% of answer)	–	–
Labour union (Enterprise union)	–	17
Designated worker representative (Rōdōsha Daihyō)	–	61
Structured labour-management dialogue	–	17
None of the above	–	13

Source: ILO survey, 2025

4.3 Profiles of survey respondents

4.3.1 Enterprise form respondents

The table below presents the profile of the 23 individuals who provided information for the enterprise-level survey. Understanding this profile is crucial because the respondent's role and expertise can significantly influence the quality and detail of the data provided.

A notable majority of respondents were male (96 per cent, with one female respondent), and most were over the age of 50 (60 per cent). The most common role was owner/president/CEO (35 per cent), followed by head of department (22 per cent). This distribution indicates that the survey data was primarily provided by senior management. This profile aligns with the survey's design, which specifically targeted top management with sufficient seniority and strategic oversight to provide comprehensive data on company-wide strategy, investment, human resource planning related to just transition. This demographic accurately reflects the profile of key decision-makers in Japanese automotive supply chain, thereby ensuring the data on enterprise response is of high quality.

While this senior management profile does not represent the broader worker demographic, our analysis explicitly mitigates this bias by cross-referencing all enterprise-level HR and transition data with the separate quantitative and qualitative data received from workers (see section 3.2.1). This methodological approach ensures that the policy recommendations are not solely based on the views of senior management. Instead, they are framed to address the equity dimension of just transition by specifically accounting for the potential disproportionate impacts on younger, less experienced workers, women, persons with disabilities and temporary/part-time employees.

In fact, the data confirms this approach was successful: respondents were generally familiar with the CASE framework (65 per cent reported being somewhat familiar to very familiar). This expertise ensured high data quality, minimizing the risk of "prefer not to say" or "cannot answer" responses on questions related to sensitive company strategy. Finally, the three missing data points on age are from interview respondents and were not reported in the survey.

► **Table 4. Profiles of enterprise form respondents**

Category	No.	%
Total respondents	23	100
1. Sex	–	–
Male	22	96
Female	1	4
2. Role within the company	–	–
Owner/president/CEO	8	35
Managing director	2	9
General manager	3	13
Plant manager	1	4
Head of department	5	22
Other	4	17

► Table 4. Profiles of enterprise form respondents (Cont.)

Category	No.	%
3. Age	–	–
Under 30	0	0
30–39	1	4
40–49	5	22
50–59	10	43
60 or older	4	17
Prefer not to say	3	13
4. Level of familiarity with CASE	–	–
Very familiar	6	26
Somewhat familiar	9	39
Slightly familiar	7	30
Not at all familiar	1	4

Note: “Other” roles include administration manager, general affairs, sales department manager and survey contact/liaison
Source: ILO survey, 2025

4.3.2 Employee form respondents

A total of seven workers participated in the study: three interviewed directly and four responding via an online survey. It is important to note that the four online survey responses cannot be directly linked to the specific SMEs in the enterprise survey. The only available information to contextualize these responses includes the company's number of employees, location and product type. Therefore, while the findings from this worker sample provide valuable qualitative insights, a direct comparison between individual workers' perceptions and their specific company's profile is not possible. The analysis will focus on identifying broader trends and common themes across the worker group rather than company-specific findings.

The following table presents the profile of these seven workers. A notable majority of the respondents were male (86 per cent) and Japanese nationals (100 per cent), with a concentration in the 30–49 age range. The most striking characteristic is their long tenure, with a majority (57 per cent) having worked at their company for more than 15 years. This suggests the data reflects the perspectives of highly experienced, long-term employees.

The respondents hold a mix of operational and leadership roles. The primary functional areas represented are production/manufacturing and maintenance and technical (29 per cent each), reflecting key operational roles within the automotive supply chain. All seven respondents are permanent employees, and none reported having a disability.

► Table 5. Profiles of employee form respondents

Category	No.	%
Total respondents	7	100
1. Sex	–	–
Female	1	14
Male	6	86
2. Nationality	–	–
Japanese	7	100
Foreigner	0	0
3. Type of working contract	–	–
Permanent employee	7	100
Other	0	0
4. People with disability	–	–
No	7	100
Yes	0	0
5. Age	–	–
Under 30	0	0
30–39	1	14
40–49	2	29
50–59	1	14
60 or older	0	0
Prefer not to say	3	43
6. Years working within the company	–	–
Less than one year	0	0
1–5 years	1	14
6–10 years	2	29
11–15 years	0	0
More than 15 years	4	57
7. Primary functional areas	–	–
Production/manufacturing	2	29
Maintenance and technical	2	29
Research and development (R&D)	1	14
Sales and marketing	1	14
Management and leadership	0	0
Administration/support (HR, finance, IT, purchasing and so on)	1	14

► Table 5. Profiles of employee form respondents (Cont.)

Category	No.	%
8. Role within the company	–	–
I work independently and do not supervise others.	2	29
I lead a small team or project but do not have formal supervisory responsibilities.	2	29
I directly supervise a team of employees.	0	0
I manage other supervisors or multiple teams/departments.	3	43
I am part of the senior leadership involved in broader organizational decisions.	0	0
9. Location	–	–
Tohoku sub-region	–	–
- Iwate	1	14
- Miyagi	1	14
Chubu and Kansai sub-region	–	–
- Osaka	1	14
- Shiga	1	14
- Aichi	3	43

Source: ILO survey, 2025

► 5. Findings

5.1 Overview of SME transition groups

To analyse how Japanese auto parts SMEs are adapting to the challenges of industry transition, the 23 surveyed respondents were classified into five distinct groups. This classification is based on three key criteria: the availability of a transition plan, the level of technology adoption (digitalization and automation) and their current involvement in the ZEV market. Please refer to the analytical framework section 3.2.2 for details of the grouping method. The fifth group, none-group, accounts for respondents with missing data on these key variables. The distribution of these groups is detailed in the table below.

In sum, the groups reveal a varied landscape of readiness within the sample. The leading transitioners (17 per cent) are a small but highly prepared segment, while the technologically ready group (13 per cent) is poised to adapt despite a lack of ZEV sales. The largest group with complete data is the reactive transitioners (30 per cent), who have ZEV sales but lack a formal plan. The lagging transitioners (17 per cent) are the least prepared. Finally, the None-group (22 per cent) represents a significant portion of the sample for whom key data was unavailable, highlighting a limitation in the dataset that prevents their classification.

► Table 6. Profile of SME transition groups

Group name	ZEV sales (1%+)	Technology level (moderate to high)	Transition plan (planning to adapting)	No.	%
1. Leading transitioners	Yes	Yes	Yes	4	17
2. Technologically ready	No	Yes	Yes	3	13
3. Reactive transitioners	Yes	Varies	No	7	30
4. Lagging transitioners	No	No	No	4	17
5. None-group	Data not reported	Varies	No	5	22
Total	–	–	–	23	100

Source: ILO survey, 2025

5.1.1 SME characteristics defining the transition groups

The table below provides the specific characteristics that define each of the five transition groups.

- ZEV sales showed a clear segmentation. All leading and reactive transitioners have existing ZEV-related sales, primarily in the 1–25 per cent range. In contrast, none of the technologically ready or lagging transitioners have ZEV sales.
- The level of digitalization and automation also played a significant role in the classification. The leading and technologically ready groups demonstrated a higher level of technological adoption, with a majority reporting moderate to high levels. This suggests a regular use of software for tasks like inventory management and a significant use of integrated systems and machinery in production. Conversely, lagging transitioners reported very low or low levels of technology, meaning their operations rely heavily on paper-based records and manual labour. The reactive transitioners showed a mixed technological landscape, with a blend of low and moderate levels, which contributed to their classification.

- Finally, the adaptive strategy development stage was a key factor distinguishing the groups. The leading and technologically ready groups are all actively engaged in strategy development, with a majority either implementing clear plans or having an ongoing, key strategy for adapting to CASE technologies. In contrast, every lagging transitioner reported that they have not started any formal planning. The reactive transitioners are mainly in the exploring stage, indicating that their existing ZEV sales have not yet translated into a formal adaptation strategy.

► **Table 7. Defining characteristics of SME transition groups**

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
Total SMEs	4	3	7	4	5
1. ZEV sales	–	–	–	–	–
0%	0	3	0	4	0
1–25%	3	0	7	0	0
26–50%	0	0	0	0	0
51–70%	1	0	0	0	0
>70%	0	0	0	0	0
Data not reported	0	0	0	0	5
2. Level of digitalization	–	–	–	–	–
Very low	0	0	2	2	0
Low	0	0	1	1	4
Moderate	3	0	4	1	0
High	1	3	0	0	1
Very high	0	0	0	0	0
3. Level of automation	–	–	–	–	–
Very low	0	0	0	2	1
Low	0	0	3	2	3
Moderate	3	1	4	0	1
High	1	2	0	0	0
Very high	0	0	0	0	0
4. Adaptive strategy development stage	–	–	–	–	–
Not started	0	0	0	3	4
Exploring	0	0	6	1	1
Planning	1	0	0	0	0
Implementing	1	0	0	0	0
Leading & adapting	2	3	0	0	0
Abandoned/paused	0	0	1	0	0

Source: ILO survey, 2025

5.1.2 Market and business profiles of SME transition groups

The data presented in this section provides a broader business profile for each of the five SME transition groups. This contextual information reveals key differences in their market position, supply chain role and global reach, which helps explain their varying levels of readiness.

5.1.2.1 Product focus and market scope

The following table highlights the distinct product focus and market exposure of each group. A key finding is the significant involvement of the leading transitioners and reactive transitioners in the BEV market, with 75 per cent and 86 per cent of the groups, respectively, producing relevant parts. In stark contrast, the technologically ready and lagging transitioners currently have no involvement in the BEV market. The technologically ready group is heavily focused on moulds and equipment parts, while the lagging transitioners show a narrow product scope, with 50 per cent focusing on powertrain and 50 per cent on suspension components, and are the only group with no engagement in electronic components.

► **Table 8. Product and market characteristics of SME transition groups**

Category	Leading transitioners (%)	Technologically ready (%)	Reactive transitioners (%)	Lagging transitioners (%)	None-group (%)
1. Auto part products (% of answer)	–	–	–	–	–
Mold and equipment parts	25	67	57	0	25
Engine components	75	33	43	0	0
Powertrain components	50	33	29	50	0
Interior trim and components	25	33	14	0	25
Body panels and structural components	25	0	14	0	0
Suspension and breaking system components	50	33	43	50	0
Electronic components and systems	25	0	43	0	0
Electronic and electrical equipment	0	0	29	0	0
Electrical components and wiring	0	0	29	0	0
Raw materials	0	0	14	0	0
Semi-finished materials	0	33	0	0	0
Assemblies and modules	0	0	29	0	0
Other	25	0	0	0	50
Cannot answer	0	0	0	50	20

► Table 8. Product and market characteristics of SME transition groups (Cont.)

Category	Leading transitioners (%)	Technologically ready (%)	Reactive transitioners (%)	Lagging transitioners (%)	None-group (%)
2. Type of vehicles their products used for manufacturing (% of answer)	–	–	–	–	–
BEV	75	0	86	0	100
FCV	25	0	14	0	50
PHEV	50	0	57	50	100
HEV	75	100	100	50	100
CD	25	0	14	50	50
ICE	100	100	86	100	100
Other	0	0	0	0	0
Cannot answer	0	0	0	0	0

Note: The data presented in the table are percentages calculated based on the total number of SME respondents (*n*) within each transition group. The respondent count for each group is: leading transitioners (*n*=4), technologically ready (*n*=3), reactive transitioners (*n*=7), lagging transitioners (*n*=4) and none-group (*n*=5). Respondents were able to select multiple answers for both auto part products and type of vehicle; therefore, the percentages in each column may sum to more than 100%.

Source: ILO survey, 2025

5.1.2.2 Supply chain role and global reach

This section reveals significant differences in the business models and dependencies of each transition group. A key finding is the distinct relationship between a group's preparedness and its financial dependency. The leading transitioners show the lowest level of dependence on a single customer, with 50 per cent of the group relying on their largest client for less than 20 per cent of their revenue. This suggests a diversified customer base, which grants them greater flexibility to adapt. In stark contrast, the reactive transitioners show a higher level of dependency, with 43 per cent of the group receiving 50–79 per cent of their revenue from a single customer. This high customer concentration may limit their ability to invest in new technologies or strategies without the direct support of a major client.

The level of automotive part sales is also a clear indicator of strategic focus. Both leading and technologically ready groups are highly focused on the automotive sector, with a majority generating over 70 per cent of their sales from auto parts. This contrasts with the more diversified sales profile of the reactive and lagging transitioners, who show a more varied distribution of automotive-related revenue.

A key finding challenges conventional assumptions about supply chain security: Tier 1 status does not guarantee readiness for the CASE transition. Strikingly, the most prepared firms — the leading transitioners — contain zero Tier 1 suppliers (0 per cent). These firms are instead distributed across Tier 2, Tier 3 and multiple-tier relationships. Conversely, a clear majority (75 per cent, or 3 out of 4) of the lagging transitioners — the group most vulnerable to disruption — are Tier 1 suppliers. This clearly demonstrates that proximity to the OEM does not translate into proactive strategic planning, underscoring the risk of relying on tier position as a proxy for adaptation.

The level of international activity is a further differentiator. The leading transitioners are the most globally integrated group, with 75 per cent having manufacturing facilities outside of Japan. In contrast,

a vast majority of the reactive transitioners (71 per cent) and all of the lagging transitioners operate solely within Japan, highlighting a domestic-only focus and a more traditional supply chain model.

► **Table 9. Business and supply chain profile of SME transition groups**

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
Total SME respondents	4	3	7	4	5
1. Automotive part sales	–	–	–	–	–
0%	0	0	0	0	0
1–25%	0	1	2	2	1
26–50%	0	0	0	0	1
51–70%	1	0	3	0	1
71–90%	1	1	2	0	1
91–100%	2	1	0	1	1
Cannot answer	0	0	0	1	0
2. Tier position	–	–	–	–	–
Tier 1	0	0	1	3	1
Tier 2	2	2	2	0	1
Tier 3 or lower	1	1	0	0	0
We supply to multiple tiers	1	0	3	0	1
We are not in tiered system	0	0	1	1	0
Cannot answer	0	0	0	0	2
3. Revenue from largest customer	–	–	–	–	–
Less than 20%	2	0	3	2	2
20–49%	1	1	0	1	1
50–79%	0	0	3	1	2
80% or more	0	1	0	0	0
Cannot answer	1	1	1	0	0
4. International activities on production and market	–	–	–	–	–
Domestic only	1	1	5	4	5
Export from Japan	0	1	1	0	0
Manufacturing outside Japan and sell there	0	0	1	0	0
Manufacturing outside Japan and also export from Japan	3	1	0	0	0
Other	0	0	0	0	0

Source: ILO survey, 2025

5.1.2.3 The critical role of customer signals and supply chain dependence

The transition pathway of Japanese SMEs is fundamentally shaped by their position within the multi-tiered supply chain and the resulting financial dependence on major customers, OEMs and Tier 1 firms. This relationship determines the level of strategic autonomy an SME possesses.

A key finding is the distinct correlation between a firm's level of preparedness and its reliance on a single major customer (table 9):

- **Autonomy of proactive firms:** The leading transitioners demonstrate the highest level of market diversification and, consequently, independence. Half of this group (50 per cent) rely on their largest customer for less than 20 per cent of their total revenue. This low customer concentration suggests a flexible market position, allowing them to proactively develop and implement their own transition strategies (100 per cent have a plan, table 6 and table 7) rather than waiting for a directive from a single large client.
- **Vulnerability of reactive firms:** In sharp contrast, the reactive transitioners show significant customer concentration. Nearly half of this group (43 per cent) receive 50–79 per cent of their revenue from their largest customer. This high dependency suggests a limited ability to invest in new technologies or strategies without explicit, strong signals and financial assurance from that key client. This explains why, despite having ZEV sales, the reactive group remains largely in the exploring phase (table 11), unable to translate market activity into a formal, self-driven strategy.
- **Tier position vs. preparedness:** A striking counter-intuitive finding is that tier position alone does not guarantee preparedness. A majority (75 per cent) of the lagging transitioners are Tier 1 suppliers, yet they exhibit the lowest levels of digitalization and have no transition plan. This suggests that the quality of the supplier-customer relationship (for example, whether it fosters co-creation or remains purely transactional) and the strength of the market signal are more critical than the tier status itself.
- **Global reach as an indicator of independence:** This dependency is further highlighted by global reach. leading transitioners are the most globally integrated (75 per cent have manufacturing outside Japan), giving them diverse market exposure and reduced reliance on the domestic Japanese market signals. Conversely, the high dependency of reactive (71 per cent domestic only) and lagging (100 per cent domestic only) transitioners reinforces a domestic-only focus and a more traditional, rigid supply chain model.

Ultimately, the data suggests that low customer concentration and international activity function as enablers of strategic autonomy, allowing leading transitioners to act as market leaders rather than simply being forced into a wait-and-see approach. The firms that remain domestically focused and reliant on a single customer are far more likely to remain in a reactive posture.

5.2 SME adaptation and operational response to industry challenges

5.2.1 Conceptual frameworks for SME adaptation in the Japanese automotive sector

The automotive sector is experiencing a period of significant business transformation, stimulated by evolving economic and political signals. The demand for traditional vehicle parts is expected to decrease due to a policy-driven shift towards electrification, driven by the CASE mobility trend and the push for decarbonization.

Japan's ambitious 2050 carbon neutrality commitment, announced in October 2020, necessitates accelerating the shift from gasoline and diesel vehicles to electrified vehicles (BEVs, FCVs, PHEVs and HEVs) as essential to achieving this goal.

This commitment served as the directive that immediately preceded and framed Japan's subsequent climate policy, including the detailed Green Growth Strategy (formulated in late 2020 up to early 2021). While the initial 2020 NDC baseline was maintained until its revision in 2021, the Green Growth Strategy provided new policy direction by explicitly stating: "Comprehensive measures will be taken to achieve 100 per cent electrified vehicle sales for new passenger cars by 2035".

This ambitious target was later codified and financially underpinned by the 2023 GX Basic Policy. The GX framework, a national 150 trillion yen public-private investment plan, is now the central mechanism dictating the pace and direction of industrial transition (see box 1).

This target signifies a significant reduction in demand for traditional vehicle parts. The aim for carbon neutrality throughout the entire lifecycle of automobiles and the target for 100 per cent electrified new passenger car sales by 2035 make it clear that business transformation is crucial for automotive parts SMEs to survive this shift.

Our stakeholder interviews identified three key outcomes for SMEs facing this shift: (i) business closure (driven by CASE trends, succession issues or rising costs), (ii) adaptation within the automotive sector through core technology-driven product development, and (iii) diversification into different sectors like renewable energy and robotics. Therefore, a successful transition for automotive parts SMEs is not just about adapting to next-generation vehicles⁹ and decarbonization; it is fundamentally about leveraging their core technologies to minimize economic disruption and ensure survival.

5.2.2 Factors influencing SME transition

5.2.2.1 Trends in the Japanese automotive industry

In 2023, the Japanese automotive industry produced 26.51 million vehicles, with only 34 per cent made domestically. While Japan's overall vehicle sales grew by 13.8 per cent, traditional ICE vehicles still dominate the new car market. The sales data for next-generation vehicles highlights a strong preference for HEVs, which account for 46.18 per cent of new passenger car sales and saw a significant growth rate of 4.1 per cent. In contrast, BEVs hold a much smaller market share at 2.22 per cent with a slower growth rate of 0.5 per cent. The table below details these trends, showing that the Japanese market is primarily transitioning toward HEVs, while the shift to BEVs and other ZEVs is still in its early stages. This HEV-focused trend is a key factor for Japanese parts manufacturers, as they can leverage their long-standing expertise in HEV technology, a market established in Japan since 1997.

⁹ Next-generation vehicles refer to advanced transport focused on energy efficiency and carbon neutrality, including xEVs, such as HEVs, PHEVs, BEVs and FCVs.

► **Table 10. Four-wheeled vehicle sales in selected countries and new passenger car sales in Japan (2023)**

Category	No. (million)	% of total	Year-over-year % change (2023 vs. 2022)
1. 4-wheel vehicle sales in selected countries (2023)	–	–	–
- Japan	4.78	–	+13.80
- USA	16.01	–	+12.60
- Europe	17.65	–	+17.00
2. New passenger car sales in Japan: 3.99 million units (2023)	–	100.00	–
- Conventional passenger vehicle (engine: ICE)	1.84	46.04	–
- Next generation vehicles ¹⁰	2.15	53.96	–
3. New next-generation passenger car sales in Japan	–	–	–
- BEV	–	2.22	+0.50
- FCV	–	0.01	–
- PHEV	–	1.13	+0.20
- HEV	–	46.18	+4.10
- CD	–	4.25	–

Source: (一般社団法人 日本自動車工業会a 2021), (一般社団法人 日本自動車工業会b 2023), (一般社団法人 日本自動車工業会c 2024)-a

5.2.2.2 Perceived disruption and adaptive strategies

An analysis of the perceived impact on core business and production processes during 2025–30 reveals a direct relationship between an SME's awareness of industry disruption and its strategic readiness (See the following table)

The lagging transitioners and a portion of the none-group perceive the lowest level of disruption, with most expecting minimal or slight changes. This perception is directly reflected in their lack of a strategic response; every SME in the lagging group has not started any formal adaptation plan.

In contrast, the leading transitioners, technologically ready and reactive transitioners are significantly more aware of the impending changes. A majority of these groups anticipate moderate or significant disruption to their business models and production processes. This heightened awareness is a key driver for their strategic actions.

The leading transitioners have translated this perception into proactive strategies, with all of them either planning, implementing or leading and adapting phase. The technologically ready group shows a similar readiness for action; one of the three SMEs in this group anticipates significant disruption and is already in leading and adapting phase. The reactive transitioners, while also perceiving disruption, are primarily in the exploring phase, indicating they recognize the threat but have not yet developed a formal plan to address it. This aligns with the market trend of HEV dominance, which may be forcing a reactive, rather than strategic, response to an immediate demand for certain parts.

¹⁰ In Japan, next generation vehicles are advanced vehicles focused on energy efficiency and carbon neutrality, including electrified vehicles (xEVs), such as HEVs, PHEVs, BEVs and FCVs.

Beyond the survey data, our interviews revealed a critical element for successful adaptation: the full recognition and leveraging of a company's core technological strengths. For example, an interview with experts at the ChuSanRen highlighted the unique technologies and construction methods of SMEs in the region, which provide a significant competitive advantage. Even large OEMs and Tier 1 suppliers rely on these SMEs for specialized capabilities. However, less than ten per cent of these SMEs fully recognize and leverage their core strengths for market advantage.

Therefore, a reassessment of these core strengths is crucial. SME number 23 — a member of the technologically ready group — excels in short delivery times and high-quality production of transmission components, prototypes and cutting tools. While demand for their current market signifies changes, they have concerns about the future reduction of engine parts order as the market completely move to pure CASE mobility. They strategically plan to expand into prototype manufacturing for automotive and other sectors (energy and robotics), seeking higher margins from smaller orders.

► **Table 11. Perceived disruption and adaptive strategy development stage of SME transition groups**

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group	Total
Total SME respondents	4	3	7	4	5	23
1. Anticipated disruption	–	–	–	–	–	–
Minimal disruption	0	0	1	1	0	2
Slight disruption	1	0	0	1	2	4
Moderate disruption	1	0	3	1	3	8
Significant disruption	1	1	2	0	0	4
Fundamental transformation	0	0	1	0	0	1
Mixed impact	0	0	0	1	0	1
Missing	–	–	–	–	–	3
2. Adaptive strategy	–	–	–	–	–	–
Not started	0	0	0	3	4	7
Exploring	0	0	6	1	1	8
Planning	1	0	0	0	0	1
Implementing	1	0	0	0	0	1
Leading & adapting	2	3	0	0	0	5
Abandoned/paused	0	0	1	0	0	1

Source: ILO survey, 2025

► Box 3: SME transition lifecycle: Phased challenges and capability gaps

The transition process for automotive component SMEs can involve five distinct, sequential phases of product diversification, as observed in the Aichi Prefecture. Success requires specific management and technical capabilities at each stage, revealing critical areas where external support is essential to bridge competency gaps.

Stage	Focus area	SME challenge	Key skills required (management and technical)
1. Awareness & motivation	Initial assessment	Unaware of changing market demands and future impact	Market intelligence, future planning, strategic communication
2. Strategic planning	Roadmap development	Difficulty translating market awareness into a cohesive strategy	SWOT analysis, financial planning, resource allocation, market analysis
3. New product development	Prototyping & design	Choosing the correct production model (high-volume OEM vs. low-volume custom/aftermarket)	Product design software proficiency, prototyping, advanced materials knowledge, negotiation, collaborative partnerships
4. Implementation & production	Process adaptation	Transitioning from stable high-volume to versatile, agile production; employee resistance to change	Personnel change management, process optimization, automation techniques, OJT development, cost planning
5. Scaling & market penetration	Sales & network	Leveraging core technology and existing resources to build new customer networks	Technical sales, customer relationship management (CRM), digital marketing, branding, cross-functional communication (engineering to sales)

Source: Mikata project's case study (2024) and ILO mission in Japan (2025)

5.2.2.3 Operational priorities and sustainability actions

This section examines the core operational priorities and carbon neutrality actions of the SME transition groups. While traditional priorities like quality, cost and delivery (QCD) remain important, confirming the assessment provided by interviewed ChuSanRen experts, the data also reveals a clear divergence in how different groups are approaching modern challenges.

The leading transitioners show a balanced approach, prioritizing quality and cost (100 per cent for both), and a majority also focus on delivery (67 per cent). This group is the most advanced in decarbonization, with all of them improving energy efficiency and a significant 75 per cent already developing parts for zero-emission vehicles. The technologically ready group stands out for its strong focus on environmental sustainability (100 per cent) and a corresponding commitment to improving energy efficiency and developing zero-emission parts. In contrast, the reactive and lagging transitioners are more traditional, focusing on core QCD metrics and showing minimal to no engagement in advanced decarbonization efforts like developing zero-emission parts or reducing their supply chain's carbon footprint.

This divergence is influenced by several key motivating forces and pressures affecting Japanese SMEs, as assessed by ChuSanRen experts and researchers from the JFCRI. These forces include:

- Customer pressure: Pressure from customers to adopt clear management indicators and targets is a key driver. However, this is largely in a trial phase.
- Internal motivation: Internally, SMEs are motivated by the need to increase corporate value (to attract customers and stakeholders), reduce costs and increase efficiency and recruit and retain employees by creating a company they can be proud of.

- **Creating opportunities:** Finally, SMEs are creating opportunities for new products and business by leveraging their existing strengths, particularly in the circular economy. Examples include installing solar panels on trucks, dismantling plastic products and recycling core shells.

► **Table 12. Operational priorities and carbon neutrality actions**

Category	Leading transitioners (%)	Technologically ready (%)	Reactive transitioners (%)	Lagging transitioners (%)	None-group (%)
1. Top 3 operational aspects (% of answers)	–	–	–	–	–
Safety (S)	33	0	57	50	40
Environment (E)	0	100	43	25	40
Quality (Q)	100	0	86	50	80
Cost (C)	100	0	43	50	60
Delivery (D)	67	0	43	75	80
2. Carbon neutrality actions (% of answers)	–	–	–	–	–
Investing in renewable energy	50	33	67	33	75
Improving energy efficiency	100	100	67	100	75
Reducing supply chain carbon footprint	50	33	0	0	0
Utilizing lower-carbon materials	0	0	17	67	25
Implementing carbon capture/offsetting	0	0	0	0	0
Developing zero-emission vehicle parts	75	33	0	0	0
Other initiatives	25	67	17	0	0

Source: ILO survey, 2025

► Box 4: Environmental initiatives and the carbon neutrality imperative in Chubu SMEs

The adoption of robust environmental protection and carbon neutrality (CN) practices among Chubu region auto parts SMEs is primarily driven by external market forces, leading to an immediate demand for specialized data management skills.

► Key drivers for adopting green practices

While most automotive parts SMEs historically prioritize cost improvements, the shift toward environmental action is motivated by both external mandates and internal strategic benefits:

- Customer pressure: The primary catalyst is pressure from OEMs and Tier 1 customers. This includes demands to present clear management indicators and targets, often accompanied by formal sustainability evaluations.
- Business value: SMEs are also proactively pursuing CN to enhance corporate value, improve competitiveness and create new business opportunities and product lines (for example, green technology components).

► Current status of CN adoption (2024 Survey)

A 2024 survey of Chubu Mikata project seminar participants indicates that a majority of SMEs are in the early, preparatory stages of the CN transition, showing a significant implementation lag:

- Initial awareness: 36–45 per cent of participants are focused only on collecting information on carbon neutrality.
- Strategy recognition: 21–31 per cent of participants recognize the fundamental changes needed within their organization.
- Solution development: Only 14–16 per cent of participants are actively developing solutions.
- Active implementation: Just 18–19 per cent of participants are currently actively implementing solutions (for example, process changes, investments).

► Implementation focus and the emerging skills gap

For the few companies actively pursuing environmental targets, the transition is creating an urgent need for specialized personnel capable of handling complex reporting requirements.

◦ *Proactive case studies:*

- Two studied companies, specifically driven by Tier 1 customer targets, have set ambitious goals:
- One company aims for a 50 per cent CO₂ reduction by 2030 (compared to 2015 levels).
- Another company has successfully achieved 10–23 per cent annual energy consumption reductions since 2019.

◦ *The talent challenge:*

Firms engaging in advanced environmental reporting must hire dedicated staff to focus on frameworks like the Science Based Targets initiative (SBTIs) and measure Scope 2 emissions. This specialized role requires a unique combination of skills:

- Technical: Strong data analysis skills (for measurement and reporting).
- Communication: English fluency (for international reporting and standards).

The difficulty in sourcing this talent was highlighted by one firm where the search for qualified personnel took a month, despite utilizing multiple employment services.

5.2.3 Business transition support

5.2.3.1 Awareness and utilization of external support

This section explores the SME awareness of and engagement with external support for their transition. The data reveals a clear divide: proactive groups are highly aware of available support and actively leverage their business networks (defined here as industry associations and organizations that support automotive transformation or technology adoption), whereas less prepared groups are largely unaware of these resources.

All of the technologically ready SMEs and 75 per cent of leading transitioners are aware of multiple support options, and this awareness translates directly into action. All of these SMEs are active members of relevant networks, which they utilize for information sharing, policy updates and networking with peers. Conversely, the lagging transitioners report no network memberships, and the majority of the reactive and none-group SMEs are also not members and are largely unaware of any available support.

This lack of network membership directly impacts the types of unmet needs reported. The technologically ready group's primary unmet need is funding for retraining, a logical next step for a group with a proactive strategy. In contrast, the reactive and lagging transitioners report a key unmet need for policy guidance and interpretation related to workforce transition and CASE. This gap is a direct consequence of their limited network engagement, as networks serve as the primary source for such critical information. Despite their varying levels of preparedness, all groups share universal concerns regarding identifying future skill needs, managing potential job displacements and establishing best practices.

► Table 13. Awareness and utilization of external support

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
1. Support awareness	–	–	–	–	–
Aware of several	1	3	0	0	0
Aware of a few	2	0	1	1	0
Aware of one or two	1	0	4	1	1
Not aware of any	0	0	2	2	4
2. Network membership	–	–	–	–	–
Yes	3	3	2	0	0
No	1	0	5	4	5
3. Top support provided by networks (% of answers)	–	–	–	–	–
Information sharing	67.0	100.0	100.0	–	–
Networking opportunities	67.0	67.0	0.0	–	–
Access to training	33.0	67.0	50.0	–	–
R&D collaboration	33.0	67.0	0.0	–	–
Policy advocacy	67.0	67.0	0.0	–	–

► Table 13. Awareness and utilization of external support (Cont.)

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
4. Unmet support sought (% of answers)	–	–	–	–	–
Funding for retraining	0.0	100.0	33.0	0.0	33.0
Identifying skill needs	67.0	0.0	50.0	50.0	33.0
Managing job displacement	67.0	0.0	50.0	50.0	33.0
Identifying new job roles	33.0	0.0	50.0	50.0	67.0
Best practices/case studies	67.0	0.0	17.0	100.0	67.0
Policy guidance	0.0	0.0	67.0	50.0	33.0

Source: ILO survey, 2025

5.2.3.2 Mikata Project

The Mikata project (2022–27) is a key initiative by the METI designed to support SME automotive parts suppliers through business transformation. This support is crucial given the policy-driven shift towards vehicle electrification and the resulting decline in demand for traditional parts. The project offers a comprehensive range of services, including free consultations, seminars on electrification, expert dispatch tailored to a company's specific needs, an e-learning platform and information on public subsidies. With 21 regional support centres covering all of Japan's 47 prefectures, the Mikata project is a highly accessible resource for eligible SMEs, including those in our sample (METIb, n.d.).

The survey data reveals a strong correlation between a firm's proactiveness and its participation in the Mikata project. The groups already engaged in advanced adaptive strategies (leading transitioners and technologically ready) show the highest participation rates. This proactiveness is likely linked to their higher perceived threat of disruption, which motivates them to seek out support. Conversely, groups that perceive minimal disruption and have not started a formal strategic plan (lagging transitioners) have very low participation. A key factor influencing this participation is access to information. The proactive groups are all members of relevant networks, providing them with the formal and informal channels to learn about initiatives like Mikata project. This explains why less prepared groups with low network membership have little to no awareness or participation.

Among the participating SMEs, there are also notable differences in how the support is utilized. Leading transitioners primarily use the project for expert consultations (75 per cent) and expert dispatch (50 per cent), indicating a demand for customized, in-depth support to fine-tune their existing strategies. The technologically ready group, however, shows a more diverse engagement across all support types, from seminars to expert dispatch.

The reasons for non-participation among the less prepared groups – including lack of awareness, a belief they can manage independently and a lack of time and resources to participate – are consistent with the views of a JAW representative and the President of SME number 22. They assess that preparing an adaptive plan is a form of investment, often constrained by a lack of perceived impact, financial resources and the time to allocate resources for future planning.

The case of SME number 22, a member of the leading transitioners group, exemplifies this strategic investment mindset:

► To address CASE, we formed a dedicated, cross-functional new product development team in 2020. This team, comprised of machinery, sales and supervisory staff, balances project work with existing responsibilities. Our BEV product developed three years ago prompted us to seek Mikata project support for further development and sales. This leverages current resources until revenue growth justifies a dedicated R&D section.

► **Management and workers of SME number 22**, a member of leading transitioners (Aichi Prefecture)

► **Table 14. Mikata project participation, support utilization and reasons for non-participation**

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
Total SME respondents	4	3	7	4	5
1. Mikata project participation	-	-	-	-	-
Yes	4	2	0	1	0
No	0	1	7	3	5
2. Mikata support used (% of answers)	-	-	-	-	-
Seminars	25.0	100.0	-	100.0	-
Practical training	25.0	50.0	-	100.0	-
Consultations	75.0	50.0	-	100.0	-
Expert dispatch	50.0	100.0	-	100.0	-
E-learning	0.0	0.0	-	100.0	-
Information on subsidies	0.0	0.0	-	0.0	-

► Table 14. Mikata project participation, support utilization and reasons for non-participation (Cont.)

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
3. Mikata effectiveness	-	-	-	-	-
Not helpful	0	0	-	0	-
Slightly helpful	0	0	-	0	-
Moderately helpful	3	2	-	0	-
Very helpful	1	0	-	1	-
Extremely helpful	0	0	-	0	-
4. Reasons for not joining (% of answers)	-	-	-	-	-
Lack of awareness	-	0.0	71.0	67.0	80.0
Administrative burden	-	0.0	43.0	0.0	20.0
Belief can manage independently	-	0.0	0.0	33.0	0.0
Eligibility/relevance concerns	-	0.0	14.0	0.0	20.0
Lack of time/resources	-	100.0	29.0	33.0	0.0
Not made strategic decision	-	0.0	43.0	33.0	0.0
Unwillingness to share data	-	0.0	14.0	0.0	0.0
Scepticism	-	0.0	0.0	0.0	0.0
Sufficient support from others	-	0.0	14.0	0.0	0.0

Source: ILO survey, 2025

► **Box 5: Utilization paradox and equity gaps in transition support**

Analysis of regional support initiatives (for example, Mikata project) reveals a fundamental utilization paradox: extensive, no-cost resources exist, yet they are significantly under-utilized, particularly by the smaller, lower-tier firms who require them most.

I. Utilization and access

Metric	Finding	Implication
Overall reach	Mikata project reaches only approximately 1.5% of target SMEs in Central Japan (165/10,800).	Scale of deployment is far below the size of the vulnerable market.
Tier engagement	Tier 2 firms show the highest engagement (56%), while Tier 3 firms show the lowest (11%).	Tier 3 firms suffer severe network isolation and lack of capacity to dedicate resources to strategic planning.
Service uptake	Underutilization of basic services (for example, only 55% of beneficiaries request consultation; no interviewees used the e-learning system).	Points to underlying issues of low business owner motivation/vision, or a disconnect between the support offered and its perceived immediate value.

II. Financial equity and effective interventions

Challenge / success	Details
Financial equity	Cost pass-through negotiations resulted in an average 5% wage increase, but benefits are shared unevenly. Government tax incentives for wage increases were reported as being more beneficial for large companies and of limited use for smaller Tier 2 firms.
Proven success	Support is highly effective when relevant and specific. Positive feedback was given for specialized training programmes (EV battery disassembly) and the practical knowledge gained from expert's customized consultations.
Knowledge transfer model	Successful dissemination of automotive trend information through Mikata seminars, followed by internal company seminars (SME23), demonstrates an effective knowledge transfer process.

Source: Mikata project's outreach data and ILO mission in Japan (2025)

5.3 Just transition in Japan's automotive sector: A stakeholder assessment

5.3.1 Japan's auto employment: Estimated CASE job changes

In 2023, 5.58 million workers were engaged in automotive manufacturing and related industries in Japan, representing 8 per cent of the nation's total employment, according to JAMA. The workforce distribution was 50 per cent in the road and transport, 18 per cent in automobile sales and services, 16 per cent in automobile production (including vehicle manufacturers and suppliers of parts, accessories, bodies and trailers), ten per cent in materials and equipment supply and seven per cent in automotive fuel/recycling (JAMA 2024). While the precise number of workers affected by the transition to CASE remains uncertain, we estimate that approximately 1,594,600¹¹ individuals within component manufacturing, raw materials and related supply chains are likely to be impacted.

This significant automotive workforce faces potential job transformations due to the CASE transition, necessitating proactive planning and a robust evolution of the social protection framework. Existing Japanese labour laws provide a foundation, particularly through unemployment insurance, healthcare access, pension security and robust reskilling benefits provided primarily via the Employment Insurance System's education and training allowances. However, the scale and nature of the CASE transition demand supplementary measures to ensure adequacy and relevance. These measures include: focusing on advanced retraining for specific, future-oriented skills (identified by key national and global economic trends discussed in following paragraph); supporting inter-company mobility as industries restructure; adapting potentially more job-based employment models (hiring and compensating workers based on their specific functions); and providing targeted support for SMEs and addressing potential regional economic impacts. All these measures must be implemented based on labour-management dialogue and consensus.

Fangmiao Zou (2024) notes that, reflecting these evolving needs, "Japanese labour market policies have been incrementally shifting towards re-regulation and worker protection since around 2010". This shift focused on attempts to increase the number of standard employees — typically those with permanent contracts — by setting legal obligations for companies to convert non-standard workers and explicitly banning exploitative practices. The policy effort then progressed to matching the work conditions of non-standard workers with those of standard workers, a goal signified by the work-style reforms and associated equal pay for equal work policies gradually being enacted since 2017. Current policy discussions centre on the new trinity reform of labour markets proposed in 2023. This reform comprises three main components:

1. Reskilling/upskilling, with guidelines that identify high-employability fields critical for future growth, such as IT, data analytics, project management and technological research.
2. Inter-company mobility, focusing on improving unemployment and retirement benefits and job intermediation services, as well as encouraging side-jobs.
3. Job-based employment, the least developed component. Current reform guidelines primarily offer corporate case studies that illustrate internal management changes, such as drafting specific job descriptions, redesigning wage systems and creating internal matchmaking platforms for re-allocation.

¹¹ This figure (1,594,600) was calculated by summing the number of workers in the sub-categories identified as most likely to be impacted by the CASE transition: automobile production (excluding OEM manufacturing), automotive fuel/recycling and all sub-categories within materials & equipment supply. The individual worker counts for these sub-categories are detailed in table 15.

Our study, encompassing both qualitative and quantitative data, will help in understanding the current situation in terms of worker impact and policy needs for a just transition, particularly in the context of these emerging policy directions.

► **Table 15. Employment in the automobile manufacturing and auto-related industries in Japan (2023)**

Category	Sub-category	No. of workers
Automobile production	Automobile manufacturing (OEM)	190 000
	Auto parts and accessories manufacturing	668 000
	Auto body and trailer manufacturing	25 000
Road & transport	Road freight transport	1 777 000
	Road passenger transport	476 000
	Road transport related services	387 000
	Vehicle rental services	50 000
	Postal activities	103 000
Automotive fuel/ recycling	Automotive fuel retailing	294 000
	Auto damage insurance	7 900
	Automobile recycling	1 700
	Automobile parking	64 000
Materials & equipment supply	Electrical machinery & equipment	98 000
	Non-ferrous metals	19 000
	Iron & steel	107 000
	Metal products	40 000
	Chemicals (including paints), textiles and petroleum	34 000
	Plastics, rubber and glass	160 000
	Electronic parts & equipment	35 000
	Manufacturing machinery	5 000
	Information services	36 000
Sales & services	Automobile retailing (including motorcycles, used vehicles and auto parts and accessories)	568 000
	Automobile wholesaling (including motorcycles, used vehicles and finished/used parts and accessories)	221 000
	Automobile servicing	220 000

Source: (JAMA 2024)

5.3.2 Labour market challenges: Aging and shortages

In the SMEs we surveyed, the majority have a small to moderate percentage of older employees (see list 6.2 in table 3). Over half of the firms surveyed (65 per cent) have 1–19 per cent of their workers aged 60 or over. While a few companies (13 per cent) show a higher concentration (20–29 per cent), none in the sample reported having 30 per cent or more elderly workers. Employers assessed these workers as facing challenges during the CASE transition. Although our worker survey could not capture information from older employees, this section discusses the situation of labour supply, which must be considered alongside potential job displacement due to the transition.

The challenges related to the workforce are not confined to SMEs; JAMA identifies them as major industry-wide constraints, especially listing labour shortage and the struggle to secure quality staff. This struggle reinforces the need to rely on foreign workers as a stop-gap measure. While some companies have seen slight workforce reductions offset by increased productivity from technology, the overall trend is toward a shrinking and aging labour pool, exacerbated by a declining interest in mechanical engineering among younger generations. ChuSanRen expert perspectives suggest that this labour shortage and the structural transition are driving SMEs toward greater automation¹². This strategy aims to manage workload reduction and reduce reliance on personnel performing simple tasks. The drive for automation (specifically involving robots) is reinforced by a strong internal focus on cost improvement and the need to deepen core technology to survive the transition, collectively signalling a strategic move to maintain competitiveness against a shrinking labour supply.

The acute shortage of male workers has brought the gender dimension of recruitment into sharp focus. For example, management from one firm reported a significant failure to meet hiring goals for male workers:

►► We face a significant labour shortage, particularly among male workers. Our new graduate hiring has fallen far short of our annual target of six per year: we hired five in 2023 (three female), three in 2024 (all female) and none in 2025. This has resulted in a smaller and increasingly aging workforce.

► **Management of SME number 23**, a member of technologically ready transitioners (Aichi Prefecture)

¹² Summarized from expert presentation on SME labour transition impacts (Expert to Central Region's Mikata project, February 2025 at ChuSanRen office)

This trend illustrates a differentiated impact of the transition on the workforce. While the majority of surveyed firms report having less than 30 per cent female workers, qualitative interviews show that women are increasingly filling both new, high-skill roles and remaining concentrated in high-risk roles. For instance, one firm (SME 22) spent a month using both public and private services to recruit a qualified female candidate to combine data for SBTI calculation, a post requiring specialized analytical skills and English fluency. Conversely, the high concentration of women in routine manufacturing roles, such as inspectors (up to 85 per cent of female staff in some plants), highlights that the benefits of the transition — or the risk of automation — are not evenly distributed by gender.

To address labour shortages, the studied companies employ various recruitment and retention strategies. These include recruiting retired workers on contracts, hiring workers from bankrupted companies and utilizing government programmes (for example, prefecture's recruitment fair and cost pass-through mechanism¹³). Recruitment channels include employment agencies, Hello Work¹⁴ and the companies' own HR departments (including social media). They have also engaged overseas engineers (through programmes like AOTS¹⁵) and utilized foreign worker trainee/internship programmes. Several companies have implemented internal HR reforms to improve employee retention. These include increased worker engagement initiatives, improved evaluation systems and reskilling programmes. Internal transfers and careful consideration of worker adaptability are also used, particularly when shifting employees from mass production to prototyping roles. Regular individual interviews and evaluations are conducted to gather feedback and manage worker requests.

■ ■ Our workforce size has been relatively stable, though retirements have led to a slight decrease this year. Productivity and turnover have since improved due to digital tools and technological advancements. However, recruiting new graduates has been a challenge for the past five years, with only one or two hires annually, which is contributing to an aging workforce.

► **Management of SME number 21**, a member of technologically ready transitioners (Aichi Prefecture)

¹³ Cost pass-through is a commercial principle that allows a business to adjust prices to its customers in response to increases in its own costs, for example, from raw materials, labour or energy).

¹⁴ Hello Work: Japan's public employment service, offering job matching and career counselling

¹⁵ AOTS: The Association for Overseas Technical Cooperation and Sustainable Partnerships, which facilitates technical training and cooperation

5.3.2.1 The post-60 re-employment system: Context and wage implications

While the data suggests most surveyed SMEs have a moderate percentage of workers over 60, the legal and structural mechanism governing this demographic presents a key challenge to a just transition, particularly regarding remuneration.

In Japan, the traditional mandatory retirement age is commonly set at 60 years old. To maintain employment for an aging workforce, the Act on Stabilization of Employment of Elderly Persons (1971, last amended 2021) mandates that employers must secure continuous employment for workers who wish to continue until at least age 65. The prevalent method for fulfilling this obligation is the continuous employment system (a formal re-hiring arrangement).

Under this system, the worker's original contract ends at 60, and they are immediately offered a new, typically fixed-term contract. While employees' responsibilities often remain the same or similar, the new contract is usually accompanied by a substantial wage reduction. Analysis of government labour data highlights the scale of this cut. As Jones and Seitani (2019) report: "A government firm-level survey of workers in their 60s found that nearly one-third of re-hired workers experienced a wage cut of more than 40 per cent compared to their pre-retirement wages (JILPT, 2016). For men in the 60–64 age cohort in 2016, the wage decline was found to range from 39 per cent in large firms to 23 per cent in small firms, relative to the wages of the 55–59 age cohort." This dramatic reduction occurs because the previous seniority-based pay structure — the system tying wages primarily to age and length of service — is terminated upon re-employment at age 60.

This newly introduced mechanism, while ensuring job security, creates a structural reality of age-based wage disparity for highly experienced workers, which undermines the goals of promoting skills- and performance-based remuneration and achieving social equity and inclusion for this crucial demographic.

5.3.3 Employer and worker perspectives on job changes

This section, drawing on the provided tables, explores employers and workers perceptions regarding the changes necessitated by the just transition. The findings highlight both areas of agreement and significant disconnects in the perceived urgency and on-the-ground reality.

The survey data reveals a clear distinction between proactive and reactive firms. Only the leading transitioners and technologically ready groups have taken concrete steps to create a few new roles for the CASE transition. This action-oriented approach is already being deployed at the highest level of the industry. JAMA reports that members with a combined workforce of 190,000 are actively managing internal mobility, stating they are "working on manpower including: reskilling programmes and transferring workers to other department or different jobs". This proactive engagement is reflected in their perceptions of required skills; while proactive firms see a shift toward new technical skills, many other groups believe it is "too early to assess". Despite these differences in action, there is a shared concern: workers with limited digital literacy and older workers are widely perceived as most at risk.

The gender segmentation of the workforce, as discussed in section 5.3.2, directly contributes to the perceived risk profiles. Enterprise respondents consistently perceive workers in manual/repetitive roles (for example, 50 per cent of leading transitioners and 40 per cent of the none-group) as facing the most significant challenges. Given that women are highly concentrated in factory inspection and routine tasks (up to 85 per cent in some plants), a substantial portion of the female workforce is implicitly placed in the category most vulnerable to automation and job changes. Conversely, the few highly skilled female hires for analytical roles (such as SBTI calculation) are entering areas seen as vital for the transition. This suggests that the benefits of new job creation, while rare, are also skewed. This stark contrast reinforces the need for targeted planning to mitigate gender-based vulnerability in the transition.

-
- The number of workers performing simple tasks is expected to be reduced significantly (maybe slowly by 2035). Our strategies include reducing workload and variety, establishing in-house OEM production, automation (robotics) and outsourcing conventional technology method.
-

► **ChuSanRen's expert** (Aichi Prefecture)

Given the small sample size of only seven workers from five SMEs, these findings are suggestive rather than definitive, but they provide valuable anecdotal evidence. The data indicates a link between a company's transition efforts and a worker's perceived job security. Workers in companies that manufacture ZEV parts generally feel more secure, with most reporting they are "somewhat secure". In contrast, one of the two workers in a company with no ZEV parts feels there are "neither secure nor many opportunities". Furthermore, the limited data suggests that workers in companies with ZEV parts are more likely to have experienced a greater number of job changes over the past five years, including the need for new skills and tools.

The data from both perspectives suggests a potential gap between employers' perceptions and the on-the-ground reality for their workers, a critical challenge for a just transition. While a majority of employers see the transition as a distant concern, the limited worker data suggests that changes are already being felt in job security and skill requirements. This indicates that the transition's effects may be trickling down to the workforce even in companies without a formal strategy. Achieving a fair and equitable transition will require more widespread, proactive planning and action to address these emerging issues before they lead to greater insecurity.

The difficulty in managing internal job transformation highlights the human and structural challenges faced by SMEs:

-
- A major challenge is the resistance from existing employees in the mass production division to transferring to the prototype/small-lot production division, which requires new skills and adaptability.
-

► **Top management of SME number 23** (Aichi Prefecture)

This resistance is compounded by the practical realities of managing diversified tasks within the same job structure, where employees must balance new project work — internal innovation such as developing new, client-specific products and services that respond to trends like CASE – alongside existing routine duties:

► Machinery task is inherently satisfying particularly when I accomplish my work. However, it is hard to maintain good balance between routine work and project work. For example, we need to carefully allocate time for five projects we get per year, alongside managing orders from our regular customers.

► A chief leader of machinery SME number 22 assigned to work in company's new product development project (Aichi Prefecture)

Despite the anxiety that the transition can cause, workers in specific, less-threatened departments may feel more secure, illustrating a differentiated perception of risk within the workforce:

► The shift to electrification caused considerable anxiety among engine-focused engineers at other companies during the pandemic. While their concerns about job security were understandable, I felt more secure due to my work on automotive brakes. As far as I know, they remain employed at those companies.

► A chief leader of Machinery SME number 22, a member of Leading Transitioners (Aichi Prefecture)

► Table 16: Employer perspectives on job creation, skills shift and groups of at-risk workers

Category	Leading transitioners (ZEV parts, tech and plan)	Technologically ready (No ZEV parts but tech and plan)	Reactive transitioners (Zev parts)	Lagging transitioners (No ZEV parts)	None-group
1. CASE new job roles	–	–	–	–	–
Created many new roles	0	0	0	0	0
Created a few new roles	3	2	0	0	0
Considered but not created	0	1	1	0	1
Not created any new roles	1	0	6	4	4
2. Skills required for CASE	–	–	–	–	–
Shifted to technical/digital	1	1	1	0	0
Slightly shifted to technical/digital	1	0	1	0	0
Remained traditional	0	0	0	0	1
Sustainability awareness needed	0	0	1	0	0
Mix of new skills and sustainability	1	0	2	0	2
Varied by role	0	0	1	1	1
Too early to assess	0	0	1	3	1
3. Workforce perceived to face challenges (% of answers)	–	–	–	–	–
Manual/repetitive roles	50.0	0.0	33.0	25.0	40.0
Limited digital literacy	0.0	100.0	83.0	25.0	80.0
Older workers	0.0	0.0	50.0	50.0	80.0
ICE-related roles	50.0	0.0	0.0	25.0	0.0
Lower formal education	0.0	0.0	17.0	50.0	40.0
Other	0.0	0.0	0.0	0.0	0.0
No specific group	33.0	0.0	14.0	0.0	0.0

Source: ILO enterprise survey, 2025

► Table 17: Worker perspectives on job security and changes at workplaces

Category	ZEV parts	No ZEV parts
Total number of employees	5	2
1. Worker perceived job security	–	–
Very secure	0	0
Somewhat secure	4	1
Neither secure nor many opportunities	1	1
Somewhat insecure	0	0
Very insecure	0	0
2. Changes workers noticed (% of answer)	–	–
Daily tasks changed	80.0	50.0
Amount of work increased	40.0	50.0
Amount of work decreased	0.0	0.0
New tools/equipment	60.0	100.0
New technical skills	20.0	0.0
New EV knowledge	20.0	0.0
Automation/robotics skills	20.0	50.0
Sustainability skills	40.0	0.0

Source: ILO worker survey, 2025

5.3.4 Skill development and retraining

5.3.4.1 Employer perspectives on training and reskilling

Based on the survey data in table 18, employer-led training and reskilling initiatives vary significantly across different SME groups. Only the leading transitioners and technologically ready groups have established formal training programmes, with the former having a more comprehensive approach. In contrast, a significant number of firms from the reactive, lagging and none-groups either do not offer training or have yet to implement their plans.

When training is offered, a clear picture of methods and targets emerges. All of the technologically ready firms and a majority of the leading transitioners rely on a blend of in-house training, external courses, OJT and e-learning platforms. Their efforts are largely targeted at R&D and sales teams and, for a third of these firms, at production and maintenance staff as well.

Companies face considerable barriers to effective training, most notably a lack of internal expertise (67 per cent of leading transitioners), uncertainty about future skill needs (71 per cent of reactive transitioners) and a lack of time or resources (100 per cent of technologically ready firms).

These barriers are exacerbated by a fundamental deficit in forward-looking management skills within many smaller firms, particularly in market planning:

There is no one who can plan or who has the necessary know-how (experience).

► **ChuSanRen expert** (Aichi Prefecture)

To address resource and skill deficits in core manufacturing areas, some SMEs successfully leverage subsidized external programmes. One management interviewee confirmed the utilization of government-affiliated vocational training centres:

We received training from Chubu Polytech Centre, one of several providers we considered. The training was conducted under JEED (Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seeker), which is overseen by the Ministry of Health, Labour and Welfare). Courses for in-house training covered topics on, for example, stable operation of machine and welding and were part of a low-cost programme.

► **Management of SME number 22** (Aichi Prefecture)

This evidence demonstrates how government-subsidized programmes provide a cost-effective means for smaller manufacturers to maintain and update core competencies, directly reducing the financial burden of essential skills development.

These barriers are worsened by policy gaps in targeted skill development. For instance, JAMA reported the discontinuation of a specific engineer training programme, signalling a reduction in crucial high-skill reskilling capacity. While the industry utilizes government programmes such as Training of Trainers and foreign worker internship scheme in local subsidiaries, the overall landscape suggests a deficit in sustained, high-level technical training needed for the CASE transition. Experts from the ChuSanRen contextualize these challenges, noting that SMEs are struggling with manpower shortages and are employing various countermeasures like training technicians for engineering roles and relying on elderly and part-time workers. These difficulties align with the most inadequately addressed skills, including an understanding of CASE technologies and digital literacy.

5.3.4.2 Worker perspectives on skill development

The limited data from workers presented in table 19 suggests a clear link between a company's transition strategy and the opportunities available to its employees. However, it is important to note that a majority of the sample (three of five workers) from the ZEV parts group came from a single company. With that in mind, the data indicates that workers from this specific company reported having many or some opportunities to learn new skills and found the training to be very or adequately useful. In stark contrast, both workers in the No ZEV parts group reported having either few opportunities or none at all, and only one of them found the training to be adequately useful.

The qualitative findings reinforce the urgent, practical nature of the skills needed for companies pursuing business diversification (for example, business-to-consumer or B-to-C):

■ ■ For B-to-C, the new skill “product development” is required. A person on our team lacks this skill and must learn it.

► A senior expert of machinery at SME number 22 assigned to work in company's new product development project (Aichi Prefecture)

Despite the differences in training availability, workers from both groups overwhelmingly agree on which training methods are most helpful. OJT (or learning by doing) is the most favoured method for ZEV parts workers (100 per cent), while external courses are most valued by those in companies with no ZEV parts (100 per cent). This highlights a strong, shared preference for practical, hands-on learning (work-based training) over purely traditional classroom or online methods.

Workers from companies with ZEV parts also report receiving safety-related training to a “great extent” (80 per cent), suggesting that safety is integrated into the training processes in more proactive companies.

5.3.4.3 Mismatch uncovered: A holistic view of skill gaps

A comparative analysis of the employer and worker data reveals two major challenges to a just transition: a critical skills mismatch and a significant disconnect between employer perception and the reality experienced by workers on the ground. This gap is further compounded by broader labour market issues, namely a shrinking and ageing workforce, which are not being adequately addressed by current firm-level strategies. Addressing these intertwined challenges fundamentally requires enhanced labour-management collaboration to align training, strategy and on-the-ground reality.

1. Identifying the skills mismatch

The skills gap is not an isolated issue but is inextricably linked to broader labour market challenges. Based on the employer survey data (see table 18, list 4), a clear mismatch exists between the traditional mechanical skills of the existing workforce and the new skills required for the CASE transition. This mismatch affects all companies, but in different ways. For example, technologically ready firms, lagging firms and none-groups cited a need for skills in digital literacy and data analytics (67 per cent and 100 per cent, respectively), while leading transitioners and reactive transitioners were more concerned with a fundamental understanding of CASE technologies (67 per cent and 75 per cent, respectively). This suggests that while all companies face a skills gap, the more proactive firms are dealing with a more advanced need for new knowledge, while others are still grappling with a lack of basic digital skills. The

mismatch was identified by asking companies to report on their most pressing skill needs and the skills they felt were most lacking in their workforce.

Strong demand for cost improvement in both new and old product necessitates developing and upgrading our personnel to further enhance productivity. This requires securing quality control staff to reduce in-process defects and inspectors, strengthening production management functions and securing staff capable of improving logistics... Ultimately, we must shift to highly skilled personnel model.

► **ChuSanRen expert** (Aichi Prefecture)

2. The disconnect between perception and reality

The limited availability of training in less-proactive firms directly corresponds to a lack of opportunities for their employees. While employers in the Reactive and Lagging groups cite uncertainty about future skill needs as a primary barrier (71 per cent and 67 per cent, respectively, in table 18, list 5), the limited data from their workers suggests that the effects of the transition – such as changes in daily tasks and the need for new tools and skills – are already being felt (see table 17, list 2). For example, one worker from a company with no ZEV parts reported having “no opportunities” to learn new skills, while another had only “a few opportunities”. This indicates that while employers may see the transition as a distant concern, the practical impact is already trickling down to the workforce, creating a widening perception gap. This gap is a significant challenge to a just transition, as it can lead to increased job insecurity and a sense of neglect among employees. The urgency of closing this perception gap underscores the need for formalized, continuous labour-management dialogue to ensure adaptive strategies are based on the immediate reality experienced by the workforce.

3. The interplay of skills and labour market dynamics

This skills mismatch is particularly concerning when viewed alongside the fact that these firms are also the least likely to offer formal training. Simultaneously, these companies are contending with labour shortages, resorting to hiring retired workers and foreign trainees to fill immediate gaps (supported by table 3, list 6.3). The employer survey data (see table 3, list 6.2) also shows that most firms have a small percentage of employees aged 60 or older (65 per cent of firms have 1–19 per cent in this group). The reliance on these stop-gap measures, rather than on proactive reskilling of their existing workforce, suggests a reactive rather than strategic approach. Ultimately, the lack of foresight regarding skill needs, combined with an ageing labour pool, is poised to worsen the skills mismatch and create a more profound labour shortage in the long term, particularly as more workers with traditional skills retire without adequate replacements.

► Table 18: Employer perspectives on skills development, training and barriers

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
1. Formal training	–	–	–	–	–
Comprehensive and ongoing programmes	1	2	0	0	0
Some initial or limited programmes	2	0	0	0	0
Exploring or planning programmes	0	0	0	0	0
Considered but not yet implemented	0	1	4	0	2
No programmes and no immediate plans	1	0	3	4	3
2. Training methods (if offered)	–	–	–	–	–
External training by specialized institutions	100.0	100.0	–	–	–
In-house training by company experts	33.0	100.0	–	–	–
OJT and mentoring	67.0	100.0	–	–	–
Online courses and e-learning	33.0	100.0	–	–	–
Partnerships with educational institutions	33.0	0.0	–	–	–
Training/support from Tier 1 customers	0.0	0.0	–	–	–
3. Targeted workers (percentage)	–	–	–	–	–
Production line workers	33.0	33.0	67.0	0.0	0.0
Maintenance and technical staff	33.0	67.0	0.0	100.0	100.0
R&D personnel	67.0	67.0	0.0	100.0	100.0
Sales and marketing teams	100.0	33.0	33.0	0.0	0.0
Management and leadership	0.0	33.0	100.0	0.0	0.0
All employees	0.0	33.0	33.0	100.0	100.0
No targeted programmes	0.0	0.0	25.0	50.0	0.0

► Table 18: Employer perspectives on skills development, training and barriers (Cont.)

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
4. Least adequately addressed skills (percentage)	–	–	–	–	–
Understanding of CASE technologies	67.0	67.0	75.0	50.0	50.0
Skills for EV component manufacturing/maintenance	33.0	67.0	50.0	50.0	50.0
Knowledge of sustainable materials and processes	67.0	33.0	50.0	50.0	50.0
Digital literacy and data analytics	33.0	67.0	25.0	100.0	100.0
Skills in automation and robotics	33.0	100.0	25.0	50.0	50.0
5. Barriers to skills development (percentage)	–	–	–	–	–
High costs of training programmes	33.0	0.0	14.0	0.0	25.0
Uncertainty about future skill needs	33.0	0.0	71.0	67.0	0.0
Difficulty in releasing employees for training	0.0	0.0	57.0	67.0	50.0
Lack of internal expertise	67.0	0.0	29.0	33.0	0.0
Limited external providers	100.0	0.0	14.0	33.0	50.0
Concerns about ROI	0.0	0.0	0.0	0.0	0.0
Lack of understanding of tech changes	33.0	0.0	43.0	67.0	50.0
Resistance from employees	0.0	0.0	0.0	0.0	25.0
Concerns about employees moving to other companies	0.0	0.0	0.0	0.0	50.0
Lack of time or resources	33.0	100.0	29.0	33.0	0.0
We do not perceive any significant barriers	0.0	0.0	0.0	25.0	20.0

Source: ILO enterprise survey, 2025

► Table 19: Worker perspectives on skill development and training

Category	ZEV parts	No ZEV parts
Total number of employees	5	2
1. Perceived safety training	–	–
To a great extent	4	1
To some/limited extent	1	1
2. Opportunities to learn new skills	–	–
Many opportunities available	3	0
Few opportunities available	1	1
No opportunities available	1	1
3. Perceived usefulness	–	–
Very well prepared	3	0
Adequately prepared	1	1
4. Most helpful methods (percentage)	–	–
OJT (learning by doing)	100.0	50.0
External courses/workshops	60.0	100.0
Mentoring or coaching	80.0	0.0
Financial support	40.0	50.0

Source: ILO worker survey, 2025

5.3.5 Social protection: A two-sided reality

The survey data on company-level action reveals a significant disconnect that defines a two-sided reality for Japan's just transition. On one hand, firms are largely unprepared for potential job changes; on the other, a broader protection framework exists at the national and regional levels.

5.3.5.1 Firm-level disconnect

As the following tables clearly show, the majority of SMEs are adopting a wait-and-see approach to social protection. Many companies believe that measures for affected workers are not applicable at the time of the survey, and a significant number have not considered the needs of vulnerable workers. This corporate inaction is mirrored in the limited worker data; employees from both ZEV and No ZEV parts companies report high levels of uncertainty about job security. While one worker received specific details about support, others were either provided with vague information or none at all. This apathetic stance at the company level suggests that the imperative for a just transition has not yet fully trickled down to individual firms.

5.3.5.2 Macro-level security framework

In contrast to this firm-level inaction, we found that broader employment stability and worker security is being proactively managed through a different, two-pronged strategy:

1. Preventive social dialogue: National-level worker and employer organizations, such as JAW, JAPIA and JAMA, are actively collaborating on initiatives designed to prevent job loss from the top down. Programmes like the Good Cycle Movement aim to ensure fair business-to-business transactions (cost pass-through), strengthening SMEs' economic health and their ability to sustain jobs. This national-level social dialogue acts as a powerful, collective form of social protection, working to stabilize the entire supply chain.

▲▲ Auto parts SMEs are facing economic difficulties. A 100-worker factory owner, known for his close relationships with employees, has to reduce spending each year to fund necessary wage increases and working condition improvements. The elimination of the annual uniform allowance is one example of these cost-cutting measures.

► JAW representative (Tokyo)

2. Resilient regional labour market: Interviews with two SMEs in Central Japan (SMEs number 21 and 23 in our sample) provide evidence of a de facto protective buffer on the ground. When their lower-tier suppliers went bankrupt, their workers were able to find new jobs quickly, which our findings attribute to a "serious labour shortage in Chubu market". This regional resilience, coupled with a government-organized matching scheme, shows that a workforce security, supported by interventions such as active labour market policies, exists to absorb displaced workers even without company-specific plans.

This regional support also includes practical aid for recruitment and talent acquisition, directly addressing the manpower shortages that slow the transition:

▶▶ Another form of government support that helped us reduce recruitment cost was the Aichi Prefecture's recruitment fair, which companies can join free of charge. Last year, we received 20–30 applications from it.

▶ **Management of SME number 21** (Aichi Prefecture)

However, the resilience of the regional labour market is constantly tested by the strategic uncertainty of larger SMEs who are themselves managing structural change across their supply chains. The transition strategies of tier two companies, such as SME23 (a technologically ready transitioner), directly impact numerous smaller firms, demonstrating the concentrated risk in the lower tiers of the supply chain:

▶▶ There are 36 Tier 3 companies/suppliers that work with us; their sizes range from 5–50 workers. The majority of their products (50–60 per cent) are sold to us. If we change our strategy, we may need to change some of them too. For prototyping, in particular, we need to find other suppliers all over Japan.

▶ **Top management of SME number 23, Interview/** (Aichi Prefecture)

In conclusion, the data reveals a two-sided reality. Individual companies are not taking responsibility for a formal worker protection system, which leaves their workers feeling insecure. However, a more comprehensive, industry-wide support system is being woven by national organizations and government initiatives. This model of industry-level social dialogue and regional labour market resilience is a critical feature of Japan's approach to a just transition, even as it highlights a need for greater awareness and action at the company level.

► Table 20: Employer perspectives on social protection measures

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
1. Support measures for affected workers	–	–	–	–	–
Actively developing measures	0	0	1	0	0
Had initial discussions	0	0	0	0	0
Considered, no concrete plans	0	0	0	0	1
Not applicable at this time	2	0	1	2	0
Not considering such measures	1	1	5	2	4
2. Addressing needs of vulnerable groups	–	–	–	–	–
Implemented specific measures	0	0	0	0	0
Discussed potential needs	1	1	0	0	1
Not specifically considered	0	0	5	1	2
Not applicable	2	0	2	3	2

Source: ILO enterprise survey, 2025

► Table 21: Worker perspectives on job loss support

Category	ZEV parts	No ZEV parts
Total number of employees	2	2
1. Confidence in job loss support	–	–
Very confident	0	0
Somewhat confident	1	1
Not very confident	0	1
Not at all confident	1	0
2. Information on job loss support	–	–
Yes, with specific details	1	0
Yes, in general terms	0	1
No, not that I'm aware	1	1

Source: ILO worker survey, 2025

5.3.6 Social dialogue and worker representation in transition

The survey data reveals a clear divide in the practice of social dialogue, showing it is largely confined to proactive firms and is not a widespread norm among the majority of SMEs. The qualitative findings provide crucial context for these results, confirming the legal and structural basis for social dialogue in Japan.

5.3.6.1 Employer perspective: A proactive minority

On the employer side, only the leading transitioners and technologically ready groups have established concrete practices for worker dialogue related to the CASE transition. These practices include regular meetings with employees and, for leading transitioners, a formal consultation process with worker representatives. In stark contrast, the reactive and lagging groups report an almost complete absence of these proactive measures.

Even within proactive firms, the implementation of strategic change introduces significant internal management challenges. The shift from established production models to agile, versatile systems often meets with employee resistance, requiring careful HR management:

►► The core issue is that employees accustomed to the stable, long-term nature of mass production are hesitant to move to a more dynamic, fast-paced environment that requires them to learn new skills and adapt quickly.

► Top management of SME number 23 (Aichi Prefecture)

The survey found that a designated worker representative is the most common formal social dialogue mechanism in reactive and lagging companies. Our qualitative study explains that this is a key component of the Japanese labour system, as all three companies interviewed utilize a designated worker representative primarily to meet the requirements of the Labour Standards Act.¹⁶ This legal necessity explains the high prevalence of a formal mechanism in the survey data. However, our field mission also notes that the degree of representation varies: some companies go beyond the legal minimum by supplementing this with regular manager-staff interviews or establishing a formal worker union with regular meetings.

When it comes to selecting workers for new roles, the tables show a clear preference for merit-based criteria. Experience and performance are highly valued across all groups, while seniority is explicitly not a factor (0 per cent). This signals a meritocratic approach to talent management, but a shift away from traditional seniority-based systems.

¹⁶ A designated worker representative or Rōdōsha Daihyō, primarily required by the Japanese Labour Standards Act (LSA) and Safety and Health Act. Under the LSA, companies are required to have a Labour-Management agreement or Rōshi Kyōtei with the DWR on various matters such as overtime and holiday work, flexible working hours systems, deductions from wages and benefits and leave arrangements.

5.3.6.2 Worker perspective: Awareness and experience

The limited worker data strongly corroborates the employer findings. Workers in ZEV parts companies — who are likely employed by proactive firms — report a high level of awareness and engagement. A significant majority feel they are extensively or at least somewhat informed about transition plans, and they are aware of formal dialogue and grievance channels.

■ ■ I have been with the company for 23 years, starting in manufacturing and now working in machinery. The work is consistently engaging and diverse. I appreciate the company's flexibility in responding to my request to transfer me to a machinery unit and in supporting my skill development through internal and external training.

► A senior expert of machinery in SME number 22 (Aichi Prefecture)

Conversely, workers in the no ZEV parts group show a much lower level of awareness. Their responses suggest that while a formal mechanism may exist at their company, they are either unaware of it or do not understand how it works, indicating a lack of effective communication from management.

5.3.6.3 Synthesis: Alignment and disconnect

The analysis reveals a strong alignment between employers and workers in the proactive segment of the industry. The firms actively engaged in the transition are also the ones effectively communicating with their workers.

However, the primary disconnect lies within the reactive and lagging segments. While these companies have a formal mechanism for social dialogue on paper due to legal requirements, the lack of proactive communication and transition-specific practices suggests these mechanisms are largely symbolic. The qualitative findings from the representative of JAW highlight the well-structured nature of worker representation from the company to the national level, emphasizing the potential significance of the worker representative's role for negotiating change. This confirms that while the formal mechanism for social dialogue exists as a legal formality, its effectiveness as a tool for a just transition depends on whether the company's culture and practices truly support the worker's voice beyond the legal minimum.

In essence, effective communication and alignment are confined to firms actively pursuing the transition, while the majority of reactive firms rely on symbolic mechanisms that fail to incorporate the worker's voice.

The data shows that for most SMEs, the worker's voice in the transition process is either absent or not being effectively heard. This leaves employees vulnerable to changes they are neither aware of nor prepared for.

► Table 22: Employer perspectives on social dialogue practices

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
1. Availability of transition-related practices	–	–	–	–	–
Available	2	1	1	0	1
Not available	1	0	6	4	4
2. List of practices (percentage)	–	–	–	–	–
Regular meetings on transition plans	100.0	100.0	0.0	0.0	100.0
Documented grievance process	0.0	0.0	0.0	0.0	0.0
Formal consultation with worker reps	50.0	0.0	0.0	0.0	100.0
Management training on fair practices	0.0	0.0	100.0	0.0	0.0
Periodic reviews for fairness	0.0	0.0	100.0	0.0	100.0
Public commitment to fair practices	0.0	0.0	0.0	0.0	100.0

Source: ILO enterprise survey, 2025

► Table 23: Employer perspectives on selection criteria and dialogue

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
1. Criteria for new roles	–	–	–	–	–
Available	2	1	5	2	3
Not available	1	0	2	2	2
2. List of criteria (percentage)	–	–	–	–	–
Skills and qualifications	100.0	0.0	60.0	50.0	33.0
Experience and performance	50.0	100.0	60.0	50.0	67.0
Potential for development	100.0	0.0	40.0	0.0	67.0
Seniority	0.0	0.0	0.0	0.0	0.0
Diverse backgrounds	50.0	0.0	60.0	0.0	0.0
Age discrimination	0.0	0.0	0.0	0.0	33.0
Gender discrimination	0.0	0.0	0.0	0.0	0.0
Nationality discrimination	0.0	0.0	0.0	0.0	0.0

► Table 23: Employer perspectives on selection criteria and dialogue (Cont.)

Category	Leading transitioners	Technologically ready	Reactive transitioners	Lagging transitioners	None-group
3. Formal social dialogue mechanisms	–	–	–	–	–
Available	4	2	5	4	5
Not available	0	1	2	0	0
List of mechanisms (percentage)	–	–	–	–	–
Labour union	75.0	33.0	0.0	0.0	0.0
Designated worker representative	25.0	33.0	57.0	100.0	80.0
Structured dialogue	25.0	33.0	14.0	0.0	20.0

Source: ILO enterprise survey, 2025

► Table 24: Worker perspectives on job loss support

Category	ZEV parts	No ZEV parts
Total number of employees	5	2
1. Awareness of grievance system	–	–
Aware of clear channels/processes	4	1
Aware but not familiar	0	1
Not aware	1	0
2. Awareness of formal social dialogue	–	–
Yes, understand how it works	4	0
Yes, but don't know much	0	1
Not aware	1	1
3. Being shared on adaptive plan	–	–
Yes, extensively	4	1
Yes, to some extent	0	0
Yes, but only a little	0	1
No, not at all	1	0

Source: ILO worker survey, 2025

► 6. Discussion and recommendations

This study provides a crucial, micro-level perspective on the just transition within Japan's automotive parts supplier SMEs. Our empirical findings directly address the lack of primary data and bridge the gap between macro-level reports and the on-the-ground realities faced by enterprises and their workers. The analysis of our findings, guided by the ILO's just transition framework, leads to key conclusions and actionable recommendations for policymakers and industry stakeholders.

A comprehensive understanding of a just transition in this context requires integrating and addressing SME-specific business challenges, including economic diversification and supply chain adaptation, alongside social factors. The following discussion synthesizes our findings within this broader economic context.

6.1 Discussion

6.1.1 SME transition pathway

The SME transition is not a uniform process. It is best understood as a series of pathways determined by a company's perception of risk and its internal capabilities in response to external pressures from CASE technologies, decarbonization and other disruptions.

The initial split in the pathway is based on a company's awareness and preparedness. SMEs that anticipate impacts often adopt a proactive approach, characterized by a high degree of awareness of market trends and clear signals from customers. They are more likely to have access to international market information and knowledge of future order demand. This proactive planning allows them to move deliberately toward an adaptation strategy.

Conversely, our findings show that SMEs that do not anticipate impacts remain in a wait-and-see mode. These firms often have a high dependence on traditional combustion engine technology, a high customer concentration and limited access to market information. These factors can lead to a sudden, reactive posture when disruptions finally hit, potentially resulting in either business closure (due to a lack of financial or leadership resources) or a sudden, difficult adaptation plan.

The decision to adapt is further determined by several key factors that explain why some firms are proactive while others remain in a wait-and-see mode:

- **Top management leadership:** Firms with strong, visionary leaders are more likely to proactively develop a transition strategy. Actively transitioning firms are led by management teams willing to take risks and deepen their core technological strengths.
- **Access to resources:** Sufficient resources – financial, human and equipment — are critical enablers. Firms with the capacity to invest in market analysis, training and new equipment are far more likely to develop and execute a transition plan.
- **Internal expertise and skills:** A firm's existing skill base, particularly in engineering, is a significant factor. SMEs with the ability to reskill their workforce are better positioned to develop new products.
- **Supplier-customer relationship:** The type of relationship an SME has with its major customers, namely, OEMs and Tier 1 firms, is a key external determinant. Firms that move beyond a traditional subcontracting relationship to one of co-creation are more likely to have a clear market signal for their transition efforts.

- **Access to Business Support Networks:** Membership in external business organizations is also a powerful factor. Leading firms and those technologically ready (with ZEV sales and strategic planning) report receiving crucial benefits — such as information sharing, networking opportunities, policy advocacy and training — which fuels their proactive approach.

Ultimately, adaptation strategies vary and can involve: continuing in the automotive sector toward CASE, diversifying products or expanding the customer network within and/or outside the automotive industry.

6.1.2 Synthesis of key findings

This study successfully provides a micro-level perspective on a macro-level issue. While existing reports from organizations like Oxford Economics highlight the broad economic challenges of the EV transition, our research offers a granular view of how individual firms are navigating this shift. By collecting primary data directly from SME owners and workers, we have confirmed that a significant number of firms remain in a wait-and-see mode. This posture is partly a response to the nuanced signal from 2023 GX Basic Policy, which focuses on electrified vehicles – a term encompassing HEVs, PHEVs and FCVs, not just battery electric vehicles. This broader definition provides a less urgent timeline for business transformation. This finding validates the British Academy's observation that the just transition concept is still nascent in Japan and provides empirical evidence of how this cautious approach plays out at the firm level.

6.1.2.1 Strategic divide: Position vs. proactiveness

Our data reveals a critical distinction between supply chain status and preparedness: the finding that a majority of the least-prepared firms (lagging transitioners) are Tier 1 suppliers strongly suggests that tier position alone does not guarantee a transition strategy. The quality of the supplier-customer relationship (whether it fosters co-creation or is purely transactional) is far more critical than the tier status itself for driving adaptation.

This divergence is further underscored by the operational response, which separates proactive firms from those merely reacting to existing demand. The leading and technologically ready transitioners show a clear strategic alignment between their transition awareness and their actions. They are focusing on advanced decarbonization measures, notably improving energy efficiency and proactively developing parts for ZEVs. In contrast, the reactive and lagging groups remain primarily focused on traditional quality, cost and delivery (QCD) metrics, showing minimal engagement in future-focused activities like developing ZEV parts or reducing their supply chain carbon footprint.

6.1.2.2 Bottleneck of network isolation and support diffusion

This strategic gulf – between firms with proactive strategic alignment and those focused solely on traditional metrics – is directly linked to the utilization of external support systems. Proactive firms are almost universally engaged with relevant business support networks, which provides the critical information sharing, policy updates and co-creation opportunities necessary for strategic planning. This is directly reflected in their high rates of participation in government support initiatives, such as the Mikata project run by the METI. Our survey found a strong correlation: the groups already engaged in advanced adaptive strategies (leading and technologically ready) utilized customized services (expert dispatch and consultations) to fine-tune existing plans.

Conversely, the isolation of the less-prepared groups is a major barrier to transition. Their lack of network membership and low awareness result in a significant, reported unmet need for policy guidance and interpretation related to workforce transition and CASE, which these networks are specifically designed to address. The reasons for their non-participation in support programmes – a lack of awareness and

a belief they can manage independently – underscore a critical bottleneck in the effective diffusion of support measures to those who need them most.

6.1.2.3 Gaps in skills, dialogue and worker security

Our research uniquely contributes direct worker perspectives, which are rare in the Japanese context. We found a clear disconnect between employers and employees in less-proactive firms, where a lack of formal training and communication leads to high worker insecurity. While a majority of employers see the transition as a future concern (too early to assess), the limited worker data suggests that changes — such as new tools and required skills— are already being felt by the workforce in daily tasks. This gap is exacerbated by the fact that only the proactive groups have established formal training programmes, confirming that skills development is not keeping pace with the practical demands of the transition.

Furthermore, a clear divide exists in social dialogue: while legal requirements ensure a formal mechanism like the designated worker representative is often available, its effectiveness is limited to proactive firms. For the majority of SMEs, these mechanisms are primarily symbolic, resulting in low worker awareness of grievance channels and company transition plans.

6.1.2.4 Two-sided reality of social protection

The most notable finding is the two-sided reality of social protection, where the absence of a firm-level security mechanisms is being compensated by a broader, more systemic protection framework. While the majority of SMEs report having no support measures for affected workers and are not considering vulnerable groups, a collective safety net is being woven by national organizations and is sustained by the current regional labour market resilience. This confirms that the true challenge for a just transition is ensuring the effective translation of macro-level support and measures down to the individual enterprise, especially for the isolated firm, and ensuring they have the necessary resources and guidance to implement labour law and proactively engage with social dialogue.

6.1.3 Implications for a resilient sustainable and inclusive transition

The social and economic risks identified by our findings are magnified by the sheer scale of the challenge: an estimated 1,594,600 workers in component manufacturing, raw materials and electronics are likely to be impacted by the CASE transition. Therefore, for the transition to be both resilient and inclusive, it must move beyond mitigating immediate job losses to fundamentally evolving the social safety net. This necessitates a systematic approach, which should be explicitly aligned with the three pillars of Japan's emerging new trinity labour market reform (reskilling/upskilling, inter-company mobility and job-based employment), while also comprehensively addressing crucial related factors, such as social dialogue, social protection mechanisms, enhanced skills anticipation and specific measures to support vulnerable groups, including women.

1. Risk: Relying too much on the regional job market

The findings on strategic divergence and limited engagement with support mechanisms have significant implications for a truly resilient and sustainable transition. The current over-reliance on a strong regional labour market to absorb displaced workers represents a two-sided reality of social protection. While this de facto protective buffer is effective in the short term, it lacks long-term security because it is dependent on a single, fragile factor – a tight labour market – that is susceptible to an economic downturn or an acceleration of the transition's pace. The vast majority of firms are not considering measures for affected workers or vulnerable groups, placing the entire burden of adjustment on the national and regional systems.

2. Workforce risk: The skills gap blocked by old methods

Furthermore, the study highlights a critical skill mismatch that affects all companies but in different ways. This mismatch represents a clear risk to workforce resilience. A workforce without adaptive skills cannot be resilient to technological changes. While some firms are investing in training, many are struggling with a lack of internal expertise (67 per cent of leading transitioners) or a lack of time and resources (100 per cent of technologically ready), as listed in table 18. Specifically, the data reveals a fundamental mismatch between the existing workforce's traditional mechanical skills and the new knowledge required for the transition. As shown in table 18, the skill needs vary significantly by group: more advanced firms require skills in understanding CASE technologies (67 per cent and 75 per cent, respectively), while less prepared firms (technological ready, lagging and none-groups) are still grappling with basic skills in digital literacy and data analytics (67 per cent and 100 per cent, respectively). The strong worker preference for practical, hands-on learning (100 per cent of ZEV parts workers favour OJT) (see table 19) contrasted with the formal training methods offered by some firms, indicates a need for a more collaborative approach to skills planning that prioritizes practical, targeted reskilling programmes.

3. Equity risk: Uneven opportunities for women

The transition also presents a distinct challenge to the principle of inclusive growth, highlighting a critical gender dimension to the labour market shortage. The acute difficulty in recruiting male workers into traditional mechanical engineering roles is creating hiring opportunities for women. However, this shift is not uniformly beneficial: while some women are filling new, highly analytical roles (such as SBTI calculation), others remain concentrated in routine, production-focused positions (such as inspection) that are at high risk of immediate automation. This differentiation risks creating a new equity gap where women are disproportionately exposed to both high-skill/high-opportunity roles and low-skill/high-risk roles.

4. Structural equity risk: Age-based wage disparity

The pursuit of an inclusive transition is fundamentally challenged by structural wage discrimination built into the post-60 continuous employment system. The system, which effectively mandates re-employment while terminating the seniority-based wage structure, leads to dramatic and documented wage cuts for experienced workers (up to 39-40 per cent) despite similar job duties (section 5.3.2.1). This institutionalizes age-based wage inequity, rendering a large and crucial segment of the workforce vulnerable and undermining the goal of achieving skills- and performance-based remuneration.

5. Communication risk: Management delaying action

The most pressing obstacle to managing workforce anxiety is the deep divide in perceived urgency between employers and their employees. While employers in the reactive and lagging groups cite uncertainty about future skill needs as a primary barrier (71 per cent and 67 per cent, respectively, in table 18), the limited data shows that workers are already experiencing the transition's effects through changes in daily tasks, new tools and shifts in job security. This disconnect means that management often delays crucial reskilling and communication until a crisis points, intensifying employee anxiety and undermining the social dialogue needed for cooperative adaptation.

6. Policy risk: Dialogue that exists only on paper

The gap between a formal mechanism for social dialogue and its effective implementation is also a major concern. The existence of a designated worker representative due to legal requirements does not automatically guarantee meaningful worker participation in the transition process. This mechanism is widely utilized by the least-prepared firms (100 per cent of lagging transitioner firms and 80 per cent of none-group firms, as shown in table 23). This disconnect shows a lack of systematic resilience, meaning the system as a whole cannot adapt to disruption. The low awareness of grievance channels and adaptive plans reported by workers in the no ZEV parts group (see table 24 for details) suggests that for most SMEs, this legal formality is largely symbolic. Without active and meaningful labour-management

collaboration – where employers base their strategy on the immediate reality felt by workers – workers are left vulnerable and firms risk losing invaluable employee insights that could inform their adaptive strategies.

6.1.4 Comparative implications for global automotive parts manufacturing

Our research uniquely contributes direct worker perspectives, which are rare in the Japanese context. Our findings on worker perceptions show a compelling alignment with studies from other restructuring industrial regions, such as the UK's West Midlands (Ruyter, et al. 2024). The anxieties and uncertainties felt by workers during industrial restructuring are universal. However, our study provides a unique nuance to this global trend: the anxieties in Japan's SMEs are currently mitigated by the legal formality of a designated worker representative and the resilience of a tight regional labour market.

The findings also serve as a crucial leading indicator for other automotive manufacturing hubs in Asia, particularly Thailand. Our research confirms the observation from Kulkolkarn's study (2020) that Thai automotive parts SMEs rely heavily on external OEMs and technology, a model that makes them vulnerable to shifts in foreign investment. The wait-and-see approach observed among many Japanese SMEs, who are waiting for clearer signals from their major customers, could be a pattern that plays out among their Thai counterparts. This implies that any delay in technology transfer or relocation of production by Japanese OEMs could exacerbate the challenges for Thai suppliers. Therefore, the recommendations of this report for Japan – on promoting proactive skills development, diversification and strengthening social dialogue – could serve as a valuable reference for policymakers and industry in Thailand.

6.2 Policy recommendations

6.2.1 For government and policymakers

- Ensure policy translation through systemized social dialogue: Acknowledge the gap between high-level policy commitments and ground-level implementation. The varying levels of strategy development across groups (refer to table 7) highlight a profound disconnect where crucial information is not translating into formal, worker-inclusive planning. While consultation with organizations like JAW and JAMA is a valuable practice in Japan's policy development, this must be formalized and systematized to ensure consistent and comprehensive coverage across all GX policy areas.

The necessity of comprehensive social dialogue is underscored by the workforce's perspective on the implementation of major transitions, such as the electric vehicle (EV) shift:

▀▀ The direction of the EV shift direction is set by the government. However its implementation must be realistic and careful, especially when we talk about where the makers can source their inputs. The government needs to be more prudent in making policy concerning SMEs (as 99 per cent of workers in Japan work in SMEs). If government support is not sufficient, these businesses will disappear, and people will be left without work.

► JAW representative (Tokyo)

To effectively bridge the implementation gap, ensure that policy design and implementation processes for allocating GX funds actively incorporate the voices and expertise of employers' and workers' organizations through established and mandatory social dialogue mechanisms. The allocated GX funds must then be tangibly translated into accessible and targeted support programmes for SMEs in impacted regions.

- Strengthen and empower regional support hubs: Enhance the capacity of regional support organizations (for example, ChuSanRen, and other Mikata project's Regional Support Centres) to serve as crucial channels for disseminating national policy. These hubs should be empowered to provide SMEs with expert consultation on business diversification, market analysis, leadership development and other unmet needs identified in this study. These hubs must also support the investment in automation and digital technologies — driven by acute labour shortages and aging workforces — by ensuring technology adoption is coupled with proactive reskilling.

- Target national labour reforms with ground-level data: Our findings can provide crucial, ground-level evidence to inform national policy initiatives, such as the “new trinity” reform identified by Zou (2024). Specifically, the study’s data on the high cost and limited availability of external training, the clear worker preference for work-based learning, the disconnect in social dialogue and the need for greater inter-firm mobility can inform concrete measures to support workers’ skills development, career transitions and social protection in the automotive sector. This is vital because the true challenge for a just transition is ensuring the effective translation of macro-level support and measures down to the individual enterprise, especially for the isolated firm, and ensuring they have the necessary resources and guidance to implement labour law and proactively engage with social dialogue.
- Ensure an intergenerational and just transition: Japan’s transition must manage the risks to the experienced workforce while actively attracting and training the next generation for the green economy. The significant gap in technology and strategy adoption implies a critical skills mismatch that must be urgently addressed. This requires policy to ensure skills development is linked to new industry demands, moving beyond mere job protection. While Japan’s Act on Stabilization of Employment of Elderly Persons legally mandates continued employment, our findings suggest a lack of tangible protective measures. We recommend:
 - enforcing stricter anti-discrimination policies and ensuring that wage systems are skills- and performance-based across all age groups, particularly in the post-60 re-employment system, to utilize experience and maintain financial incentives for the entire workforce;
 - implementing a systemic reskilling pathway that leverages and empowers national public employment services, such as Hello Work, to provide fully subsidized, targeted upskilling and re-skilling pathways for both experienced workers and younger cohorts entering the “green” workforce;
 - promoting flexible work arrangements and phased retirement schemes to support experienced workers, while simultaneously facilitating formalized knowledge transfer and mentorship to younger employees to ensure smooth intergenerational exchange.
- Adopt gender-sensitive transition planning: Recognizing the gender-differentiated impacts of the transition, policymakers must ensure that data collection (including national surveys) is gender-disaggregated. Furthermore, public reskilling programmes must apply gender-sensitive criteria to encourage and ensure equitable access for women to high-skill, future-proof technical and analytical training opportunities. Given the finding that women are heavily concentrated in manual/ repetitive roles (for example, inspection) perceived to be most at risk, policy must proactively finance transition pathways that move these workers into high-demand, non-routine tasks.

6.2.2 For OEMs

Given that SMEs are often highly dependent on signals and contracts from their major customers, OEMs have a direct responsibility to support their suppliers' just transition efforts. Their actions can provide the clarity and resources needed to move SMEs from a wait-and-see to a proactive approach.

The necessity of this support is acute, as SMEs struggle to implement broad government policies on their own, needing specific, tangible assistance from their largest partners:

It is difficult for SMEs to implement government policy without support from government and other stakeholders mainly Tier 1 suppliers and OEMs. An example can be seen from DENSO, which promotes a sustainable supply chain by developing a self-check system for its lower-tier companies.

► JFCRI representative (Tokyo)

Key recommendations

- Provide clear and proactive signals: OEMs should move beyond general calls for decarbonization and provide their SME suppliers with specific, multi-year roadmaps for future technology and product needs. This would allow suppliers to plan their investments and workforce reskilling with greater certainty.
 - Justification: As the JFCRI interview highlights, SMEs are reluctant to invest due to demand uncertainty, making clear roadmaps essential for mitigating their risk.
- Establish financial and technical support programmes: OEMs should create dedicated programmes to provide financial assistance, technical expertise and training to their suppliers for their transition to electrified and digital technologies. This could include long-term contracts, joint ventures or subsidized training to alleviate the financial burden on SMEs. This support must include provisions for social protection that supplement the firm-level disconnect (identified in section 5.3.5.1) by explicitly requiring transition-related social dialogue and clear job change communication from suppliers.
 - The DENSO example cited by the JFCRI demonstrates a successful model of technical support (a self-check system) that should be scaled up to include financial and workforce planning assistance.
- Integrate just transition metrics into supplier audits: OEMs should incorporate just transition criteria — such as a firm's social dialogue practices, skills development plans, equity in training access and employee well-being — into their supplier evaluation and auditing processes. Audits must also include an assessment of internal communication and transparency measures to verify that management's outlook aligns with the actual experience of job changes and security felt by the workforce. This would incentivize SMEs to prioritize these factors and embed them into their business operations.

By doing so, OEMs will not only ensure the entire value chain is moving towards a more equitable and sustainable future but also build a resilient supply chain capable of withstanding technological disruptions and market volatility.

6.2.3 For employers and industry associations (for example, JAPIA)

- Elevate policy influence and expand SME engagement: Industry associations must proactively influence national climate and environment policy and ensure the voices of their most vulnerable members are heard.
 - Action 1 (policy influence): Actively engage in the development of national green transformation (GX) and environment-related policies to ensure regulatory frameworks and funding mechanisms are practical and accessible for SMEs.
 - Action 2 (SME outreach): Strategically expand membership and support programmes to un-affiliated SMEs, particularly those in deep supply chain tiers, as firms in formal networks demonstrate more advanced transition strategies.
- Develop and deploy practical tools for skills roadmap planning: Encourage and support SMEs in developing formal skills roadmaps that identify future skill needs and provide clear pathways for upskilling and reskilling employees. This requires moving beyond general encouragement to providing tangible support. This is critical because the significant technological and strategic gaps observed across the transition groups (table 7) confirm a critical skills mismatch between current workforce capabilities and future CASE/GX requirements. Practical tools and guidance, developed in collaboration with government and industry partners, can help SMEs identify their specific skill gaps and plan for future needs. These tools could include:
 - standardized skills assessment checklists to help firms inventory their current workforce capabilities;
 - template roadmaps that outline potential career pathways for employees during the transition;
 - access to expert consultations to help SMEs translate future OEM roadmaps into specific workforce development strategies.
- Mandate continuous labour-management collaboration to close the perception gap: Industry associations must guide employers to recognize and address the discrepancy between management's distant view of the transition and the immediate changes felt by workers. Since many firms are in the exploring or not started phases (table 7), social dialogue is often insufficient or strategic transition planning. This requires implementing mandatory, structured labour-management dialogue focused specifically on transition planning, providing clear timelines for job shifts and establishing continuous feedback mechanisms to reduce worker anxiety and increase trust. This must include utilizing and strengthening the existing legal framework of the designated worker representative to make it an active, effective, rather than symbolic, tool for transition consultation as highlighted in section 5.3.6.
- Leverage partnerships with academia and consortia: Encourage SMEs to actively participate in and leverage partnerships with HR development consortia and local academia. More proactive firms (leading transitioners) were observed to have a more comprehensive approach to partnerships and reskilling. This collaboration helps secure crucial expertise, co-design relevant training programmes and ensure workforce skills align with future industry needs. This includes utilizing the Japan Reskilling Consortium (established by Google Japan), an online platform that provides a network and resources on HR development and recruitment, specifically to facilitate connections and access to relevant training.
- Prioritize work-based learning: Advise SMEs to adopt a blended learning approach that prioritizes OJT and mentoring, which workers find most effective and useful.

- ▶ **Formalize internal communication:** Implement structured, regular labour-management meetings to ensure workers are well-informed about the company's transition plans and have a clear channel to voice concerns and contribute to solutions.
- ▶ **Address gendered recruitment imbalances:** Encourage employers to actively audit recruitment and internal promotion practices to ensure qualified female candidates are not restricted to traditional or high-risk administrative/inspection roles. Implement internal mentorship and targeted training programmes to fast-track qualified women into core technical and analytical positions (for example, CASE-related software, data analysis and advanced production roles).

6.2.4 For worker organizations (for example, JAW)

- ▶ **Proactively engage in green policy formulation:** Worker organizations must expand their role beyond traditional labour issues to become key stakeholders in the national climate policy agenda. This means actively participating in dialogues with government and industry on designing and implementing GX initiatives to embed a just transition framework in all environmental and industrial policy decisions.
- ▶ **Expand SME outreach:** Strengthen outreach programmes to SMEs that lack a formal union to educate workers on their rights and the benefits of proactive engagement in the transition process. This must include targeted efforts to ensure workers are aware of their rights and the practical function of the legally mandated designated worker representative, addressing current low awareness (discussed in section 5.3.6.2) where formal dialogue mechanisms are often symbolic.
- ▶ **Offer expert consultation:** Provide specialized consultation services to worker representatives in SMEs, equipping them with the knowledge and negotiation skills needed to effectively represent their peers during business transitions.
- ▶ **Engage and mobilize the next generation:** Proactively reach out to younger workers and youth with a compelling narrative about green transformation to address labour shortages. This includes providing tailored information on how just transition will create future-proof career paths and opportunities in the sector.
- ▶ **Champion the rights of older workers and address structural wage inequality:** Actively promote and defend the rights of older workers, who are especially vulnerable to job displacement and discrimination during the automotive transition. This involves demanding reform of the post-60 continuous employment system to ensure re-employed workers are compensated based on their skills, competencies and performance (as detailed in section 5.3.2.1). Furthermore, advocate for targeted reskilling programmes and clear grievance mechanisms to protect the older workforce.
- ▶ **Ensure equitable access to training:** Actively monitor firms' training and reskilling initiatives to ensure women, part-time/temporary workers, youth and other potentially marginalized groups have equitable access to future-proof technical and managerial skill development, mitigating the risk of disproportionate concentration in automation-vulnerable roles.

6.2.5 Recommendations for further research and survey

To build upon this foundational study, we propose a follow-up survey with a redesigned methodology that addresses the challenges identified in our preliminary findings. The initial survey demonstrated both the feasibility of such research and the crucial need for a refined approach.

To evaluate the effectiveness of the research instrument, this study collected feedback on the survey form itself from both employers and workers. The following tables summarize their responses regarding the survey's relevance, ease of completion and their willingness to participate in future research.

► Table 25. Employer feedback on the survey form

Category	Sub-category	Roles of respondents		Total
		Owner/President/CEO	Other	
1. Relevance to company's experience	1- Not at all relevant or appropriate	0	3	3
	2- Slightly relevant or appropriate	1	5	6
	3- Moderately relevant and appropriate	4	4	8
	4- Mostly relevant and appropriate	2	1	3
	5- Extremely relevant and appropriate	0	0	0
2. Ease of completing the form	1- Very easy	0	0	0
	2- Easy	0	1	1
	3- Moderate	7	5	12
	4- Difficult	0	5	5
	5- Very difficult	0	2	2
3. Willingness to join survey annually	1- Very willing	1	0	1
	2- Willing	3	3	6
	3- Neither willing nor unwilling	3	7	10
	4- Unwilling	0	3	3
	5- Very unwilling	0	0	0

Source: ILO enterprise survey, 2025

► Table 26. Worker feedback on the survey form

Category	Sub-category	ZEV parts	No ZEV parts	Total
1. Willingness to join survey regularly	1- Very willing	0	1	1
	2- Willing	0	0	0
	3- Neither willing nor unwilling	2	0	2
	4- Unwilling	0	1	1
	5- Very unwilling	0	0	0
2. Usefulness of survey	1- Very useful	0	1	1
	2- Useful	0	0	0
	3- Somewhat useful	1	0	1
	4- Not very useful	0	1	1
	5- Not at all useful	1	0	1

Source: ILO worker survey, 2025

Our data indicated that while a majority of employers found the survey moderately to mostly relevant (11 of 21 respondents), a significant number also found it difficult to complete (7 of 21 respondents). Furthermore, the willingness to participate annually was mixed. For workers, the survey's small sample size highlighted the difficulty in reaching this audience and the need for a more targeted approach.

Based on these findings, we recommend a two-part approach for future research that focuses on improving the research instrument and expanding its scope.

6.2.5.1 In Japan

To improve data collection efficacy and quality, future research in Japan should prioritize the following actions:

- ▶ Refine and tailor data collection instruments: Shorten and simplify questionnaires, specifically tailoring content for different respondent groups (for example, owners/executives vs. workers). Questions for owners should capture high-level strategic data, while worker surveys should focus on their direct experiences with job security, training and workplace dialogue.
- ▶ Implement a targeted mixed-methods approach: Conduct both quantitative surveys and qualitative interviews within the same region to ensure comprehensive data collection. This means if interviews are conducted in Tokyo and Aichi, corresponding survey data should also be collected from these prefectures, alongside data from other regions (for example, Iwate, Miyagi, Kyoto, Osaka, Shiga) for broader representation.
- ▶ Enhance SME engagement and coordination: Develop a robust strategy for encouraging participation, recognizing that the primary challenge lies in the logistics of accessing and coordinating with busy SME owners and workers.
- ▶ Collaborate with key stakeholders: Partnering with organizations like ChuSanRen and JAW is essential. Such collaborations can provide valuable insights into survey design, facilitate access to relevant networks and boost both survey relevance and response rates.

6.2.5.2 In other countries

Our findings suggest that the wait-and-see approach and social anxieties observed in Japan's automotive SMEs are a crucial leading indicator for other manufacturing hubs in Asia. We recommend adapting a similar mixed-methods research approach to survey the automotive supply chain in these countries.

This comprehensive research would help to build a global blueprint for a just transition, identifying best practices and creating a more resilient, sustainable and equitable transition for the entire automotive industry.

► 7. Conclusion

This study provides a crucial, empirical perspective on the complex and multifaceted journey of Japan's automotive part supplier SMEs toward a just transition. By moving beyond macro-level reports, we have fulfilled our objectives, revealing the on-the-ground realities faced by these enterprises and their workers, thus offering an essential new lens on a critical global challenge.

Our findings reveal that the SME transition in Japanese automotive industry is not a uniform march forward but rather a series of diverging pathways. A significant number of firms are currently in a wait-and-see posture, a strategic paralysis influenced by high dependence on traditional technologies and the absence of clear market signals from their major customers. This inertia is further enabled by the nuanced language of 2023 GX Basic Policy, which, while committing substantial funds, provides a less urgent timeline for business transformation by including all electrified vehicles in its scope. This contrasts sharply with a small but proactive group of firms whose adaptation is driven by visionary leadership and robust internal capabilities.

Our research uncovered a profound disconnect between existing top-down policies and the micro-level needs of these firms. As detailed in the discussion on network isolation and support diffusion, the low uptake of support initiatives is not a sign of disinterest but a symptom of a mismatch: support is often not tangible or tailored enough to address the practical challenges SMEs face in financial planning, technology adoption and skills development. This mismatch is echoed in the worker experience, where we observed a two-sided reality of social protection. While formal mechanisms like the designated worker representative exist, our findings suggest they often do not translate into meaningful worker participation or tangible support, leaving workers in less-proactive firms with high levels of insecurity. This vulnerability is, for now, being informally mitigated by a resilient regional labour market — a temporary adjustment mechanism that highlights the fragility of the current system.

Our analysis of skill gaps and labour dynamics reveals a deeper layer to this disconnect. A critical skills mismatch exists across all firms, though the nature of the gap varies by a firm's transition stage. For example, proactive firms struggle with advanced skills related to CASE technologies, while a majority of reactive firms lack basic digital literacy. This skills gap is compounded by the challenges of an ageing workforce and labour shortages, forcing companies to rely on short-term, stop-gap measures, like hiring retired workers and foreign trainees, rather than implementing proactive reskilling of their current employees. This inaction poses a significant long-term risk to labour supply.

Ultimately, this study serves as a critical blueprint for what a successful and equitable transition requires. The experience of Japan's SMEs provides a crucial leading indicator for other automotive manufacturing hubs in Asia and beyond. The lessons are clear: a just transition cannot be legislated from the top down. It must be built from the ground up through a collaborative ecosystem that empowers leaders, provides tailored support to firms and actively champions social dialogue and work-based skills development for workers. The detailed policy and programmatic recommendations, developed in direct response to these findings, provide a clear path forward. They are designed to bridge the gap and forge a more resilient, sustainable and inclusive future for the entire automotive industry.

► 8. Limitations

The findings of this study are subject to several limitations, stemming from the challenges of data collection, which resulted in a small number of observations. To increase the overall dataset, we combined data from a qualitative study (interviews) with a subsequent online quantitative survey. However, this merged dataset remains small: it includes 20 enterprise survey responses and insights from a total of three interviewed enterprises. Our worker sample is similarly limited, with only four online survey responses and information from three interviewed workers. These small sample sizes for both enterprises and workers prevent us from performing detailed statistical analysis, conducting a comprehensive regional assessment and fully generalizing the findings to the broader population of Japanese SMEs.

Challenges in securing a larger number of observations were consistent across both the interview and survey methods.

- Interview process constraints: The interview process was constrained by a primary consultant's limited Japanese proficiency, requiring the use of an interpreter. This, combined with the complexities of public transportation and significant travel time, limited interviews to short durations (60–90 minutes). Furthermore, the long lead time (at least one month's notice) required to secure appointments in Japan prevented the use of snowball sampling, a method that could have helped expand the network of participants.
- Participant accessibility and time constraints: Pervasive labour shortage in Japan made it particularly difficult to secure interviews with production workers. For micro-enterprises, owners and managers were often too preoccupied with business operations to participate in voluntary, time-consuming activities like interviews or surveys, leading to low response rates.
- Questionnaire sensitivity: The content of the questionnaires, particularly for workers, may have been perceived as sensitive by SME owners and managers, creating a significant barrier to their distribution.
- Unfavourable timing: The survey coincided with a period when the United States had begun to impose new import duties on Japanese automotive products, a policy that directly impacted the businesses being surveyed and created an unfavourable environment for their participation.

The limitations detailed above do not undermine the value of this report. Rather, they provide essential context for interpreting our findings. This study's strength lies in its ability to offer a rare, ground-level perspective on a complex issue for which little to no primary data exists. Our research serves as a crucial pilot study and a leading indicator, providing valuable qualitative insights and a conceptual framework that can inform future, larger-scale research efforts in this field.

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► Annexes

Annex 1: Interview guides

A1.1 Interview guide for organization

(METI, MHLW, financial institutions, skills training and employment service providers, employer and worker organizations)

01. Introduction

This exercise is part of a qualitative study showcasing lessons learned from the Mikata project conducted by International Labour Organization (ILO). The study focuses on just transition which promotes a “green” economy in a manner that is as fair and inclusive as possible to everyone concerned (workers, enterprises and communities), leaving no one behind. Therefore, the opportunities, challenges and critical support faced and required by automotive micro, small and medium enterprises (MSMEs) and workers in the sector are central to the study. It involves an examination of relevant initiatives at the national, regional and enterprise levels. Through interviews with key stakeholders, the study aims to reflect the views of government, employers, workers and other key players.

As a pioneer of the world’s automotive industry and an active leader in the decarbonization movement, Japan can provide valuable resources for other countries undertaking similar decarbonization journeys by documenting its approach to facilitating the automotive industry’s transition.

Your personal and organizational information will be kept confidential and used solely for coordination purposes. Views and comments collected during this interview will be used for analysis and mentioned in the report in aggregate form (individual responses will not be published). The interview will be conducted by a consultant with the assistance of an interpreter and will have a maximum duration of two hours

02. Interview information

1. Date:
2. Time:
3. Place:
4. City name:
5. Prefecture:
 - a. Tokyo, b. Gunma, c. Saitama, d. Aichi, e. Other (specify):
6. Region:
 - a. Kanto, b. Chubu
7. Name of mission team:
 -
 -
 -

03. Respondent information

8. Name of organization:
9. Type of organization:
 - a. Government, b. Non-government, c. Private sector, d. Other (specify):
10. Scope of responsibilities:
 - a. National, b. Regional, c. Prefecture, d. City/ Municipal, d. Other (specify):
11. Name and position:

Respondent 1: name....., position:.....

Respondent 2: name....., position:.....

Respondent 3: name....., position:.....

Respondent 4: name....., position:.....

Respondent 5: name....., position:.....

04. Organization's relevance in promoting and transitioning automotive MSMEs

Pursuing carbon neutrality by 2050, the increasing electrification of automobiles presents a significant challenge to Japanese MSMEs as there will be changes in demand for specific parts and materials required for producing electric vehicles. This transition also implies changes in production functions within automotive MSMEs, including human resources, capital and technology, as well as in their organizational management.

12. What direct or indirect roles and responsibilities does your organization have in relation to promoting and transitioning automotive MSMEs? Please describe your involvement at each level (national, regional, local) and provide specific examples.
13. Under the METI, the Mikata project was launched in 2022 to provide SMEs in the automotive industry with support for business transformation and restructuring. This support includes consultation, training/seminars, expert dispatch, other necessary information on subsidies to facilitate their transition. Does your organization participate in this initiative?
14. If so, please explain your organization's roles and responsibilities within this initiative.
15. If not, are you at least aware of the Mikata project or similar projects currently supporting automotive MSMEs in transition at the national or regional level? And how your organization could contribute to this initiative and support the transition?

05. Organizational opportunities and challenges

For organizations directly involved in initiatives supporting the transition of automotive MSMEs:

16. What are the key opportunities, advantages or conditions that enable your organization to effectively support the transition of automotive MSMEs? How does your organization leverage these opportunities?
17. What are the key challenges and limitations that your organization faces in effectively supporting the transition of automotive MSMEs? How does your organization address these challenges?
18. Lessons Learned from the Mikata project

19. In your opinion, what successful approaches implemented within the Mikata project can be replicated in other contexts (different economic sectors and countries) to facilitate a transition for automotive MSMEs?
20. Furthermore, what are the key lessons learned from the Mikata project that can inform future strategies and policies for supporting the inclusive transition of automotive MSMEs?

06. Ensuring a just transition for workers in automotive sector

Potential impacts on workers

21. What are your observations regarding the potential impacts on workers as automotive MSMEs undergo transformation?
 - a. Specifically, how might workers be affected by the adoption of new technologies or digitalization processes? For example, are there potential risks of job displacement or the need for significant skill re-training? Please explain.

Mitigation measures

22. How have these potential adverse impacts and changes in working conditions been mitigated? What specific measures have been implemented to address these challenges? And who has been responsible for these mitigation efforts (for example, government, employers, unions, training providers)? Please explain.

Inclusivity and equity

23. How inclusive are the current initiatives, including the Mikata project, in addressing the needs of workers during this transition?
 - Are the benefits and opportunities of the transition being shared equitably among all workers?
 - Are there any groups of workers who may be disproportionately affected or excluded from the benefits of these initiatives? For example, older workers, women or workers with lower levels of education or skills.

Enabling conditions and future actions

24. For better prepare for and facilitate a smoother transition of automotive MSMEs in this region/prefecture, what are the key enabling conditions and actions in your opinion?
 - Inside the enterprise (for example, strong leadership, worker cooperation, comprehensive training programme, effective feedback mechanisms)
 - Outside the enterprise (for example, policies, regulations and incentives that support the transition, targeted support programmes for MSMEs)? Who should take the lead in these efforts?

07. Green initiatives in automotive MSMEs

In addition to the unavoidable challenges posed by the country's directive on the electrification of automobiles within their supply chains, automotive MSMEs are encouraged to engage in green actions for decarbonization purposes. This involves implementing various resource-efficient measures within their enterprises, such as adopting green technologies, minimizing production waste, saving energy and recycling.

25. How do you perceive the level of engagement of automotive MSMEs in green initiatives?
26. What are the key drivers and motivations that encourage automotive MSMEs to actively pursue these green actions?

27. What are the costs associated with implementing these green initiatives for MSMEs, and how do these costs impact their operations and their workers?
- What support interventions are available to assist MSMEs in mitigating the costs associated with adopting green actions?
 - Which of these interventions are most accessible to MSMEs, and which ones are not? What are the barriers to accessing these support interventions?

A1.2 Interview guide for regional support centres

(Mikata project officer, coordinator and experts)

C1. Introduction

This exercise is part of a qualitative study showcasing lessons learned from the Mikata project conducted by International Labour Organization (ILO). The study focuses on just transition which promotes a green economy in a manner that is as fair and inclusive as possible to everyone concerned (workers, enterprises and communities), leaving no one behind. Therefore, the opportunities, challenges and critical support faced and required by automotive MSMEs and workers in the sector are central to the study. It involves an examination of relevant initiatives at the national, regional and enterprise levels. Through interviews with key stakeholders, the study aims to reflect the views of government, employers, workers and other key players.

As a pioneer of the world's automotive industry and an active leader in the decarbonization movement, Japan can provide valuable resources for other countries undertaking similar decarbonization journeys by documenting its approach to facilitating the automotive industry's transition.

Your personal and organizational information will be kept confidential and used solely for coordination purposes. Views and comments collected during this interview will be used for analysis and mentioned in the report in aggregate form (individual responses will not be published). The interview will be conducted by a consultant with the assistance of an interpreter and will have a maximum duration of two hours.

C2. Interview information

1. Date:
2. Time:
3. Place:
4. City name:
5. Prefecture:
 - a. Tokyo, b. Gunma, c. Saitama, d. Aichi, e. Other (specify):
6. Region:
 - a. Kanto, b. Chubu
7. Name of mission team:
 1.
 2.
 3.

C3. Respondent information

8. Name of the respondent:
9. Position of respondent in Mikata project:
 - a. Project officer, b. Project coordinator, c. Project expert, e. Other (specify):
10. Current workplace and position:
11. Briefly describe your involvement in the Mikata project:

C4. Questions for Mikata project officer at RSC

C4.1 Mikata project

12. Regional Support Centres (RSCs) are cited as an integral part of Mikata project interventions. As a service delivery system at the regional level, please provide a brief history of this RSC, including how this organization became part of the Mikata project and the planned continuation of project activities beyond its official end.
13. According to the project booklet, Mikata project support for automotive MSMEs in business transformation and restructuring includes consultation, training/seminars, expert dispatch, other necessary assistance and information on subsidies. Please explain how the project finances these activities and procures the necessary human resources, especially coordinators and experts.
14. How are consultation fees calculated and collected for manufacturers requesting more than five expert dispatches/sessions? Are there regulations governing fee collection? Who manages and utilizes these fees?
15. How does your RSC collaborate with other national and regional organizations, in particular employment services providers and skills training centres, in overseeing and/or implementing of the Mikata project?
16. Please describe the project's outreach efforts and provide data on the total number of participating automotive MSMEs and percentage of total number of automotive MSMEs in the target region/prefecture. For our study, could you provide data disaggregated by: size of enterprise (micro, small, medium), group of main products (engine/transmission, battery, other parts), type of project support (consultation, training/seminar, expert dispatch)?
17. Looking back to the time when the Mikata project was initiated, what changes did the project plan to make for automotive MSMEs in this region (for example, Chubu)? Have these changes been implemented as expected? What aspects of the planned changes have not been carried out, and why?
18. What are the key opportunities and advantages that enable your RSC (Mikata project) to effectively support the transition of automotive MSMEs in this region/prefecture, and how does your RSC leverage these opportunities?
19. Conversely, what are the key challenges and limitations that your RSC (Mikata project) faces in effectively supporting the transition of automotive MSMEs in this region/prefecture, and how does your RSC address these challenges?
20. In your opinion, what successful approaches implemented within the Mikata project can be replicated in other contexts (different economic sectors and countries) to facilitate a transition for automotive MSMEs?
21. Furthermore, what are the key lessons learned from the Mikata project that can inform future strategies and policies for supporting the inclusive transition of automotive MSMEs?

C4.2 Just transition for workers

Potential impacts on Workers

22. What are your observations regarding the potential impacts on workers as automotive MSMEs in your project undergo transformation?
 - Specifically, how might workers be affected by the adoption of new technologies or digitalization processes? For example, are there potential risks of job displacement or the need for significant skill re-training? Please explain.

Mitigation measures

23. How have these potential adverse impacts and changes in working conditions been mitigated? What specific measures have been implemented to address these challenges? And who has been responsible for these mitigation efforts (for example, government, employers, unions, training providers)? Please explain.

Inclusivity and equity

24. How inclusive are the current initiatives, including the Mikata project, in addressing the needs of workers during this transition?
- Are the benefits and opportunities of the transition being shared equitably among all workers?
 - Are there any groups of workers who may be disproportionately affected or excluded from the benefits of these initiatives? For example, older workers, women or workers with lower levels of education or skills.

Enabling conditions and future actions

25. For better prepare for and facilitate a smoother transition of automotive MSMEs in this region/ prefecture, what are the key enabling conditions and actions in your opinion?
- Inside the enterprise (for example, strong leadership, worker cooperation, comprehensive training programme, effective feedback mechanisms)
 - Outside the enterprise (for example, policies, regulations and incentives that support the transition, targeted support programmes for MSMEs)? Who should take the lead in these efforts?

C4.3 Green initiatives in automotive MSMEs

In addition to the unavoidable challenges posed by the country's directive on the electrification of automobiles within their supply chains, automotive MSMEs are encouraged to engage in green actions for decarbonization purposes. This involves implementing various resource-efficient measures within their enterprises, such as adopting green technologies, minimizing production waste, saving energy and recycling.

26. Among the automotive MSMEs that have benefited from your project, how do you perceive their level of engagement in green initiatives?
27. What are the key drivers and motivations that encourage automotive MSMEs to actively pursue these green actions?
28. What are the costs associated with implementing these green initiatives for MSMEs, and how do these costs impact their operations and their workers?
- What support interventions are available to assist MSMEs in mitigating the costs associated with adopting green actions?
 - Which of these interventions are most accessible to MSMEs, and which ones are not? What are the barriers to accessing these support interventions?

C4.4 Other relevant issues

(To be identified during the interview)

C5. Questions for coordinator and experts

C5.1 Understanding MSME transition pathways

The Mikata project published 11 case studies in June 2023, showcasing project support at various stages of development/transition: recognizing and addressing challenges (stage 1: having business or transition plan), business development and expansion (stage 2: implementing the plan) and acquiring new orders (stage 3).

29. We found that automotive MSMEs applied for project support at different stages of their development, and each exhibited varying progress in their transition. In your opinion,
 - What key factors influence their decision to request project support? and
 - What factors crucially determine their progress in each stage of the transition (capital, human resource and technology)?
30. From your experience, on average, how long does it typically take for MSMEs to transition through each stage of development (stage 1, 2 and 3)? Please explain and give example.
31. Human resource management for transition,
 - How do automotive MSMEs that you have supported acquire the necessary human resources for each stage of transition (stage 1, 2 and 3)? and what specific skills are required for each stage?
 - Is there a significant gap between (1) leading companies and others, and (2) companies with close business relation with large firms and independent companies, in terms of acquiring and developing the human resources and skills required for the transition?
32. The number of consultancy sessions (by coordinator and expert) requested by target MSMEs tends to vary.
 - Among those reaching a similar stage of transition, what are the key differences between MSMEs that request fewer sessions and those that request more sessions?
 - What about those that did not apply for support from the Mikata project? How do they manage their transition?
33. Which approaches implemented within the Mikata project do you think have been successful and can be replicated in other contexts (different economic sector and different country)?
34. What challenges hindered the progress of the Mikata project, and how can these challenges be addressed in future interventions?
 - Based on your experience, did some MSMEs stop progressing or drop out during the transition? If so, what were the key factors or barriers that prevented them from progressing?
35. What lessons can be learned from the Mikata project to inform future strategies and policies for supporting the transition of automotive MSMEs? What other support do they find are needed in preparing firms (and their workers and organizations) to undertake decarbonization?

C5.2 Just transition for workers

Potential impacts on workers

36. What are your observations regarding the potential impacts on workers as automotive MSMEs in your project undergo transformation?
 - Specifically, how might workers be affected by the adoption of new technologies or digitalization processes? For example, are there potential risks of job displacement or the need for significant skill re-training? Please explain.

Mitigation measures

37. How have these potential adverse impacts and changes in working conditions been mitigated? What specific measures have been implemented to address these challenges? And who has been responsible for these mitigation efforts (for example, government, employers, unions, training providers)? Please explain.

Inclusivity and equity

38. How inclusive are the current initiatives, including the Mikata project, in addressing the needs of workers during this transition?
- Are the benefits and opportunities of the transition being shared equitably among all workers?
 - Are there any groups of workers who may be disproportionately affected or excluded from the benefits of these initiatives? For example, older workers, women or workers with lower levels of education or skills.

Enabling conditions and future actions

39. For better prepare for and facilitate a smoother transition of automotive MSMEs in this region/ prefecture, what are the key enabling conditions and actions in your opinion?
- Inside the enterprise (for example, strong leadership, worker cooperation, comprehensive training programme, effective feedback mechanisms)
 - Outside the enterprise (for example, policies, regulations and incentives that support the transition, targeted support programmes for MSMEs)? Who should take the lead in these efforts?

C5.3 Green initiatives in automotive MSMEs

In addition to the unavoidable challenges posed by the country's directive on the electrification of automobiles within their supply chains, automotive MSMEs are encouraged to engage in green actions for decarbonization purposes. This involves implementing various resource-efficient measures within their enterprises, such as adopting green technologies, minimizing production waste, saving energy and recycling.

40. Among the automotive MSMEs that have benefited from your project, how do you perceive their level of engagement in green initiatives?
41. What are the key drivers and motivations that encourage automotive MSMEs to actively pursue these green actions?
42. What are the costs associated with implementing these green initiatives for MSMEs, and how do these costs impact their operations and their workers?
- What support interventions are available to assist MSMEs in mitigating the costs associated with adopting green actions?
 - Which of these interventions are most accessible to MSMEs, and which ones are not? What are the barriers to accessing these support interventions?

A1.3 Interview guide for enterprise managerial position

(CEO/Owner/Manager and HR of selected enterprise)

E1. Introduction

This exercise is part of a qualitative study showcasing lessons learned from the Mikata project conducted by International Labour Organization (ILO). The study focuses on a Just Transition which promotes a green economy in a manner that is as fair and inclusive as possible to everyone concerned (workers, enterprises and communities), leaving no one behind. Therefore, the opportunities, challenges and critical support faced and required by automotive MSMEs and workers in the sector are central to the study. It involves an examination of relevant initiatives at the national, regional and enterprise levels. Through interviews with key stakeholders, the study aims to reflect the views of government, employers, workers and other key players.

As a pioneer of the world's automotive industry and an active leader in the decarbonization movement, Japan can provide valuable resources for other countries undertaking similar decarbonization journeys by documenting its approach to facilitating the automotive industry's transition.

Your personal and organizational information will be kept confidential and used solely for coordination purposes. Views and comments collected during this interview will be used for analysis and mentioned in the report in aggregate form (individual responses will not be published). The interview will be conducted by a consultant with the assistance of an interpreter and will have a maximum duration of two hours.

E2. Interview information

1. Date:
2. Time:
3. Place:
4. City name:
5. Prefecture:
 - a. Tokyo, b. Gunma, c. Saitama, d. Aichi, e. Other (specify):
6. Region:
 - a. Kanto, b. Chubu
7. Name of mission team:
 -
 -
 -

E3. Respondent Information

8. Name of enterprise:
9. Year of establishment:
10. Current workers (including management level):
 - a. Total: female:
 - b. Management level (owner, CEO, manager, division chief):
 - c. Officers (secretary, accountant, finance):
 - d. Technological workers (design, product development, QC):
 - e. Technical workers (product manufacture):
 - f. Main products:
 - g. EV related products/materials/parts (as % of total sales):
 - h. Connection with large enterprise in Tier 1:
 - i. Name and position:
 - Respondent 1: name....., position:.....
 - Respondent 2: name....., position:.....
 - Respondent 3: name....., position:.....
 - Respondent 4: name....., position:.....
 - Respondent 5: name....., position:.....

E4. Understanding the automotive MSME transition journey

E4.1 Green initiatives

On the way to net-zero society in Japan 2050, automotive and battery sector is seen as one of the potentially growing under condition of taking green actions and contributing to decarbonization. Green actions initiated by MSMEs vary, some green their production process aiming for resource efficiency (for example, adopting green technologies, minimizing production waste, saving energy and recycling), some offer green outputs (for example, EV) and some do both.

11. What are green initiatives that your enterprise is undertaking by now? Since when did you start?
12. What are the key drivers and motivations that encourage your enterprise to actively pursue these green actions?
13. What are the costs associated with implementing these initiatives and how these costs impact your operations and workers?
14. What support interventions are available to assist your enterprise in mitigating the costs associated with adopting green actions?
15. Which of these interventions are most accessible to your enterprise, and which ones are not? What are the barriers to accessing these support interventions?

E4.2 Just transition for workers

16. In order to implement the above-mentioned green initiatives, are there any organizational and human resource adjustments/training/provisions that you had to carry out (or are needed)?
17. How these adjustments, for example adopting new technologies or digitalization process, create impacts on your workers? What are those that lead to risks of job displacement, need for significant skill retraining and reducing their welfare in the workplace?
18. How have these potential adverse impacts on workers been mitigated? What specific measures have been implemented to address these challenges? And who has been responsible for these mitigation efforts (for example, government, employers, unions, training providers)? Please explain.
19. In your perspective, how inclusive are the current supports, including the Mikata project, in addressing the needs of workers during this transition?
 - Are the benefits and opportunities of the transition being shared equitably among all target workers?
 - Are there any groups of workers who may be disproportionately affected or excluded from the benefits of these initiatives? For example, older workers, women or workers with lower levels of education or skills.
20. For workers in automotive MSMEs in this region/prefecture to be better prepared for the sector's transition:
 - What are the existing worker support programmes provided by the government and other stakeholders that you are aware of?
 - Are these supports sufficient to meet the needs of workers in this industry?
 - What additional support programmes would be most beneficial for workers in your same industry?
 - For training and/or OJT, what specific topics/areas should be provided, and by whom?
21. What key enabling conditions and areas of intervention are necessary beyond the current support schemes to ensure a JUST transition for workers in the automotive sector?
22. Who should take the lead in developing and implementing these support interventions (for example, government, employers, unions, civil society organizations)?

E4.3 Transition to EV part productions

23. What was your motivation to engage in the transition to EV business? And when did you start?
24. When you decided to take action and start the transition process (either independently or with external support), what was the perceived level of impact of electrification on your business compared to other enterprises in the same sector?
 - No impact:
 - Mild impact:
 - Moderate impact:
 - Major impact:
 - Disruptive impact:

25. At the time of this interview, what is the current stage of development within your company's transition journey? If applicable, please specify the approximate time taken to reach each stage and explain the factors that influenced such duration.

	Transition period (months/years)	Key factors
Stage 1: Recognizing and addressing challenges • Being aware of problems (1-1) • Identifying issues for improvement (1-2) • Problem-solving and planning (1-3)	-	-
Stage 2: Business development and expansion • Occupational advancement (2-A) • Launching new businesses (2-B) • Expanding or entering other industries or new businesses (2-C)	-	-
Stage 3: Acquiring new orders	-	-

26. What were the key opportunities and challenges your enterprise encountered during each stage of its transition? How did your company address these challenges?

	Key opportunities	Key challenges	Solutions
Stage 1: Recognizing and addressing challenges	-	-	-
Stage 2: Business development and expansion	-	-	-
Stage 3: Acquiring new orders	-	-	-

27. What were the key sources of support or effort (ex: worker effort, company's potential, leadership of management staff, support from government (including Mikata project), support from non-state agencies (association, bank or business partner/buyer) that enabled your enterprise to seize opportunities and overcome challenges during the transition? Please provide specific examples and explain their impact.

	Sources of support or effort	Explanation
Stage 1: Recognizing and addressing challenges	-	-
Stage 2: Business development and expansion	-	-
Stage 3: Acquiring new orders	-	-

28. For each stage of transition (stage 1, 2, 3), what are the impacts, such as potential job losses and adaptation, on your workers with different levels of qualification (education and years of experience), gender or position? And how have you responded to these impacts on workers?
29. Once your organization and human resource are prepared, how do your company plan to sustain the changes implemented, maintain cooperation among workers and managers and retain skilled employees?
- Did you experience turnover among trained workers or managers?
 - How do you plan to retain the acquired knowledge and skills within the company?
 - What new responsibilities or committees were formed to provide internal support for the transition process?

30. For the next stage of transition, what opportunities and challenges does your enterprise foresee? How does your company plan to address these anticipated opportunities and challenges?
- Opportunities:
 - Challenges:
31. For better prepare for and facilitate a smoother transition of automotive MSMEs in this region/prefecture, what are the key enabling conditions and actions in your opinion?
- Inside the enterprise (for example, strong leadership, worker cooperation, comprehensive training programme, effective feedback mechanisms)
 - Outside the enterprise (for example, policies, regulations and incentives that support the transition, targeted support programmes for MSMEs)? Who should take the lead in these efforts?

E5. Mikata project from perspective of participating enterprises

33. When did your company decide to engage with the Mikata project (month/year)? What were the primary motivations for joining the project (for example, government mandates, pressure from partners, a desire to improve sustainability)? At which stage of transition was your company at that time (stage 1, 2 or 3)?
34. What specific interventions/supports did your enterprise receive from the Mikata project (for example, seminar/workshop, consultation, expert dispatch)? How many sessions were provided for each type of support?
35. Among the supports/interventions provided by the Mikata project:
- Which were most effective in accelerating your transition process or which were essential for achieving your current level of development? Please explain their value to your business.
 - Which support/interventions were missing? Please explain why these were crucial for your business's success.
36. How do you envision the Mikata project contributing to your enterprise's long-term resilience and adaptability in the face of future challenges and opportunities?
37. Which approaches implemented within the Mikata project did the enterprise see as successful and can be replicated in other contexts (different economic sector and different country)?
38. What challenges or areas for improvement did the enterprise identify as hindering the progress of the Mikata project, and how can these challenges be addressed in future interventions?

A1.4 Interview guide for enterprise technical and technological position

(Technical and technological workers in selected enterprise, 2 people per interview)

W1. Introduction

This exercise is part of a qualitative study showcasing lessons learned from the Mikata project conducted by International Labour Organization (ILO). The study focuses on a Just Transition which promotes a green economy in a manner that is as fair and inclusive as possible to everyone concerned (workers, enterprises and communities), leaving no one behind. Therefore, the opportunities, challenges and critical support faced and required by automotive MSMEs and workers in the sector are central to the study. It involves an examination of relevant initiatives at the national, regional and enterprise levels. Through interviews with key stakeholders, the study aims to reflect the views of government, employers, workers and other key players.

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W2. Interview information

1. Date:
2. Time:
3. Place:
4. City name:
5. Prefecture:
 - a. Tokyo, b. Gunma, c. Saitama, d. Aichi, e. Other (specify):
6. Region:
 - a. Kanto, b. Chubu
7. Name of mission team:
 -
 -
 -

W3. Respondent information

-	Respondent 1	Respondent 2	Respondent 3
1. Name:	-	-	-
2. Gender: male/female:	-	-	-
3. Age:	-	-	-
4. Level of education: Primary/secondary/vocational or technical/diploma/bachelor's/ master's/other	-	-	-
5. Position:	-	-	-
6. Type of work: Production/maintenance/QC/R&D/management/other	-	-	-
7. Years of experience In automotive sector: In this enterprise:	- -	- -	- -
8. Type of contract: Full-time/part-time/contract/temporary/other	-	-	-

W4. Awareness and participation in green action and the Mikata project

8. Japan is aiming to have zero carbon emissions by 2050. The automotive and battery industries are important for reaching this goal. To be part of this, companies need to become more environmentally friendly. This can include using technology to save energy, reducing waste, recycling materials and making electric vehicles. Many smaller companies are already taking these steps, either by improving their production processes, making greener products or both.
 - What green actions is your enterprise currently implementing that you are aware of?
 - Which actions or initiatives do you participate in?
 - Are there any impacts from these actions on your jobs and working conditions? If so, how?
9. Your company has participated in the Mikata project, which aims to support the transition of auto MSMEs as Japan's automotive sector shifts towards electrification. Are you aware of your company's participation in this project? If yes, how did you learn about it?

W5. Impact of the Mikata project on the workplace and individual careers

10. If you are aware of your company's participation in the Mikata project, please describe any changes that have occurred within your workplace as a result of the support received through project activities such as consultation, seminars/workshops, expert support, e-learning and information on subsidies.
11. If you ever participated in activities provided by the Mikata project:
 - Which activities do you think were the most effective for your enterprise in preparing its workers for the transition?
 - Which activities do you think can indirectly benefit you and your career?
 - What was missing from the Mikata project's activities? How could the support be enhanced for an optimal outcome?

12. So far, have this company's transition within the automotive industry made any changes in your work or career path? If so:
 - When and how did these changes occur? Please explain.
 - Have these changes also impacted other workers in the same company? If so, how?

W6. Future career development and preparedness of workers

13. How do you foresee your future career in this enterprise as it continues to adapt to the changing automotive landscape?
14. What steps do you plan to take to prepare for these future changes, including skills development and career planning?
15. For workers in automotive MSMEs in this region/prefecture to be better prepared for the sector's transition:
 - What are the existing worker support programmes provided by the government and other stakeholders that you are aware of?
 - Are these supports sufficient to meet the needs of workers in this industry?
 - What additional support programmes would be most beneficial for workers in your same industry?
 - For training and/or OJT, what specific topics/areas should be provided, and by whom?

W7. Challenges, opportunities and success factors for enterprise transition

16. What are the experiences of your colleagues (in similar positions) within your company, and in other automotive MSMEs that you are aware of, regarding the challenges and opportunities presented by this industry transition?
17. What do you believe are the key sources of support or effort that have helped workers in automotive MSMEs to seize opportunities and overcome challenges during the transition? Please explain your reasoning.

Annex 2: Online questionnaire

A2.1 Enterprise survey

SME Transition Strategy and Preparedness Survey: For Business Owners or Managers

Survey introduction

The International Labour Organization (ILO) in Geneva, with the coordinated support of the Ministry of Economy, Trade and Industry (METI), is conducting this important survey.

Our aim is to understand the transition experiences and strategies of small and medium-sized enterprises (SMEs) in the automotive part manufacturing sector in Japan.

Specifically, through a survey of SME owners or managers, we are examining how these SMEs are navigating business transitions in response to connected, autonomous, shared and electric (CASE) trends and contributing to the country's decarbonization targets.

Your valuable insights will directly contribute to the development of more effective support mechanisms and inform enabling policies. By sharing your experiences with this transition, you will help us identify critical support needs, foster a just transition for SMEs like yours, and understand changes in the workforce working conditions within the automotive part manufacturing sector.

Rest assured, all personal information you provide will be kept strictly confidential. Your responses will be aggregated, and only this anonymized data will be used for analysis and presented in the final report. Your voluntary participation is crucial to ensuring future support effectively addresses the realities and aspirations of SMEs in the automotive part industry, both within Japan and internationally.

- Questions marked with an asterisk (*) require a response to complete the survey.
- To allow more time for participation, the survey will now be open until **Friday, July 18, 2025**, starting from Friday, June 27, 2025.
- This online form is available in English and Japanese. Please select your preferred language in the top right corner.
- The survey works on virtually any device (smartphones, tablets, computers)
- For queries, please contact our research team: Mitani, Emi (<mitani@ilo.org>) and Chaleusinh, Chansathith (<chansathit@hotmail.com>).
- Thank you for dedicating your valuable time and expertise to this vital effort.

Part 1: Respondent and company background

1.1 Respondent information

1. What is your primary role within the company?*
 - a. Owner/President/CEO
 - b. Managing director
 - c. General manager
 - d. Plant manager
 - e. Head of department
 - f. Other (specify)
- 1.1 Please specify your primary role other than what listed above
2. How familiar are you with the trends of connected, autonomous, shared and electric (CASE) in the automotive industry?*
 - a. Very familiar
 - b. Somewhat familiar
 - c. Slightly familiar
 - d. Not at all familiar
3. What is your age group?*
 - a. Under 30
 - b. 30–39
 - c. 40–49
 - d. 50–59
 - e. 60 or older
 - f. Prefer not to say
4. What is your gender?*
 - a. Male
 - b. Female
 - c. Other
 - d. Prefer not to say

1.2 Basic enterprise profile

1.2.1 Company identification and structure

5. Location of enterprise (If there are multiple locations, please select the region and prefecture where the headquarters is located):

Region*

1. Hokkaidō-Tōhoku
2. Kantō-Kōshin'etsu
3. Chūbu-Kinki-Tōkai
4. Chūgoku-Shikoku-Kyūshū-Okinawa

Prefecture

Hokkaidō-Tōhoku

1. Hokkaido
2. Iwate
3. Miyagi
4. Aomori
5. Akita
6. Yamagata
7. Fukushima

Kantō-Kōshin'etsu

8. Tochigi
9. Gunma
10. Saitama
11. Kanagawa
12. Nagano
13. Ibaraki
14. Chiba
15. Tokyo
16. Niigata
17. Yamanashi

Chūbu-Kinki-Tōkai

18. Shizuoka
19. Gifu
20. Aichi
21. Mie
22. Toyama
23. Ishikawa
24. Fukui
25. Kyoto
26. Shiga
27. Osaka
28. Hyogo
29. Nara
30. Wakayama

Chūgoku-Shikoku-Kyūshū-Okinawa

31. Okayama
32. Hiroshima
33. Tottori
34. Shimane
35. Yamaguchi
36. Tokushima
37. Kagawa

- 38. Ehime
- 39. Kochi
- 40. Fukuoka
- 41. Saga
- 42. Nagasaki
- 43. Kumamoto
- 44. Oita
- 45. Miyazaki
- 46. Kagoshima
- 47. Okinawa

- 6. How many years has your company been involved in the auto part-related business? *
- a. Less than 5 years
- b. 5–10 years
- c. 11–20 years
- d. 21–30 years
- e. More than 30 years
- 7. What is the ownership structure of your company?*
- a. Stock Company / Corporation / Public Limited Company
- b. Limited Liability Company (LLC)
- c. Limited Company
- d. Sole Proprietorship
- e. Other (specify)
- 7.1 Please specify ownership structure of your company other than what listed above
- 8. Capital (million yen):*
- a. Less than 10 million yen
- b. 10–50 million yen
- c. 51–100 million yen
- d. 101–300 million yen
- e. More than 300 million yen
- f. Prefer not to say

1.2.2 Workforce characteristics

- 9. How many employees does your company currently have (full-time equivalent)?*
- a. 1–29 employees
- b. 30–99 employees
- c. 100–299 employees
- d. 300–999 employees
- e. 1000 or more employees

10. Female workers (per cent of total):*
 - a. Less than 10 per cent
 - b. 10–19 per cent
 - c. 20–29 per cent
 - d. 30–49 per cent
 - e. 50 per cent or more
11. Elderly workers aged 60 and above (per cent of total):*
 - a. 0 per cent
 - b. 1–9 per cent
 - c. 10–19 per cent
 - d. 20–29 per cent
 - e. 30 per cent or more
12. Foreign workers (per cent of total):*
 - a. 0 per cent
 - b. 1–4 per cent
 - c. 5–9 per cent
 - d. 10–19 per cent
 - e. 20 per cent or more
13. Which of the following formal mechanisms are utilized in your company for representing and negotiating on behalf of workers regarding employment conditions? (Select all that apply)*
 - a. Labour union (enterprise union)
 - b. Designated worker representative (Rōdōsha Daihyō)
 - c. Structured labour-management dialogue (for example, regular meetings, committees formed for specific issues or other established channels for communication and feedback.)
 - d. None of the above

1.2.3 Automotive involvement and business overview

14. What percentage of your company's current sales are generated from automotive-related parts?*

 - a. 0 per cent
 - b. 1–25 per cent
 - c. 26–50 per cent
 - d. 51–70 per cent
 - e. 71–90 per cent
 - f. 91–100 per cent
 - g. Cannot answer

15. Please select all of the automotive parts that your enterprise currently manufactures and supplies. (Select all that apply)*
 - a. Mold and equipment parts
 - b. Engine components
 - c. Powertrain components

- d. Interior trim and components
 - e. Body panels and structural components
 - f. Suspension and breaking system components
 - g. Electronic components and systems
 - h. Electronic and electrical equipment
 - i. Electrical components and wiring
 - j. Raw materials (metals, plastics and so on)
 - k. Semi-finished materials (sheets, bars and so on)
 - l. Assemblies and modules
 - m. Other (specify)
 - n. Cannot answer
- 15.1 Please specify the automotive parts that your enterprise currently manufacture other than what listed above
16. Please indicate which types of motor vehicles your products are used for manufacturing. (Select all that apply)*
- a. BEV
 - b. FCV
 - c. PHEV
 - d. HEV
 - e. CD (Clean diesel vehicle)
 - f. ICE (Internal combustion engine) - Petrol/Gasoline
 - g. Other (specify)
 - h. Cannot answer
- 16.1 Please specify type of motor vehicles your products are used for manufacturing other than what listed above
17. What percentage of your company's current sales are generated from parts used in zero-emission vehicles (for example, BEV, FCV)?*
- a. 0 per cent
 - b. 1–25 per cent
 - c. 26–50 per cent
 - d. 51–70 per cent
 - e. 71–90 per cent
 - f. 91–100 per cent
 - g. Cannot answer
18. Which tier in the automotive supply chain does your company primarily operate within?*
- a. Tier 1
 - b. Tier 2
 - c. Tier 3 or lower
 - d. We supply to multiple tiers
 - e. We are not in tiered system
 - f. Cannot answer

19. Approximately what percentage of your company's total revenue comes from your largest customer?*
- a. Less than 20 per cent
- b. 20–49 per cent
- c. 50–79 per cent
- d. 80 per cent or more
- e. Cannot answer

1.2.4 Innovation and global presence

20. How would you describe the current level of digitalization within your company's operations?*
- a. Very low (for example, primarily using paper-based records for production schedules, inventory and quality control)
- b. Low (for example, some use of computers for basic tasks like inventory spreadsheets or creating simple production documents.)
- c. Moderate (for example, regular use of software for inventory management, production planning or basic CAD/CAM)
- d. High (for example, significant use of integrated software systems (for example, ERP, MES) to manage most aspects of production, from planning to shipping)
- e. Very high (for example, highly integrated and data-driven production environment with extensive use of IoT, AI and machine learning for optimization and decision-making.)
21. How would you describe the current level of automation within your company's operations?*
- a. Very low (for example, majority of tasks are performed manually by workers)
- b. Low (for example, some use of basic automated machinery for specific, repetitive tasks, such as, simple cutting machines, basic conveyors)
- c. Moderate (for example, use of more advanced automated machinery in several key production areas, such as CNC machines and automated welding stations)
- d. High (for example, significant portions of the production process are automated, with integrated systems of machinery and robots working together)
- e. Very high (for example, near-fully automated "smart factory" environment with minimal direct human intervention in production)
22. Which best describes your company's international activities related to production and sales?*
- a. We primarily manufacture and sell our products within Japan.
- b. We primarily manufacture in Japan and export our products.
- c. We have manufacturing facilities outside Japan, and primarily sell in those regions.
- d. We have manufacturing facilities outside Japan, and also export from Japan.
- e. Other (specify)
- 22.1 Please specify your company's international activities related to production and sales other than what listed above

Part 2: Strategic response and workforce adaptation to CASE

2.1 Strategic outlook and adaptation to CASE

23. Considering the ongoing transitions in the automotive industry, please select the three aspects of your operations that are currently the highest priority for your company. (Select three)*
 - a. Safety (S: Workforce well-being and safety)
 - b. Environment (E: Environmental sustainability and carbon reduction)
 - c. Quality (Q: Automotive part standard and reliability)
 - d. Cost (C: Maintaining or improving cost competitiveness)
 - e. Delivery (D: Meeting customer timelines and efficiency)
24. Looking ahead to the next 5 years (2025–30), how significant do you anticipate the disruption from CASE will be to both your company's core business model and its primary production processes?*
 - a. Minimal disruption anticipated for both
 - b. Slight disruption anticipated for both
 - c. Moderate disruption anticipated for both
 - d. Significant disruption anticipated for both
 - e. Fundamental transformation anticipated for both
 - f. Mixed impact (for example, significant for one, minimal for the other)
25. Which of the following best describes your company's current stage in planning and implementing strategies to adapt to the challenges and opportunities presented by CASE?*
 - a. Not started: We haven't begun any formal planning or implementation related to CASE.
 - b. Exploring: We are in the early stages of discussing and learning about potential adaptation strategies.
 - c. Planning: We have started to develop initial plans and are considering first steps for implementation.
 - d. Implementing: We have developed clear plans and are actively putting some adaptation strategies into practice.
 - e. Leading and adapting: Adapting to CASE is a key part of our strategy, with ongoing implementation and refinement.
 - f. Abandoned/paused: We started planning or implementing strategies but have since abandoned or paused these efforts.

2.2 Workforce development for CASE transition

26. Does your company currently offer any formal training or reskilling programmes specifically focused on the knowledge and skills required for CASE-related technologies?*
 - a. Yes, we have comprehensive and ongoing programmes.
 - b. Yes, we have some initial or limited programmes in place.
 - c. We are currently exploring and planning such programmes
 - d. We have considered it but have not yet implemented any programmes
 - e. No, we do not currently offer such programmes and have no immediate plans to do so.

- 26.1 If you answered “Yes” to Q26, which of the following training methods do you primarily utilize for these initiatives? (Select all that apply)
- a. In-house training by company experts
 - b. External training provided by specialized institutions or vendors
 - c. Online courses and e-learning platforms
 - d. OJT and mentoring
 - e. Partnerships with educational institutions
 - f. Training or support provided by our Tier 1 customers or OEM partners
 - g. Other (specify)
- 26.1.1 Please specify training methods other than what listed above
- 26.2 If you selected response ‘a’, ‘b’, ‘c’ or ‘d’ in the preceding question (Q26), which of the following employee groups are currently the primary targets for your company’s training or reskilling initiatives related to CASE? (Select all that apply)
- a. Production line workers
 - b. Maintenance and technical staff
 - c. Research and development (R&D) personnel
 - d. Sales and marketing teams
 - e. Management and leadership
 - f. All employees
 - g. Other (specify)
 - h. We do not currently have targeted programmes.
- 26.2.1 Please specify the targets for training other than what listed above.
- 26.3 If you selected response ‘a’, ‘b’, ‘c’ or ‘d’ in the preceding question (Q26), which of the following skill areas related to the changing automotive landscape (CASE) do you believe your training initiatives least adequately address?
- a. Understanding of CASE technologies
 - b. Skills related to electric vehicle component manufacturing/maintenance
 - c. Knowledge of sustainable materials and processes
 - d. Digital literacy and data analytics for manufacturing
 - e. Skills in automation and robotics relevant to new production methods
 - f. Other (specify)
- 26.3.1 Please specify skills areas other than what listed above.
27. Regardless of your answer to Q26, which of the following factors do you perceive as significant barriers to your company’s efforts to implement training and reskilling initiatives specifically for the skills required by the CASE transition? (Select three most important)*
- a. High costs associated with developing or purchasing training programmes.
 - b. Uncertainty about the specific skills that will be most needed in the future.
 - c. Difficulty in releasing employees from their current roles for training.
 - d. Lack of internal expertise to develop relevant training content.
 - e. Limited availability of suitable external training providers or programmes.
 - f. Concerns about the return on investment (ROI) of training.

- g. Lack of clear understanding of the technological changes and their skill implications.
- h. Resistance from employees to participate in training.
- i. Concerns about employees moving to other companies after receiving training.
- j. Lack of time or resources to dedicate to planning and administering training.
- k. Other (please specify briefly).
- l. We do not perceive any significant barriers.

27.1 Please specify the barriers to skill training initiatives other than what listed above.

Part 3: External support landscape

3.1 Awareness and unmet needs

28. Are you aware of any government or industry-led projects, programmes or industry associations specifically aimed at supporting automotive part SMEs in their transition towards CASE?*
- a. Yes, I am aware of several.
 - b. Yes, I am aware of a few.
 - c. Yes, I am aware of one or two.
 - d. No, I am not aware of any.
29. Is your company a member of any industry associations or networks that provide support on automotive business transformation or technology adoption?*
- a. Yes.
 - b. No.
- 29.1 If “yes”, what kind of support do you primarily receive from these associations/networks? (Select all that apply)
- a. Information sharing and industry trends
 - b. Networking opportunities with peers or experts
 - c. Access to training or workshops
 - d. Collaborative R&D projects
 - e. Policy advocacy or regulatory updates
 - f. Business matching or partnership opportunities
 - g. Funding or grant application support
 - h. Other (please specify briefly)
- 29.1.1 Please specifically describe any support you received other than what is listed above
30. Which of the following types of external support has your company actively sought but has not yet received in order to address the workforce-related challenges related to CASE? (Select three most important)*
- a. Funding for retraining programmes
 - b. Identifying future skill needs
 - c. Managing potential job displacements and restructuring the workforce
 - d. Identifying and creating new job roles related to CASE (including potentially ‘green’ roles)
 - e. Best practices and case studies for workforce transition in the automotive sector
 - f. Policy guidance and interpretation related to workforce and CASE

g. Other (please specify)

h. We have not actively sought external support for workforce implications

30.1 Please specify the type of external support your company has sought other than what listed above

3.2 Mikata project specifics

31. Has your company previously participated in Mikata project which is supervised by METI and supports Japanese SMEs in the automotive parts manufacturing sector, aiming to help these businesses address challenges and seize opportunities arising from the transition to CASE (connected, autonomous, shared, electric)?*

a. Yes.

b. No.

31.1 Which project activity has your company benefited? (Select all that apply)

a. Seminars

b. Practical training

c. Consultations

d. Expert dispatch

e. E-Learning in Mikata project's portal site

f. Information on relevant public subsidies

31.2 How would you rate the effectiveness of the Mikata project in helping your company to adapt to CASE? (Scale 1–5)

1 - Not helpful

2 - Slightly helpful

3 - Moderately helpful

4 - Very helpful

5 - Extremely helpful

31.3 If no, which of the following were the primary reasons your company has not participated in government or industry projects/programmes for business transformation or technology adoption? (Select all that apply.)

a. Lack of awareness of relevant programmes.

b. Perceived complexity or administrative burden of application.

c. Belief that our company can manage the transition independently.

d. Concerns about the eligibility criteria or relevance to our specific needs.

e. Lack of time or resources to dedicate to participation.

f. We have not yet made a definitive strategic decision to actively pursue the business transformation or technology adoption targeted by these programmes.

g. Unwillingness to share sensitive business insights or data with external partners or programme organizers.

h. Scepticism about the effectiveness of such programmes.

i. We already receive sufficient support and resources for our transition needs from our Tier 1 customers or OEM partners.

j. We have other needs that are not met by the project (specify).

k. Other (specify)

31.3.1 Please specify your other needs that are not met by the project.

31.3.2 Please specify primary reasons for none-participation other than what listed above.

Part 4: Operational standards, worker safety and sustainability actions

32. Which of the following safety measures are currently in place at your automotive part manufacturing facilities? (Select all that apply)*
- a. Regular safety audits.
 - b. Provision of required personal protective equipment (PPE).
 - c. Emergency evacuation plans are in place.
 - d. Comprehensive and regular occupational safety and health training is provided.
 - e. Basic occupational safety and health training is provided.
 - f. We have a safety committee.
 - g. Procedures for accident reporting are established.
 - h. Machinery safety guards and interlocks are in use.
 - i. Safety signage is clearly displayed.
 - j. Other (please specify briefly)
 - k. None of the above.
- 32.1 Please specify the safety measure other than what listed above.
33. Considering the increasing importance of electric vehicles (a key aspect of CASE) and the broader shift towards carbon neutrality in the automotive industry, which of the following actions towards carbon neutrality has your company implemented in its automotive part manufacturing? (Select all that apply.)*
- a. Investing in renewable energy sources for our facilities.
 - b. Improving energy efficiency of machinery and processes.
 - c. Reducing the carbon footprint of our supply chain.
 - d. Utilizing lower-carbon materials in our products or packaging.
 - e. Implementing carbon capture or offsetting initiatives.
 - f. Developing or manufacturing parts specifically for zero-emission vehicles (BEV/FCV).
 - g. Other initiatives. (specify)
 - h. None of the above.
- 33.1 Please specify actions towards carbon neutrality other than what is listed above.

Part 5: Social equity and workforce well-being in the CASE transition

5.1 Impact on workforce and job roles

34. To what extent has your company created new job roles or departments specifically focused on CASE-related technologies?*
- a. We have created many new roles and departments.
 - b. We have created a few new roles or a dedicated department.
 - c. We have considered it but have not yet created new roles.
 - d. We have not created any new roles specifically for these areas.
35. How has the type of skills required for many jobs in your company changed as a result of the transition towards CASE?*
- a. Significantly shifted towards more technical and digital skills.
 - b. Slightly shifted towards more technical and digital skills.
 - c. Remained largely focused on traditional manufacturing skills.

- d. Now requires a greater understanding of sustainability and environmental practices.
 - e. A mix of new technical skills and sustainability awareness is needed.
 - f. Changes are varied depending on the role.
 - g. It is too early to assess.
36. Considering the specific changes your company is undergoing due to the transition towards CASE, which of the following groups within your current workforce do you believe may potentially face increased challenges (for example, job displacement, requiring significant reskilling)? (Select all that apply.)*
- a. Workers in highly manual or repetitive roles.
 - b. Workers with limited digital literacy.
 - c. Older workers.
 - d. Workers in roles directly tied to traditional internal combustion engine technology.
 - e. Workers with lower levels of formal education.
 - f. Other (please specify briefly).
 - g. No specific group is perceived to be at higher risk.
- 36.1 Please specify group of workers you believe face increased challenges other than what listed above.

5.2 Addressing workforce transition and ensuring fairness

37. Is your company currently considering or developing any additional support measures (beyond legal requirements) for employees who may be affected by significant job role changes due to the transition towards CASE (for example, enhanced severance packages, subsidized retraining, career counselling, relocation assistance)?*
- a. Yes, we are actively developing such measures (for example, new training programmes and enhancing severance packages).
 - b. Yes, we have had some initial discussions about potential support (for example, internal transfer and external training options).
 - c. We have considered the possibility but have no concrete plans yet.
 - d. Not applicable at this time (we do not anticipate significant job role changes).
 - e. No, we are not currently considering such measures.
- 37.1 If the answer to Q37 was 'a', 'b' or 'c', please specify the additional support measures that your company is considering or developing? _____
38. During your company's transition towards CASE, which of the following specific practices are currently in place to address issues concerning workers? (Select all that apply)*
- a. Regular meetings with employees regarding transition plans.
 - b. A documented grievance process for transition-related concerns.
 - c. Formal consultation with worker representatives (if applicable).
 - d. Management training on fair transition practices.
 - e. Periodic reviews of transition processes for fairness.
 - f. Publicly stated commitment to fair labour practices during the transition.
 - g. Other (please specify).
 - h. None of the above.
- 38.1 Please specify practices that support workers' right other than what listed above.

39. When selecting employees for new roles or considering restructuring due to the transition, which of the following criteria primarily guide your company's decisions? (Select all that apply.)*
- a. Skills and qualifications relevant to the new roles.
 - b. Experience and performance in current roles.
 - c. Potential for future development and adaptability.
 - d. Seniority within the company.
 - e. Consideration of diverse backgrounds and perspectives.
 - f. Explicit consideration to avoid discrimination based on age.
 - g. Explicit consideration to avoid discrimination based on gender.
 - h. Explicit consideration to avoid discrimination based on nationality or origin.
 - i. Other (please specify).
 - j. We do not have formal criteria in place.
- 39.1 Please specify the criteria other than what listed above.
40. Has your company implemented any specific measures to address the unique needs faced by specific groups (for example, female, elderly, foreign workers, workers with disabilities) during the transition towards CASE?*
- a. Yes, we have implemented specific measures for one or more of these groups. (Please specify briefly in the text box below.)
 - b. We are currently considering specific measures for one or more of these groups. (Please specify briefly in the text box below.)
 - c. We have discussed the potential needs but have not yet implemented or planned specific measures.
 - d. We have not specifically considered the unique needs of these groups beyond our general policies.
 - e. Not applicable – these demographic groups are not significant in our relevant workforce for these transition-related changes.
- 40.1 if 'a' or 'b' is selected, please provide details: _____

Part 6. Feedback on the questionnaire

41. To what extent did you find the questions in this survey relevant and appropriate for your company's experience with the transition towards CASE?
- 1- Not at all relevant or appropriate
 - 2- Slightly relevant or appropriate
 - 3- Moderately relevant and appropriate
 - 4- Mostly relevant and appropriate
 - 5- Extremely relevant and appropriate
42. Regarding the ease of completion
- 1- Very easy
 - 2- Easy
 - 3- Moderate
 - 4- Difficult
 - 5- Very difficult

43. How willing would you be to participate in this type of survey if it were conducted annually?

1- Very willing

2- Willing

3- Neither willing nor unwilling

4- Unwilling

5- Very unwilling

A2.2 Worker survey

Survey on employee experiences during SME transition preparations

Instruction for SME owners or managers

To the Owners or Managers of Participating SMEs,

The International Labour Organization (ILO) is also conducting a worker survey to understand the experiences and perspectives of your employees as your company adapts to or transitions through CASE. Our goal is to gather information and opinions from workers in key departments likely impacted by new technologies and process changes, including: Production/manufacturing, engineering/R&D, maintenance/technical support, quality control and logistics/supply chain. Please also consider including other departments with significant work role/skill shifts (for example, IT/digitalization teams, training/HR and sales/marketing).

Therefore, we respectfully request your cooperation in sharing the provided survey link with your employees and encouraging their participation. To achieve representative data, we kindly request a minimum participation target of 10-20% of the total workforce within each selected department.

- Participation is voluntary and at their convenience.
- Confidentiality Assurance: Employee names and your company's name will not be requested. For analysis, we will only collect general geographic location and the type of automotive parts produced. This ensures the research team cannot link individual responses back to specific companies.

To allow more time for participation, the survey will now be open until **Friday, July 18, 2025**, starting from Friday, June 27, 2025.

- This online form is available English and Japanese.
- The survey works on virtually any device (smartphones, tablets, computers)
- For queries, please contact our research team: Mitani, Emi (<mitani@ilo.org>) and Chaleunsinh, Chansathith (<chansathit@hotmail.com>).
- Thank you for dedicating your valuable time and expertise to this vital effort.

Survey introduction for employees

Dear Valued Employee,

The International Labour Organization (ILO), supported by Ministry of Economic, Trade and Industry (METI), is conducting this important survey to understand how the automotive industry's shift towards new technologies (CASE) is affecting workers like you. Your honest feedback is crucial for ensuring a just transition, and to ensure the human impact of these changes is fully understood.

- Your company's owners or managers have reviewed this survey, which has been provided by the ILO. Please be assured that your responses will be submitted directly and securely to the ILO's independent consultant.
- Your company will not have access to your individual answers, and we cannot identify your specific company.
- Your responses will be kept completely confidential and will be combined with those of other workers in automotive parts industry for analysis.
- Questions marked with an asterisk (*) require a response to complete the survey.

To allow more time for participation, the survey will now be open until **Friday, July 18, 2025**, starting from Friday, June 27, 2025.

- This online form is available in English and Japanese. Please select your preferred language in the top right corner.
- The survey works on virtually any device (smartphones, tablets, computers)
- For queries, please contact our research team: Mitani, Emi (<mitani@ilo.org>) and Chaleunsinh, Chansathith (<chansathit@hotmail.com>).
- Thank you for your participation in this important study.

Part 1: About you and your job

1. What is your primary functional area within the company?*
- a. Production/manufacturing
 - b. Maintenance and technical
 - c. Research and development (R&D)
 - d. Sales and marketing
 - e. Management and leadership
 - f. Administration/support (HR, Finance, IT, Purchasing and so on)
 - g. Other (specify)
- 1.1 Please specify your functional area other than what listed above
2. Which of the following best describes your current role?*
- a. I work independently and do not supervise others.
 - b. I lead a small team or project but do not have formal supervisory responsibilities.
 - c. I directly supervise a team of employees.
 - d. I manage other supervisors or multiple teams/departments.
 - e. I am part of the senior leadership involved in broader organizational decisions.
3. How long have you been working for this company?*
- a. Less than 1 year
 - b. 1–5 years
 - c. 6–10 years
 - d. 11–15 years
 - e. More than 15 years
4. What is your age group?*
- a. Under 30
 - b. 30–39
 - c. 40–49
 - d. 50–59
 - e. 60 or older
 - f. Prefer not to say

5. What is your gender?*
 - a. Male
 - b. Female
 - c. Other
 - d. Prefer not to say
6. Are you a foreign worker?*
 - a. Yes
 - b. No
 - c. Prefer not to say
7. Do you consider yourself to have a disability?*
 - a. Yes
 - b. No
 - c. Prefer not to say
8. What type of work contract do you currently have?*
 - a. Permanent employee – This is the standard form of regular employment with no fixed term.
 - b. Part-Time employee – This is a way of working with fewer hours than a regular employee.
 - c. Dispatch worker – This is a form where you are employed by a staffing agency and work at a different company.
 - d. Contract employee – This is a form of employment where you are hired for specific projects or expertise, sometimes with a fixed term or renewable, and working hours can vary.
 - e. Other (Specify)
- 8.1 Please specify type of your employment contract other than what listed above.

Part 2: About Your Company

9. Location of Enterprise (If there are multiple locations, please select the region and prefecture where the headquarters is located):

Region*

1. Hokkaidō-Tōhoku
2. Kantō-Kōshin'etsu
3. Chūbu-Kinki-Tōkai
4. Chūgoku-Shikoku-Kyūshū-Okinawa

Prefecture

Hokkaidō-Tōhoku

1. Hokkaido
2. Iwate
3. Miyagi
4. Aomori
5. Akita
6. Yamagata
7. Fukushima

Kantō-Kōshin'etsu

8. Tochigi
9. Gunma
10. Saitama
11. Kanagawa
12. Nagano
13. Ibaraki
14. Chiba
15. Tokyo
16. Niigata
17. Yamanashi

Chūbu-Kinki-Tōkai

18. Shizuoka
19. Gifu
20. Aichi
21. Mie
22. Toyama
23. Ishikawa
24. Fukui
25. Kyoto
26. Shiga
27. Osaka
28. Hyogo
29. Nara
30. Wakayama

Chūgoku-Shikoku-Kyūshū-Okinawa

31. Okayama
32. Hiroshima
33. Tottori
34. Shimane
35. Yamaguchi
36. Tokushima
37. Kagawa
38. Ehime
39. Kochi
40. Fukuoka
41. Saga
42. Nagasaki
43. Kumamoto
44. Oita

- 45. Miyazaki
 - 46. Kagoshima
 - 47. Okinawa
10. How many employees does your company currently have (full-time equivalent)?*
- a. 1–29 employees
 - b. 30–99 employees
 - c. 100–299 employees
 - d. 300–999 employees
 - e. 1000 or more employees
 - f. Cannot answer
11. Please select all of the automotive parts that your enterprise currently manufactures and supplies. (Select all that apply.)□
- a. Mold and equipment parts
 - b. Engine components
 - c. Powertrain components
 - d. Interior trim and components
 - e. Body panels and structural components
 - f. Suspension and breaking system components
 - g. Electronic components and systems
 - h. Electronic and electrical equipment
 - i. Electrical components and wiring
 - j. Raw materials (metals, plastics and so on)
 - k. Semi-finished materials (sheets, bars and so on)
 - l. Assemblies and modules
 - m. Other (specify)
 - n. Cannot answer
- 11.1 Please specify automotive parts that your enterprise manufacture and supplies other than what listed above
12. Please indicate which types of motor vehicles your enterprise's products are used for manufacturing. (Select all that apply.)*
- a. BEV (Battery electric vehicle)
 - b. FCV (Fuel cell vehicle)
 - c. PHEV (Plug-in hybrid electric vehicle)
 - d. HEV (Hybrid electric vehicle)
 - e. CD (Clean diesel vehicle)
 - f. ICE (Internal combustion engine) – Petrol/Gasoline
 - g. Other (Specify)
 - h. Cannot answer
- 12.1 Please specify type of motor vehicles your enterprise's products are used for manufacturing (other than what listed above).

Part 3: Awareness of industry changes

13. How aware are you of the changes happening in the automotive industry related to electric vehicles (EVs), self-driving cars (autonomous vehicles), new ways of sharing cars (shared mobility) and new technologies in car parts (CASE)?*
 - a. Very aware (I follow news and discussions about these topics)
 - b. Somewhat aware (I've heard about these changes at work or in the news)
 - c. Slightly aware (I've heard the terms but don't know much detail)
 - d. Not at all aware (This is new to me).

Part 4: Impact on your employment and job quality

14. The automotive industry is undergoing significant changes. How do you think these changes might affect workers' job security and opportunities?*
 15. In the past five years or since you started working, have you noticed any of the following changes in your daily tasks, the amount of work or skills you needed for your job? (Select all that apply.)*
 - 15.1 Please specify changes that you have noticed other than what listed above.
- a. Very secure with good opportunities
 - b. Somewhat secure with some opportunities
 - c. Neither secure nor many opportunities
 - d. Somewhat insecure with limited opportunities
 - e. Very insecure with few opportunities
- a. My daily tasks have changed (for example, working with new materials, different procedures).
 - b. The amount of work I have has increased.
 - c. The amount of work I have has decreased.
 - d. I need to use new tools or equipment.
 - e. I need new technical skills (for example, software, electronics).
 - f. I need new knowledge about electric vehicles or related technologies.
 - g. I need new skills related to automation or robotics.
 - h. I need new skills related to environmental sustainability.
 - i. Other (specify).
 - j. No, I have not noticed any such changes.
 - k. Not applicable (I started working here very recently and haven't observed long-term changes).

Part 5: Training and skills development

16. To what extent do you feel you receive sufficient information and training to perform your job safely, especially when new equipment (for example, robots, automated systems) or processes (for example, handling new materials) are introduced?*
- a. To a very great extent
 - b. To a great extent
 - c. To some extent
 - d. To a limited extent
 - e. Not at all

17. Regarding the changing automotive industry, what training or opportunities to learn new skills (for example, working with electric vehicle parts, software for new machines or sustainable manufacturing practices) have been available to you through your company?*
 - a. Many opportunities have been available (for example, regular workshops, dedicated training programmes).
 - b. A few opportunities have been available (for example, occasional training sessions).
 - c. Opportunities have been discussed but not yet available (for example, mentioned future training plans).
 - d. No opportunities have been available or discussed.
18. If you have received training for industry changes, how well do you feel this training has prepared you for any changes in your work?
 - a. Very well prepared (I feel well- equipped)
 - b. Adequately prepared (It provided some help)
 - c. Somewhat prepared (It had limited relevance or effectiveness)
 - d. Not at all prepared (It didn't help me prepare)
19. Thinking about how jobs and work might change in the future in general, what form of training or support would be most helpful for you to adapt to new tasks or technologies? (Select all that apply)*
 - a. OJT (learning by doing with guidance)
 - b. External courses or workshops (training outside the company)
 - c. Online learning platforms (self-paced digital courses)
 - d. Mentoring or coaching (guidance from experienced colleagues or experts)
 - e. Financial support for independent learning (money to take courses on my own)
 - f. Information about future job roles within the company (understanding what new jobs might be available)
 - g. Other (specify)
- 19.1 Please specify form of training or support other than what listed above.

Part 6: Social protection and support

(Our survey design ensures your company cannot be identified, as we do not collect company-specific information.)

20. In case your job was significantly changed or you faced job loss due to these industry changes, how confident are you that there would be enough support available to you, such as unemployment benefits, help finding a new job or retraining programmes?*
- a. Very confident
 - b. Somewhat confident
 - c. Not very confident
 - d. Not at all confident

21. Has your company provided any specific information about potential support if your job role were to change a lot or be eliminated due to the industry transition? (Your response to this question reflects your awareness only; it does not indicate whether such support exists)*
- a. Yes, with specific details (for example, severance packages, retraining plans)
 - b. Yes, in general terms (without any indication of what that support actually is)
 - c. No, not that I'm aware of any such information.

Part 7: Rights, Social Dialogue and Consultation

(Our survey design ensures your company cannot be identified, as we do not collect company-specific information.)

22. Are you aware of any channels or processes within the company where employees can raise concerns about their working conditions or fair treatment? (This question assesses your awareness only; it does not indicate whether such channels or processes exist.)*
- a. Yes, I am aware of clear channels/processes.
 - b. Yes, I believe there are channels/processes, but I'm not very familiar with them.
 - c. No, I am not aware of any such channels/processes.
 - d. I'm not sure.
23. Are you aware of any formal mechanisms within the company that involve workers in discussions about the company's response to the changes in the automotive industry? These might include things like joint committees, worker representatives who meet with management, regular consultation forums or formal feedback processes. (This question assesses your awareness only; it does not indicate whether such mechanisms exist.)*
- a. Yes, and I understand how they work (for example, I participate in them or they are clearly explained).
 - b. Yes, but I don't know much about how they work (for example, I've heard of them, but don't know their purpose or outcomes).
 - c. No, I am not aware of any such mechanisms.
 - d. I'm not sure if such mechanisms exist.
24. Has your company shared information or asked for feedback from employees about its plans for adapting to new technologies for a greener economy that might affect your job? (This question assesses your awareness of such communication from the company, not whether these activities have actually taken place.)*
- a. Yes, extensively (for example, regular meetings, surveys, discussions)
 - b. Yes, to some extent (for example, occasional updates or meetings)
 - c. Yes, but only a little (for example, brief announcements)
 - d. No, not at all

Part 8. Feedback on the questionnaire

25. Considering this survey's content, length and how you completed it (online form), how willing would you be to participate in a similar survey regularly?
- 1- Very willing
 - 2- Willing
 - 3- Neither willing nor unwilling
 - 4- Unwilling
 - 5- Very unwilling
26. How useful do you find this survey for understanding worker experiences and needs during the automotive sector's transition?
- 1- Very useful
 - 2- Useful
 - 3- Somewhat useful
 - 4- Not very useful
 - 5- Not at all useful

