

**BEHIND THE WHEEL: ADDRESSING THE TRUCK  
DRIVER SHORTAGE CRISIS IN MALAYSIA**

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CRISIS IN MALAYSIA**

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## ABSTRACT

The trucking industry is vital to Malaysia's economy but faces a persistent driver shortage that threatens supply chain efficiency and sustainability. While widely studied globally, research in Malaysia remains limited. This study explores the key factors behind the shortage, its impacts on logistics firms, and possible mitigation strategies from the perspective of industry professionals. Using a qualitative approach with semi-structured interviews of top and middle-level managers, the study applies thematic analysis to draw findings, implications, and conclusions. Three themes were examined. Under the factor theme, sub-themes include shifting workforce demographics, poor working conditions, and challenges in entry and recruitment. The impact theme highlights operational disruptions and delays, financial pressures, reduced service quality, reputational damage, and road safety risks. The mitigation strategy theme focuses on government initiatives, technological advancements, and company practices. Findings show that the shortage is driven by an aging workforce, high entry barriers, negative job perceptions, and poor working conditions. This issue disrupts supply chains, raise costs, and reduce service quality. Proposed solutions highlight the need for government support through subsidies, training and policy reforms. They also emphasise the adoption of technologies such as fatigue detection and GPS systems, as well as company-led initiatives that focus on better pay, welfare benefits and professionalisation programs. Effectively addressing the shortage will require coordinated efforts across government, industry and technology.

**Keywords** – Truck Driver Shortage, Logistics, Transportation, Turnover, Trucking Industry

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## DECLARATION

We hereby declare that this final year project report is based on our original work except for quotations and citations which have been duly acknowledged. We also declare that it has not been previously or concurrently submitted for any other degree at UTAR or other institutions.



HOH SZE LING



NG SZE YAO

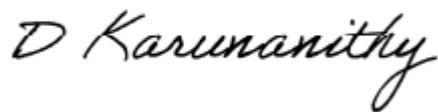


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## APPROVAL SHEET

This final year project report entitled '**BEHIND THE WHEEL: ADDRESSING THE TRUCK DRIVER SHORTAGE CRISIS IN MALAYSIA**' was prepared by HOH SZE LING, NG SZE YAO, and PHOEBE WONG MUN YEE and submitted as partial fulfilment of the requirements for the degree of Bachelor of Science (Hons) Logistics and International Shipping at Universiti Tunku Abdul Rahman.

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We hereby give permission to the University to upload the softcopy of my final year project report in pdf format into the UTAR Institutional Repository, which may be made accessible to the UTAR community and public.

Yours truly,



HOH SZE LING



NG SZE YAO



PHOEBE WONG MUN YEE

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## LIST OF ABBREVIATIONS

CDL	Competent Driving Licence
GDL	Goods Driving Licence
SPAD	Land Public Transport Commission
APAD	The Land Public Transport
U.S.	United States
EU	European Union
PTP	Port of Tanjung Pelepas
OECD	Organisations for Economic Co-operation and Development
PMBOA	Pan Malaysia Bus Operators Association
IRU	International Road Transport Union
B2B	Business-to-Business
AVs	Autonomous vehicles
R&R	Rest and Relaxation
CCTV	Closed-circuit television
MIROS	Malaysian Institute of Road Safety Research
SLAs	Service level agreements
WOM	Word-of-mouth
ATA	American Trucking Association
GPS	Global Positioning System
ITS	Intelligent Transport Systems
IoT	Internet of Things
NAV	Norwegian Labour and Welfare Administration
DHL	Dalsey, Hilblom and Lynn

UTAR	Universiti Tunku Abdul Rahman
MDPI	Multidisciplinary Digital Publishing Institute
PATH	Professional Advancement in Trucking and Haulage
MCO	Movement Control Order
F&B	Food and Beverage
AI	Artificial Intelligence
IT	Information Technology
HR	Human Resources
MoT	Ministry of Transport
KPIs	Key Performance Indicators
EPF	Employees' Provident Fund
PPE	Personal Protective Equipment
TMS	Transport Management System

# CHAPTER 1

## 1.0 INTRODUCTION

### 1.1 Introduction

In order to provide readers with a thorough understanding of the research topic and context, the chapter begins with an analysis of the study's background and problem statement, then go on to look at the main issue that the authors want to draw attention to. After that, it discusses the objectives and research questions of the study, clarifies the importance of the findings, establishes the parameters of the inquiry, and ends with a glossary of important terminology.

### 1.2 Background of Study

Based on Cambridge Dictionary (2025), a truck is a big road vehicle which is used to move loads of stuff. Whereas truck is defined by the European classification system as motor vehicle with a minimum of four wheels, made to move cargo (ACEA, n.d.). In Malaysia, motor vehicles used for the carriage of goods is identified as goods vehicle (Commercial Vehicles Licensing Board Act 1987). Examples of goods vehicle are rigid lorry, rigid trailer lorry, semi-trailer, prime mover, container prime mover, and tipper or dumper (Ho and Manan, 2019). These goods vehicles would be used in several types of economic activities, including stock haulage, refrigerated haulage, logging haulage, bulk haulage, heavy haulage, haulage of automobiles and furniture removal (Department of Statistics, 2008). According to Lim and Kamaruddin (2024), a truck is an essential component of the logistics, linking ports, depots, airports and rail terminals. Its adaptability and affordability made it essential to the global supply chain and the

movement of commodities across numerous industries. Given the significance of trucks, it is necessary to have skilled and licenced drivers to operate them safely and effectively.

In order to become a skilled and licenced truck driver in Malaysia, there are some criteria that must be met. First, the individual must possess a valid driver's licence. There are certain prerequisites that the individual needs to fulfil in order to obtain the valid driver's licence to drive the trucks. For instance, the individual must be at least 21 years old, having good vision capable to see the distance up to 23 meters, physically fit and be able to distinguish colour. Additionally, truck drivers must obtain a Competent Driving Licence (CDL) in Class E to operate heavy motor vehicles with an unladen weight exceeding 7500 kg. If they wish to drive commercial registered vehicles such as rigid lorries and articulated lorries to deliver goods, they need to further obtain a Goods Driving Licence (GDL) (Tan, 2024).

Apart from individual qualifications, companies providing or operating truck services in Malaysia must also comply with licensing requirement (MIDA, 2019). Companies that aim to offer containerised and non-containerised transportation services to third parties with commercial vehicles must acquire Carrier Licence A (MIDA, 2019; APAD, 2025). While the companies that using vehicles solely for their own business operations must get a Carrier Licence C (MIDA, 2019). The Carrier Licence A and Carrier Licence C must be applied and obtained from Land Public Transport Commission (SPAD), currently known as The Land Public Transport (APAD). These create a relatively high barriers of entry for new truck drivers.

The trucking industry has evolved significantly over the years, adapting to technological advancements and shifting economic demands. In the early 20th century, transportation was dominated by railways, which were effective for bulk cargo but

lacked flexibility for point-to-point deliveries. However, the rise of automobiles, supported by the development of paved roads and highway systems, gradually transformed freight transportation. As technology advanced, the introduction of internal combustion engines made trucks more powerful and reliable, enabling businesses to transport goods faster and more efficiently over long distances (Rodrigue, 2024). Subsequently, the industry saw the emergence of specialized trucks such as refrigerated trucks, tanker trucks and flatbed trucks for oversized cargo allowing for more tailored logistics solutions. In recent years, automation and emerging technologies have further reshaped the trucking industry by enhancing sustainability and reducing operational costs.

The trucking industry is a fundamental pillar of logistics, ensuring the efficient movement of goods and supporting global trade. It plays a crucial role in supply chains across various industries, including agriculture, retail, and manufacturing. In the United States (U.S.), trucking dominates domestic transportation, handling approximately 67.25% of all freight by weight in 2023 as shown in Figure 1 (Bureau of Transportation Statistics, 2025). Similarly, in Europe, major countries such as Germany, France, and Italy depend on road transport for nearly 77% of inland freight movement within the member states of the European Union (EU) (Eurostat, 2022). In China, trucking is essential for industrial operations, facilitating the distribution of raw materials and finished products across extensive supply networks. In addition to its role in transportation, the trucking industry plays a vital economic role, generating billions in revenue and creating employment opportunities across multiple sectors.

In Malaysia, trucking is crucial for both domestic and international trade, carrying nearly 80% of the nation's freight logistics tasks. For instance, Malaysia has a 210,658

km-long road network that connects key industrial hubs, with expressways like the North-South Expressway linking major ports such as Port Klang and the Port of Tanjung Pelepas (PTP) to inland destinations (Chen, Jeevan and Cahoon, 2016). Additionally, the sector plays a crucial role in supporting Malaysia's industrial zones in Penang and Selangor, ensuring the timely transportation of raw materials and finished products. Financially, Malaysia's transportation and storage services sector recorded a total gross output of RM140.5 billion in 2022, with land transport contributing RM35.5 billion, the highest among the three main transport modes, surpassing water and air transport as shown in Figure 2 (Department of Statistics Malaysia, 2024). This highlights the indispensable role of land transport in ensuring efficient freight movement and seamless connectivity across whole nationwide. Furthermore, the rapid growth of e-commerce platforms like Shopee and Lazada has significantly increased reliance on trucking, particularly in last-mile delivery. This is evident as post & courier services alone generated RM9.4 billion in output (Department of Statistics Malaysia, 2024). Due to the ongoing demand for road freight transportation, the number of registered trucks in Malaysia has increased from 1.398 million in 2022 to 1.437 million in 2023 (ASEANstats, n.d.). These numbers demonstrate the continued dependence on the trucking business.

Despite its significance, the trucking industry faces several challenges, with a shortage of truck drivers standing out as one of the most pressing issues. A lack of truck drivers hinders supply chain efficiency, leading to delays, and increased transportation costs, and potential disruptions in trade. This problem disrupts logistics worldwide mostly in the Organisations for Economic Co-operation and Development (OECD) countries (Wang, Wood and Wang, 2022), with 233,000 driver positions remaining unfilled in Europe, 2,200,000 vacancies in China (IRU, 2023), and a deficit of 80,000 drivers in

the U.S. (American Trucking Associations, 2021). Malaysia follows this global trend, facing an estimated shortage of thousands of drivers, as stated by Transport Minister Anthony Loke (Ho, 2024). Further underscoring this issue, the Malaysia Critical Occupations List 2022/2023 identifies 'Heavy Truck and Lorry Drivers' as a critical occupation, highlighting both its demand and importance to the logistics sector (TalentCorp and ILMIA, 2023). Consequently, this persistent shortage not only disrupts the movement of goods but also threatens Malaysia's economic competitiveness, underscoring the urgent need to address this workforce gap.

### **1.3 Problem Statement**

In Malaysia, trucking industry plays an important role in facilitating the Malaysian economy. Almost every industry in Malaysia such as rubber, palm oil, manufacturing, petroleum and natural gas would require the help of the trucking industry to obtain their raw materials and convey their finished goods to their customers. All these could not be done without truck drivers (Mazlan & Kashveen, 2019). Yet, the industry faces a persistent and escalating challenge which is the lack of truck drivers as mentioned by Rahmat, et al. (2021) and further echoed by Datuk Mohamad Ashfar Ali, Pan Malaysia Bus Operators Association (PMBOA) president (Kamal, 2025). Moreover, Transport Minister Anthony Loke also confirmed that the sector is facing an estimated shortage of thousands of drivers (Ho, 2024). Globally, in 2023, the International Road Transport Union (IRU) also reported a shortage of three million truck drivers across 36 countries, representing 7% of the total demand. Without intervention, this figure is projected to more than double by 2028, potentially worsening supply chain inefficiencies by causing delays in the transportation of goods, increasing operational and logistics costs (IRU, 2023). Studies have attributed this crisis to poor working conditions, the monotonous

nature of the job, lack of career progression opportunities (Khan, 2025), unappealing pay, unfavourable public opinion on truck drivers, stern traffic laws, and low job satisfaction level (Mazlan & Kashveen, 2019; Rahmat, et al., 2021; Zahiid, 2024). These factors have made it increasingly difficult to attract young workers into the industry, further exacerbating the shortage. Therefore, this study aims to explore the causes of truck driver shortages in Malaysia, their impact on logistics firms, and measures employers can take to address them. By examining these issues, the study aims to help policymakers and industry players develop long-term solutions for the trucking sector.

#### **1.4 Research Questions and Objectives**

##### **Research Questions:**

RQ1: What are the key factors contributing to the truck driver shortage in Malaysia?

RQ2: What is the overall impact of the truck driver shortage on Malaysia's supply chain?

RQ3: What are the effective mitigation strategies for truck driver shortage in Malaysia?

##### **Research Objectives:**

RO1: To identify the key factors contributing to the truck driver shortage in Malaysia.

RO2: To assess the overall impact of the truck driver shortage on Malaysia's supply chain.

RO3: To suggest effective mitigation strategies for truck driver shortage in Malaysia.

## 1.5 Significance of Study

The shortage of truck drivers in Malaysia has become a significant issue, affecting both the logistics industry and the overall economy. Trucks are critical to the logistics industry as they are the primary mode of transportation for commodities, ensuring the seamless movement of raw materials, consumer items, and key supplies across the country. This research intends to explore the causes, consequences, and potential solutions to this problem, which will benefit important stakeholders in various ways.

This research will enhance the understanding of the factors contributing to the insufficient number of truck drivers. The insights gained might give advantages to **logistics and transportation companies** in Malaysia. This is because it will help the companies better comprehend the challenges affecting the workforce. With a clearer understanding of the challenges, related parties in the logistics and truck industry may take conscious steps and come up with better strategies to tackle the issue effectively in the future.

Moreover, this study may also benefit those **business owners** who have their own trucks, such as manufacturers or retailers, by highlighting the reasons and the consequences of truck driver shortage issue. This is especially significant in Business-to-Business (B2B) transactions, such as those between manufacturers, where parts and components are frequently shipped between facilities. Moreover, retailers also highly rely on trucks to transport items from warehouses to keep shelves supplied and customers satisfied. By acknowledging the consequences and factors of this issue, these businesses might be in a better position to evaluate the operational risks that the issue might bring, enabling them to maintain a smoother supply chains and enhance business sustainability.

Furthermore, this research may increase the awareness of **government agencies and policymakers** about the significant impact of truck driver shortage issue. By providing insight into the factors that contribute to this issue, the study can provide for more better-informed policy considerations. A better comprehension of these influencing factors might promote the creation of a more favourable conditions for truck drivers, which could indirectly benefit the **truck drivers and job seekers**.

Finally, this study may also benefit the **communities** indirectly if the awareness of truck driver shortage increases, especially regarding the factors and impacts such as supply chain delays. As the related parties comprehend the issue more clearly, they may take on their roles to resolve this critical issue. As the issue is resolved, it will ensure the efficiency of the supply chain. Hence, it will ensure stable product availability, reducing the disruption in daily life, such as encountering stock shortages in essential goods like food, medicine, and household products.

## **1.6 Scope of Study**

This study aims to analyse the issue of truck driver shortage in Malaysia, examining the reasons behind the issue, consequences of the issue, and potential solutions to address the issue.

A particular focus was placed more on Johor, Selangor, and Penang because these states are the key industrial areas of Malaysia (MIDA, 2024). These areas are home to important hubs in the domestic and global supply chain, including ports, airports, and a large number of industrial parks. For instance, in Johor, there are PTP, Johor Port, Senai International Airport (MIDA, 2024), and a total of 23 industrial parks (FMM, n.d.). While in Selangor, there are Port Klang, Kuala Lumpur International Airport,

Sultan Abdul Aziz Shah Airport (MIDA, 2024), and a total of 16 industrial parks (FMM, n.d.). Whereas, in Penang, there are Penang Port, Penang International Airport (MIDA, 2024), and a total of 14 industrial parks (FMM, n.d.). As mentioned in the background of study, truck is an essential component of the logistics, linking ports, depots, airports and rail terminals (Lim and Kamaruddin, 2024). Therefore, any disruption brought on by a truck driver shortage in these regions could have a significant effect on how well national supply chains operate.

Hence, to gain more insights regarding the issue, the study would be concentrated more on logistics companies and distributors based in Selangor, Penang, and Johor as these sectors rely heavily on truck for their day-to-day operations. The informants such as personnel from top or middle-level management of the companies were selected according to factors like their prior experience in dealing with driver shortages, or truck driver recruitment and retention matters. The interview sessions were taken place virtually as well as in person.

Last but not least, this study is exclusively for the trucking sector in Malaysia only. It would not cover trucking concerns in other nations or other transportation modes like rail or air freight.

## **1.7 Definition of Terms**

**Truck** - A large motor vehicle designed to carry goods from one place to another.

**Truck driver** - A person trained and licenced to drive trucks and transport goods safely.

**Trucking Industry** - The business sector that involves transporting goods using trucks.

**Shortage** - A situation where there are not enough people, goods, or resources to meet the demand.

**Supply Chain** - The full system that moves a product from supplier to manufacturer to distributor to customer.

**Freight** - Goods or cargo that are transported, especially in large quantities, by truck, ship, train, or plane.

## **1.8 Conclusion**

In summary, this chapter offered a thorough analysis of the vital function that the trucking business plays in Malaysia's logistics sector, highlighting its significance in promoting economic activity across a range of industries. The smooth transportation of goods across the nation is ensured by the trucking business, which has developed over time into an essential part of supply chain management. However, the industry faces a serious problem with the ongoing lack of truck drivers, which has an impact on both economic growth and operational effectiveness.

Furthermore, this chapter emphasised how serious Malaysia's truck driver shortage is. It brought attention to the root causes of the problem and the pressing need for alternate approaches to close the workforce gap. Finally, this chapter set the stage for a thorough investigation of methods to alleviate the shortfall and improve the trucking industry's sustainability.

## CHAPTER 2

### 2.0 LITERATURE REVIEW

In the next section of this chapter is a literature review that is closely linked to the subject of the study. A literature review is crucial to the outcome of the study, particularly because it helped to discover issues that other researchers had faced in their early investigations. The key ideas, including the research gap, and the main themes of this study, especially the factors and impacts of truck driver shortage. Additionally, it offers information on how other nations have addressed the issues of truck driver shortage.

#### 2.1 Research Gap

The discoveries of journal articles about truck driver shortage found via Google Scholar are as follows.

**Table 1:** List of Journal Articles Used for Research Gap

Journal Article	Author	Year	Focus
The Influencing Factors of High Driver Turnover in Johor Bahru Trucking Industry	Mazlan and Kashveen	2019	Examine the factors that contribute to the shortage of truck drivers in the haulage industry.
Truck driver shortage in EU and a possible solution	Khan	2023	Compare the American and European licensing systems in order to determine the causes of truck driver shortage and to come up with a solution.
Food transportation and price impacted by diesel price and	Chang, et al.	2024	Examine the degree to which the rise in fuel prices and the

truck-driver shortage pre-, amid and post pandemic			availability of truck drivers have influenced the overall rise in food costs in the U.S. fresh food sector.
Overcoming the Driver Shortage by Addressing Driver Detention	Mera and Sirikande	2022	Aim to investigate the causes of driver underutilization in order to address the driver shortage issue.
Behind the Wheel: Understanding the Risks for Truck Drivers in the Era of the Internet of Things and Advancements in Autonomous Vehicles	Benallou, Azmani and Azmani	2024	Determine the different risks that truck drivers encounter and investigates the detrimental effects that these risks have on a number of important factors, such as business reputation, service quality, financial ramifications, and road safety.
Distribution in the Food Industry: Impact of the 2020 Truck Driver Shortage	Duggan and McMurtrey	2021	Look at the effects of the ongoing truck driver shortage and makes recommendations for solutions.
Strategies to Overcome the Truck Driver Shortage in the United States	Duckering	2022	Determine and investigate tactics employed in the oil and gas sector to successfully hire and retain skilled truck drivers.
Exploring the Truck Driver Shortage Phenomenon with Evidence and Insights from the Norwegian Freight Transport Industry	Lohk and Lia	2024	Investigate the issue of truck driver shortage in Norway's freight transportation sector.

A Study on Truck Drivers Shortage in Malaysia	Rahmat, et al.	2021	Determine the causes of the shortage of truck drivers.
Shortage of Truck Drivers: The Genesis and Way Forward	Forkuo	2023	Examine the reasons for driver shortage and challenges of trucking industry in hiring and retaining drivers.
Factors Influencing the Logistics Performance: The Mediating Role of Truck Driver Haulage Crisis	Sankar, et al.	2024	Determine the factors influencing Malaysia's logistics performance, paying particular attention to the truck driver haulage crisis.
Transportation Capacity Shortage Influence on Logistics Performance: Evidence from the Driver Shortage	Wang, Wood and Wang	2022	Give a thorough examination of the problem of transportation capacity shortage that affects logistics service providers in Australia.
Will Automated Vehicles Solve the Truck Driver Shortages? Perspectives from the Trucking Industry	Schuster, et al.	2023	Analyse trucking industry viewpoints on the impact of AVs on driving jobs in conjunction with industry views on driver shortages, which are predicted to worsen.

It was clear that each of these journal articles addressed distinct components of the truck driver shortage issues in several nations, including the EU, the U.S., Norway, Australia, and Malaysia, as well as in various sectors. While some journal articles have addressed the factors, impacts, and solutions of the truck driver shortage issue, some only focus on factors, while some only focus on impacts, and some only focus on solutions. While some articles addressed all three, they are not specifically focused on Malaysia.

Moreover, rather of providing a thorough, national-level study, the majority of Malaysian-focused studies mainly focus on certain sectors or states like Johor Bahru. Although there is research done on Johor Bahru, the research only focused on the factors of truck driver shortage. Research that encompasses the viewpoints of several businesses, including logistics and distributors, is also lacking. This evidently illustrates a research gap in the perspective of knowing and addressing the truck driver shortage issue in Malaysia.

Inside the research gap, some journal articles have been selected for thematic analysis. Preliminary observations unveil three primary themes, namely the factors of truck driver shortage issue, impacts of truck driver shortage issue, and mitigation strategies in developed countries for truck driver shortage issue. These three themes are chosen as they are essential to address the truck driver shortage issue fully. The factors encompass underlying causes such as shifting workforce demographic, poor workforce condition, and challenges in entry and recruitment. Whereas, the impacts include operational disruptions and supply chain delay, cost pressures and financial consequences, decline in service quality and customer satisfaction, damage to company reputation and market position, and increased risks to road safety. Last but not least, the mitigation strategies of developed countries consist of government initiatives, technological solutions, and company practices. By investigating these themes, this study aims to offer focused insights on truck driver shortage issue in Malaysia and support the formulation of long-term plans.

## **2.2 Theme 1: Factors of Truck Driver Shortage**

The ongoing and growing shortage of truck drivers poses a serious crisis, caused by three main elements: a shifting workforce demographic, poor workforce condition, and challenges in entry and recruitment.

### **2.2.1 Shifting Workforce Demographic**

#### **2.2.1.1 Aging Workforce**

The increasing number of aging workforces is also one of the elements that contribute to the truck driver shortage along with the current trends, which is the growing imbalance between the aging workforce and the young workforce entering the trucking industry. According to the survey conducted by the U.S. Bureau of Labor Statistics in 2022, there is a significant portion of truck drivers between the ages of 45 to 54. In the latest Driver Shortage Global Report, the IRU further revealed that Europe is also facing a similar issue which is the aging workforce with more than one-third of the driver population over the age of 55. This critical problem also happened in Norway where there is a notable lack of drivers aged between 25 to 50 due to the nature of working as a truck driver will face incompatibility with family life (Lohk and Lia, 2024). Moreover, the low rate of young people entering the trucking industry is also one of the factors that caused the increment of the average aging workforce to the age of 50 to 55 (Khan, 2023; Chang, et al., 2024). In Malaysia, the Minimum Retirement Age Act of 2012 imposes a retirement age of 60. However, there are many truck drivers who is already approaching or surpassing this threshold. This trend is exacerbated by the health concern among older drivers and the consequences will be operational inefficiencies and increased expenses (Sankar, et al., 2024). In short, the logistics business faces

significant challenges due to an aging workforce with no replacement (Keckarovska, 2021; Šolman, et al., 2024).

### **2.2.1.2 Challenges in Attracting Young Talent to the Trucking Sector**

The shortage of truck drivers is also due to the lack of young drivers. It is found that attracting young drivers to enter the trucking industry can be difficult, since young people are becoming increasingly disinterested in pursuing a career as a truck driver. One major reason is the scarcity of career development opportunities. Young people frequently look for roles or careers that allow them to grow professionally (Forkuo, 2023). However, in trucking, drivers are viewed as too valuable to be promoted out from the truck, and generally, the office roles are those people who lack actual driving knowledge (Forkuo, 2023). This restricts unambiguous paths for advancement and will discourage ambitious young people from pursuing the profession. Moreover, according to Mera and Sirikande (2022), majority of the young people will prefer to work in the warehouse as compared to become a truck driver. Currently, workers under the age of 45 hold approximately 62% of warehouse occupations (Mera and Sirikande, 2022). A lack of general understanding of the career opportunities within the trucking sector also contributes to a decrease in interest in the youth (Keckarovska, 2021). The research conducted by Šolman, et al. (2024) also found that many young people are not interested. The situation worsens when experienced drivers are unwilling to encourage their offspring to follow in their footsteps (Lohk and Lia, 2024). As a result, the trucking industry is struggling to attract younger workers, contributing to the persistent driver shortage in the transportation and logistics sector.

### **2.2.1.3 Negative Stereotypes on the Trucking Industry**

Negative stereotyping is also one of the contributors to the shortage of truck drivers. The negative thoughts towards truck drivers caused a persistent challenge in attracting new talent into this industry. A large number of populations regard truck driving improperly, always relate it to poor working conditions, limited social status, and a lack of respect. Based on Khan (2023), an analysis carried out by the IRU in 2012 discovered that 44% of respondents in France perceived truck driver as a low-status occupation and thought negatively, even though 98% of them recognized it is an indispensable contribution to their economy. The situation has become worse with a growing of truck driver scarcity, which further strengthens the public doubts and concerns about the stability and appeal of the career (Khan, 2023). Socially, the public always views truck driver as a stressful career and associates it with low compensation, long working hours, packed schedules, and an imbalance in work life due to significant time away from family (Lohk and Lia, 2024). According to Mera and Sirikande (2022), the lack of respect for employment is also one of the factors that lead to a reduction of interest in joining the trucking industry. The disrespect of the job will further worsen the situation of negative stereotyping of truck driver as it suggests that people do not assume truck driver as a respected or valued job. This has created a vicious cycle where the public thinks negatively of the career; therefore, there is a shortage of truck drivers, and the situation makes the career look even worse.

### **2.2.1.4 Underrepresentation of Women in the Trucking Industry**

The low representation of females in the trucking industry is also known as one of the factors that lead to the issue of truck driver shortage. According to the study conducted by the IRU in 2024, women only make up less than 3% of the driver population in

almost every region of the world with the exception of the U.S. which has a higher percentage at 7.8%, but still considered as low presence of female. The small amount of female in the trucking industry indicate that many females can join, but many obstacles still prevent women from pursuing careers in this industry. The barriers include the negative perception of truck driver as a physically demanding profession, a male-dominated occupation, ongoing gender bias, and safety concerns (Lohk and Lia, 2024). The lack of secure infrastructure, such as rest areas that provide safe sleeping conditions, access to healthy food, and adequate hygiene facilities to tailor to the requirements of females is also a major contributor to the issue (Khan, 2023). Moreover, according to Forkuo (2023), women prefer a career that offers flexibility, remote work, and foreseeable schedules, which are rarely found in long-haul trucking jobs. The low number of females present in the trucking industry not only isolates them within the industry, but also limits their ability to form networks and get support, unlike their male counterparts who have more access to these resources (Forkuo, 2023). In brief, even though female have shown their capability to be involved in the trucking industry, there are still obstacles that make it hard to join this industry and worsen the situation of truck driver shortage.

## **2.2.2 Poor Workforce Condition**

### **2.2.2.1 Low Wages**

Low wages remain one of the primary causes of the global truck driver shortage (Keckarovska, 2021), influencing not only the recruitment of new entrants, but also retention of the existing employment. Wages indicate to the compensation that the driver can receive which includes basic salary, bonuses, and other financial incentives (Sankar, et al., 2024). Hence, low wages will become a barrier in order to attract new

entrants. According to a survey carried out by Keckarovska (2021) with hauliers across Europe and discovered that 33.9% provide regular compensation increases, while 29.5% provide bonuses as an effort to retain drivers. This proves that low wages will discourage new entrants to the industry. Despite the occasional rises in salary throughout the years, wages have failed to keep up with inflation (Lohk and Lia, 2024). In Malaysia, low wages are also a significant factor that causes truck driver shortages. Based on Rahmat, et al. (2021), the monthly basic income of truck drivers can be as low as RM350. If the truck driver wants to earn an addition for their living, they have to increase the number of trips completed or containers transported. This pays structure has created financial uncertainty and pressure on truck drivers to reach enough trips in order to generate sustainable income and at the same time covering the expenditures such as diesel and tolls (Rahmat, et al., 2021; Mera and Sirikande, 2022). The low wage not only demotivates existing drivers but also restricts younger people from entering the industry; hence, exacerbating the driver shortage and affecting the overall performance and reliability of logistics services (Sankar, et al., 2024).

#### **2.2.2.2 Frustrating Work Environment and Condition**

Truck drivers are always required to work under tough and demanding conditions. This frustrated situation also resulted in truck driver shortage issue indirectly (Chang, et al., 2024). The job nature necessitates long hours on the road, usually in split shifts and inadequate rest, resulting in interrupted sleep cycles and chronic exhaustion (Khan, 2023). Drivers are often compelled to travel on unknown routes and spend excessive amounts of time away from home, leading to sacrifice of family time and personal roles. These conditions will discourage young people and women from entering the trucking industry due to the lack of secure, hygienic, and gender-sensitive rest places and parking

facilities (Keckarovska, 2021; Mera and Sirikande, 2022). In Malaysia, the working conditions are even worse as there is insufficient parking in the Rest and Relaxation (R&R) area along the highway, where the truck drivers always fail to park at the designated spots as the designated area is always occupied by the small vehicles. Thus, the truck drivers are forced to illegally park in unsafe places, where they will encounter fines and security risk as the R&R area may not be fully equipped with closed-circuit television (CCTV) which encourages product theft (Benallou, Azmani and Azmani, 2024). These unfavourable and unsafe working environments and conditions will increase the difficulties of recruiting young people and females to join the trucking industry.

#### **2.2.2.3 Low Job Satisfaction Level**

Job satisfaction is also one of the factors to recruit and retain workers in an industry. The problem of truck driver shortage is also due to the low job satisfaction level as mentioned in the study conducted by Mazlan and Kashveen (2019). The poor working conditions will decrease job satisfaction among the drivers. Many drivers have revealed the feeling of loneliness, fatigue, and poor mental health (Forkuo, 2023). Long periods driving alone on the road, being isolated away from family and friends, as well as little leisure and rest time may make the truck drivers suffer from depression, anxiety, and even substance abuse (Forkuo, 2023; Benallou, Azmani and Azmani, 2024). Social isolation and insufficient sleep not only affect mental health, but also increase the likelihood of accidents, making the job physically and emotionally exhausting. A similar problem also happened in Malaysia based on the study carried out by Hasan, et al. (2022). Job satisfaction is highly associated with occupational fatigue and truck drivers in Malaysia are facing occupational fatigue that is mainly caused by work stress

due to many reasons. For instance, time pressure of delivery, traffic congestion, shift patterns, and social patterns, can lead to psychophysiological stress (Hasan, et al., 2022). Moreover, the truck drivers are also responsible for paying the cost of the toll and diesel (Rahmat, et al., 2021). The toll structure complicates the situation as trucks need to pay more compared to small vehicles, increasing their stress. The situation of lacking sufficient amenities and support on the roadways will frustrate the truck driver and lead to a sense of dissatisfaction and burnout. As a result, truck drivers' job satisfaction will fall, and opt to quit this industry.

#### **2.2.2.4 Risk of Injury or Death**

Truck driver is a high-risk occupation as they are exposed to a variety of physical, psychological, and chemical risks. All these risks will pose the crisis of truck driver shortage. From the physical aspect, truck drivers are especially likely to suffer from musculoskeletal problems as a result of prolonged sitting and repeated movements as this problem will gradually be severe along with the driving time and experience (Benallou, Azmani and Azmani, 2024). Moreover, injury due to falls is also common in the truck driving industry such as falls from truck cabs or climbing ladders (Benallou, Azmani and Azmani, 2024). Additionally, inadequately secured cargo and imbalanced loads can cause accidents and injury when drivers have emergency brakes. Furthermore, road accident continues to be the most serious danger, mainly caused by poor car maintenance, human mistakes, road conditions, or extreme weather (Benallou, Azmani and Azmani, 2024). Stressful working conditions, stringent delivery deadlines, and the need to stay focused for a long period of time can lead to distraction and increase the risk of accident. In Malaysia, data from the Malaysian Institute of Road Safety Research (MIROS) discovered that heavy goods vehicle accidents killed over 1,000 people per

year between 2011 and 2015, despite the comparatively small number of truckers on the road (Lim, 2025). This indicates that truck driver has a higher risk to be involved in road accidents. From the psychological part, the truck driver will suffer from depression, loneliness, sleep difficulties, and anxiety as a result of working long hours alone and being away from family (Forkuo, 2023; Lohk and Lia, 2024). Furthermore, drivers who work in polluted areas or transport hazardous items will also incur chemical risks, such as respiratory and cardiovascular problems induced by exhaust fumes and chemical exposure (Benallou, Azmani and Azmani, 2024). Overall, the combination of these risks makes truck driving physically and emotionally taxing work, discouraging many people from entering or continuing in the field.

### **2.2.3 Challenges in Entry and Recruitment**

#### **2.2.3.1 High Barriers of Entry**

Globally, the trucking business frequently faces considerable entrance obstacles that deter new drivers, especially among young people. Obtaining a commercial driver's licence sometimes requires substantial training, certification, and the passing of many tests, all of which can be time-consuming and costly. In Europe, over 60% of the individuals consider the licensing fees for categories C, C+E, and D as excessively high (Šolman, et al., 2024). Additionally, many organisations are unwilling to hire young drivers owing to their lack of experience and the additional cost of teaching them (Khan, 2023). Malaysia is also facing similar challenges. People who want to become truck drivers must first obtain a CDL by completing proficiency examinations and adhering to vehicle safety regulations (Lim, 2025). CDL is the prerequisite for applying for a GDL, which is mandatory for all commercial vehicle drivers. The application of GDL also involves meeting specific health requirements and attending costly practical

training (Rahmat, et al., 2021). In addition to that, the increase price of medical check-up further adds to the driver's financial stress. If the applicant fails the test due to an illness such as diabetes, they will be banned from obtaining the licence and must wait three months before retaking the test, potentially losing their source of income during that time. Furthermore, Malaysia's demerit point system penalises drivers for a certain offense, such as overloading, even when the decision is made by business management without the driver's acknowledgment. This adversely damage the driver's record and future employment prospects. These legislative, financial, and procedural barriers not only deter new entrants, but also demotivate existing drivers, exacerbating the driver shortage and reducing the logistics workforce (Rahmat, et al., 2021).

#### **2.2.3.2 Age Restriction**

Age limits further delay admission into the trucking profession, making it an unappealing career option for young people. For example, in European countries, to acquire a driver's licence, the applicant must be at least 18 years old while in other countries, the minimum age is 21. Moreover, acquiring complete qualification and certification can take up to three years of training, effectively raising the industry's typical entry age to between 21 and 24 (Khan, 2023). The extended training will discourage those young people from choosing trucking careers since they prefer career options with faster access and returns. Moreover, the industry often hesitates to hire or recruit young people as they concern about the insufficient of experience and the addition expenses such as investment to provide training and support (Khan, 2023). In Malaysia, drivers must be at least 21 years old to apply for a GDL for heavy vehicles, posing an additional barrier to young drivers entering the industry. In response to these constraints, several companies, such as the Nagel Group in Germany, have developed

apprenticeship programs to give young people industrial experience before they reach the legal driving age (Keckarovska, 2021). However, such attempts are limited, and overall, the high age limitations continue to reduce the supply of fresh, younger drivers, contributing to the trucking industry's rising employment gap.

### **2.3 Theme 2: Impacts of Truck Driver Shortage**

The shortage of truck drivers is a major problem in the logistics and transportation sector, as smooth cargo movement is essential to supply chain continuity and financial stability. In reality, this shortage has affected internal operations, delivery dependability, and overall service efficiency in a number of logistics ecosystem variables (Wang, Wood and Wang, 2022). The stress on human capital in the trucking industry has not only increased the financial load on service providers but also caused systemic delays and bottlenecks (Lohk and Lia, 2024). Furthermore, the lack of qualified drivers also has extensive effects, including declined in service quality, tarnished reputations, and elevated safety hazards (Benallou, Azmani and Azmani, 2024). With an emphasis on operational disruptions, economic repercussions, service degradation, reputational harm, and road safety issues, this section explores the various impacts of truck driver shortage.

#### **2.3.1 Operational Disruptions and Supply Chain Delays**

Shortage of truck drivers could lead to supply chain disruptions (Kelly, 2022). Delays in pickups and deliveries are among the most obvious and immediate impacts of truck driver shortage, particularly in last-mile logistics where on-time delivery is essential (Wang, Wood and Wang, 2022). Due to capacity limitations brought on by the shortage, carriers may not be able to fulfil orders on time or at all (Lohk and Lia, 2024). There may be extended delivery intervals or partial deliveries, which lower operational

efficiency. The effect is particularly harmful in integrated supply chains, where trucking is often the final delivery leg. At this stage, poor performance could lead to supply chain disruption, which could hinder delivery, reduce inventory turnover, and stop production (Lohk and Lia, 2024). The dependability of supply chain systems will eventually be threatened by significant delays, which not only hinder internal logistics operations, but can also cause extensive disruptions across interconnected networks.

### **2.3.2 Cost Pressures and Financial Consequences**

In order to address truck driver shortage issue, many logistics companies are forced to raise salary and perks to attract and retain skilled drivers (Trick, Peoples and Ross, 2021; Lohk and Lia, 2024). Not only that, but truck driver shortage issue has also led to an increase in transportation costs (Kim, Kim and Park, 2022), further adding to the financial strain on transportation companies, many of which already have thin profit margins. Although raising salary and perks might provide temporary relief, it results in increased operating expenses. These increased labour expenses will be unavoidably transferred to consumers in the form of higher consumer pricing or service fees (Trick, Peoples and Ross, 2021; Lohk and Lia, 2024), which may decrease market competitiveness. Further financial losses may result from missing delivery, decreased capacity, and inefficiencies related to unmet orders. These include decreased sales, higher operating expenses, and a greater chance of losing customers as a result of unreliable service (Benallou, Azmani and Azmani, 2024). Thus, in addition to having an impact on daily operations, truck driver shortage puts pressure on logistics services' capacity to remain financially viable.

### **2.3.3 Decline in Service Quality and Customer Satisfaction**

Lack of truck drivers could affect the quality of services (Wang, Wood and Wang, 2022) and customer satisfaction (Cooper, 2024). Maintaining agreed-upon delivery timetables and service standards requires a steady supply of drivers. However, delays are inevitable when drivers are not available, which frequently results in unhappy customers. Clients may become frustrated and lose faith in a business if deadlines are missed or deliveries are rescheduled (Benallou, Azmani and Azmani, 2024). Repeated interruptions over time could give the impression that service quality is deteriorating, from which it can be challenging to recover. In the highly competitive logistics and transport industry, where service quality is a crucial differentiator, failure to fulfil service level agreements (SLAs) can seriously impede customer retention and business expansion.

### **2.3.4 Damage to Company Reputation and Market Position**

Lack of truck drivers can damage a company's reputation and undermine shareholder trust. Reliability, professionalism, and timeliness are the cornerstones of a logistics company's reputation. Consistently missing deadlines because of personnel problems can harm a business's reputation with customers, partners, and even investors. Deteriorating brand loyalty, unfavourable word-of-mouth (WOM), and public criticism might result from subpar delivery performance brought on by the shortage of truck driver (Benallou, Azmani and Azmani, 2024). Damage to a company's reputation may make it more difficult for it to get new business or keep hold of its current clients, which would reduce its market share and long-term competitiveness. In other words, lack of truck drivers could affect a company's standing in the logistics and transportation sector (Wang, Wood and Wang, 2022). Companies will undoubtedly suffer from low-quality driver, driver shortage, or no drivers at all since their productivity would be lower,

jeopardize the quality of services the company provides to its customers, and diminish its crucial competitive advantage in the marketplace (Sankar, et al., 2024).

### **2.3.5 Increased Risks to Road Safety**

Lastly, road safety is one of the more alarming impacts of truck driver shortage. Facing exhausting and tedious work conditions, such as long-distance travel is kind of common to truck drivers. However, continuously working under the same work conditions could lead to increased fatigue. Professional truck drivers' weariness has been a major factor in many traffic accidents, highlighting the grave safety hazards connected to drowsiness in the trucking sector (Keil, Hagemann and Glock, 2025). Since there are fewer drivers available, those that are employed will have increased workloads and longer working hours. This will eventually increase their risk of being tired and stressed out, making them more vulnerable to road accidents (Benallou, Azmani and Azmani, 2024). According to Hasan, et al. (2022), one of the main causes of fatigue-related crashes is occupational exhaustion, which is the direct result of long working hours combined with insufficient sleep and breaks. To make things worse, companies pressured to fill in open positions may turn to recruiting drivers with less experience or training (Benallou, Azmani and Azmani, 2024). For instance, due to their inexperience, younger drivers, especially those between the ages of 18 and 29, are statistically more likely to be fatigued and involved in accidents (Hasan, et al., 2022). In short, the mix of overworked veterans and inexperienced new hires will further endanger public safety.

## **2.4 Theme 3: Truck Driver Shortage Mitigation in Developed Countries**

The shortage of truck drivers has emerged as a significant challenge within the global logistics industry, causing supply chain disruptions and economic consequences. This issue is further compounded by workforce demographics, poor working conditions, and

recruitment challenges. To mitigate these problems, this section aims to explore a multifaceted approach involving government initiatives, technological advancements, and company practices. Each part highlights practical measures that are already being adopted or proposed by developed countries forming a comprehensive suggestion aimed at addressing the driver shortage in the trucking industry.

## **2.4.1 Government Initiatives**

### **2.4.1.1 Reducing the Age Limit for Licensing**

To address the aging workforce and attract young people to the trucking industry, governments should consider revising the age restrictions for obtaining a GDL to mitigate the driver shortage problem. The legal minimum age to obtain a GDL varies across countries, with most setting the threshold at 21 years old or older. However, this limitation restricts the entry of younger individuals into the profession, as it prevents high school graduates from pursuing truck driving as a viable career option immediately after completing their education. In Malaysia, for instance, drivers must be at least 21 years old to obtain a commercial driver's licence (Lim, 2025). Meanwhile, countries such as Turkey and China require drivers to be 26 or older (Keckarovska, 2021). Lowering the age threshold to 18 could help bridge the gap between high school and employment, allowing young people to begin their careers sooner. Many organizations have begun advocating for such policy changes. For example, the American Trucking Association (ATA) has proposed lowering the minimum age for interstate trucking to 18 years old (Duggan and McMurtrey, 2021). Thus, this proposal aims to expand the pool of potential drivers by tapping into the underutilized segment of young workers. As a result, governments can create a more diverse and accessible workforce for the

trucking industry while helping to alleviate the current shortage by reducing the minimum age requirement.

#### **2.4.1.2 Attracting Foreign Drivers**

To mitigate the large number of unfilled positions in the trucking industry, governments could enhance immigration policies to attract foreign drivers and fill workforce gaps. Additionally, countries can consider recognizing international driver qualifications through bilateral agreements with other nations, making it easier for foreign drivers to secure employment in their new country. Many countries facing a shortage of domestic truck drivers have already explored immigration reforms as a potential solution. For instance, Canada has taken steps in this direction by including truck drivers in its Express Entry program. The Canadian Express Entry system is designed to expedite the immigration process for skilled workers, allowing eligible applicants to obtain permanent residence in less than a year (Semotiuk, 2022; Schiefke, 2023). Such immigration policies can help address the driver shortage by offering opportunities for foreign-trained truck drivers to contribute to the local workforce.

#### **2.4.1.3 Addressing Negative Perceptions of the Profession**

One of the key barriers to attracting new drivers, particularly from younger generations, is the negative image of truck driving. Many young people perceive the profession as low-skilled, physically demanding, and isolating, which discourages them from considering it as a viable career path. To counter these perceptions, governments can play a vital role by launching public awareness campaigns that promote the benefits and career potential of the trucking profession (Šolman, et al., 2024). For example, governments can highlight the critical role truck drivers play in sustaining the economy.

These campaigns can be targeted at high school students, community colleges, and career fairs, providing information on the lucrative and stable opportunities available in the industry (Lohk and Lia, 2024). In addition, public campaigns can emphasize the technological advancements in the field, such as AVs, Global Positioning System (GPS) tracking, and digital fleet management, to present trucking as a modern, innovative, and tech-driven career (Lim and Kamaruddin, 2024). Shifting the narrative in this way can make truck driving a more attractive and realistic career option for younger individuals.

## **2.4.2 Technological Advancement**

### **2.4.2.1 The Role of Autonomous Vehicles (AVs)**

AVs are among the most promising technological advancement for addressing the truck driver shortage. In recent years, the development of self-driving trucks has gained momentum, with companies like Tesla, Volvo, and the Volkswagen Group leading efforts to create fully autonomous vehicles. Numerous test drives are currently underway in various countries. One of the most promising case studies is in South Korea, where an autonomous truck pilot project is being conducted using a 57 km-long route with a speed limit of 90 km per hour. The research indicates that AVs can save between 25% to 65% in costs and are especially profitable for middle-mile operations, as first-mile and last-mile operations remain more complex and less suited for automation (Lee, et al., 2023). This is further supported by findings that AVs are more suitable for highway routes with fewer complexities, while human drivers can continue to handle last-mile deliveries, which involve more dynamic and challenging environments (Keckarovska, 2021). However, no company has yet successfully commercialized a fully functional AV (Lee, et al., 2023).

The primary advantage of AVs is their ability to operate continuously without the limitations imposed by mandatory driver rest periods. For example, in the U.S., federal regulations require truck drivers to take regular rest breaks, which limits the number of hours a truck can be on the road. AVs are not subject to these restrictions, allowing trucks to operate around the clock, thereby improving operational efficiency and reducing delivery times (Schuster, et al., 2023). Additionally, AVs have the potential to significantly enhance road safety by minimizing human error, which is responsible for a large percentage of trucking accidents. By eliminating issues such as driver fatigue, distraction, and poor judgment, AVs could contribute to safer roads and a reduction in traffic-related fatalities (Keckarovska, 2021; Benallou, Azmani and Azmani, 2024; Lim and Kamaruddin, 2024). Although fully autonomous vehicles are still several years away from widespread adoption, they could play a crucial role in supplementing the current workforce by managing long-haul routes, while leaving human drivers to focus on shorter, more complex deliveries.

#### **2.4.2.2 Intelligent Transport Systems (ITS)**

The implementation of ITS is another technological advancement that can help address the truck driver shortage. ITS encompasses a range of technologies that enhance transportation efficiency, safety, and coordination, including route optimization and predictive analytics. These technologies enable fleet managers to monitor trucks in real time, making it easier to track vehicle location, optimize routes, and predict maintenance needs before they lead to costly breakdowns or delays. For example, GPS tracking systems can guide drivers through the most efficient routes by factoring in traffic congestion, road closures, and adverse weather conditions. This not only improves delivery times but also helps reduce driver fatigue and stress, which is one of

the key factors contributing to high turnover in the trucking industry. By improving working conditions and enabling each driver to manage more routes with less effort, ITS plays a crucial role in easing the impact of the driver shortage (Šolman, et al., 2024).

#### **2.4.2.3 Internet of Things (IoT)**

In addition to AVs and ITS, another technological advancement helping to address challenges in the trucking industry is IoT. IoT has revolutionized various sectors, and trucking is no exception. By utilizing connected devices and sensors, IoT technologies enable real-time monitoring of truck operations, driver performance, and vehicle health. Narrowing the focus, IoT can provide valuable data on a truck's speed, fuel consumption, tire pressure, and engine performance, helping companies optimize fuel efficiency, reduce downtime, and enhance overall fleet management. Beyond vehicle performance, IoT also contributes to improved driver oversight. For instance, it can track driving hours to ensure compliance with safety regulations, thereby minimizing fatigue-related risks. Additionally, IoT enhances communication between drivers and dispatchers, streamlining operations and supporting timely deliveries (Benallou, Azmani and Azmani, 2024). Ultimately, by increasing productivity, safety, and job satisfaction, IoT can help reduce the strain caused by driver shortages and improve driver retention.

### **2.4.3 Company Practices**

#### **2.4.3.1 Multi-channel Recruitment Strategy**

Low recruitment rates have long been a persistent issue in the trucking industry, contributing significantly to the ongoing driver shortage. To address this, companies are encouraged to adopt a multi-channel recruitment strategy. This involves

diversifying their outreach methods by partnering with universities, community colleges, and vocational schools to attract younger talent. One of the key benefits of such partnerships is the opportunity to offer apprenticeship programs, which not only provide hands-on training but also help build early relationships with the company (Keckarovska, 2021; Lohk and Lia, 2024).

In addition to targeting students, companies can collaborate with social welfare offices, such as Norwegian Labour and Welfare Administration (NAV) in Norway, to identify and engage underrepresented groups, including unemployed individuals. These collaborations can also help uncover barriers that prevent people from considering a career in trucking. Another promising recruitment source is the military, as demonstrated in Norway, where veterans have successfully transitioned into commercial driving roles (Lohk and Lia, 2024). For instance, in 2019, nearly 50,000 veterans in the United Kingdom were unemployed, representing a substantial pool of potential workers. In response, ELB Partners formed a partnership with XMR, a recruitment agency to find skilled and reliable candidates from ex-military (Keckarovska, 2021).

Internal recruitment can also play a valuable role. For instance, companies may relocate employees from other departments and provide them with the necessary education and training to become licenced drivers (Lohk and Lia, 2024). Besides, partnering with certified truck driving schools or establishing in-house training academies ensures new hires can gain the required qualifications. To make these programs more attractive, companies often provide financial support, cover training costs, or offer salaries during the training period (Keckarovska, 2021).

### **2.4.3.2 Improving Driver Retention**

Drivers' retention is just as critical as recruitment in addressing the shortage of truck drivers. Companies must focus on creating a positive work environment and offering career development opportunities, as poor working conditions are one of the main reasons drivers leave the profession (Duckering, 2022). Providing adequate rest stops, clean facilities, and secure parking is essential to prevent fatigue and promote driver well-being. Additionally, offering flexible scheduling and the possibility of remote work for administrative tasks can help drivers achieve a better work-life balance, reducing burnout and increasing job satisfaction (Forkuo, 2023). Moreover, low pay is a significant factor in driver turnover. To address this, companies can offer competitive salaries, performance-based bonuses, and comprehensive benefits. Financial incentives, such as bonuses for long-haul trips and allowances for fuel or maintenance expenses, can also make the profession more appealing (Keckarovska, 2021). Finally, health and wellness are major concerns in driver retention. The sedentary nature of truck driving, combined with limited access to nutritious food and exercise opportunities, poses significant health risks (Duckering, 2022). To combat this, companies should prioritize regular health check-ups for their drivers. Early detection of health issues through screenings not only enhances driver well-being but also contributes to road safety (Forkuo, 2023).

### **2.4.3.3 Attracting Female Drivers**

Encouraging more women to enter the trucking industry is another essential strategy for addressing the driver shortage. Although the industry has traditionally been male dominated, the number of female truck drivers is slowly increasing. However, women still face significant barriers to entry, including discrimination, harassment, and a lack

of gender-specific facilities. To make the profession more appealing to women, companies can promote diversity and inclusion and offer gender-neutral facilities (Forkuo, 2023). Additionally, initiatives such as the ‘Women in Transport’ organization have already made strides in creating a more inclusive environment within the logistics sector (Keckarovska, 2021). For example, the ‘Her-Gv’ campaign holds a competition in which participants upload videos expressing their passion for the haulage industry, with the chance to win a prize package worth up to £3,000 (Keckarovska, 2021).

#### **2.4.3.4 Seasonal Hiring and Flexible Work Arrangements**

During peak seasons, companies can implement seasonal hiring strategies to manage increased demand without overburdening their existing workforce. By bringing in part-time or temporary drivers, companies can navigate busy periods, such as the holiday season, without placing excessive strain on full-time drivers. For instance, Dalsey, Hilblom and Lynn (DHL) Freight implemented a recruitment initiative aimed at attracting temporary drivers for their European operations during peak holidays like Christmas. This pilot program, conducted across multiple branches in Europe, demonstrates how seasonal hiring can ensure a consistent flow of goods while maintaining a balanced workforce (Keckarovska, 2021).

## **2.5 Conclusion**

This chapter featured journal articles related to the factors, impacts, and suggested mitigation strategies of developed countries of the truck driver shortage issue that was related to the study objectives. Furthermore, the chapter ended by outlining the possible solutions that governments and companies could initiate.

## CHAPTER 3

### 3.0 RESEARCH METHODOLOGY

Using the right research techniques can aid in confirming and reinforcing the results of the study. An overview of the study's research methodology is given in Chapter 3. Research methodology encompasses the techniques employed to collect data and information for the research's content. It includes qualitative research methodologies as well as methodical approaches for data collection. This chapter explores the procedures and techniques used in gathering data for each subtopic, including research design, research method, data collection, sampling design, data processing, data analysis, and ethical considerations.

#### 3.1 Research Design

The research design forms the foundation of this study, providing the conceptual framework for data collection, analysis, and interpretation. A well-structured and professionally developed research design ensures that the research questions are addressed accurately, leading to reliable and valid findings.

This research aims to explore the ongoing truck driver shortage in Malaysia by addressing the following research questions:

- **RQ1:** What are the key factors contributing to the truck driver shortage in Malaysia?
- **RQ2:** What is the overall impact of the truck driver shortage on Malaysia's supply chain?

- **RQ3:** What are the effective mitigation strategies for truck driver shortage in Malaysia?

To address these questions, a qualitative research approach shall be adopted, enabling the collection of in-depth insights through semi-structured interviews with logistics professionals and industry experts. This approach is appropriate for exploring complex human factors, operational challenges, and policy limitations that may not be fully captured through quantitative methods (Nowell, et al., 2017).

### **3.2 Research Method: Qualitative Analysis**

Qualitative research is a method in which the investigation technique does not use statistical or numerical approaches for data collection, information analysis, or the generation of findings (Bhangu, Provost and Caduff, 2023). It collects facts about how individuals live, think, and react to different situations and helps to gain insight into experiences, behaviours, beliefs, attitudes, and motivation (Oranga and Matere, 2023). Unlike quantitative research, which is mainly used to identify how many people engage in specific actions (Sutton and Austin, 2015). Qualitative research is intended to investigate the nature of phenomena rather than to count or quantify how often they occur. It explores how something appears, how it is perceived, and what it means to others, particularly within a specific context (Busetto, Wick and Gumbinger, 2020).

The employment of qualitative research is anticipated to be useful in addressing the truck driver shortage problem as practitioners will be requested to share their understandings and interpretations based on their personal experiences in logistics industry. This technique will allow for a complete analysis of different points of view, as well as the contextual factors that influence people's perceptions and behaviours that

lead to insufficient of truck driver. During qualitative research, the common ways of collecting data are through document study (diaries, photographs, or artwork), observations, semi-structured interviews and focus groups (Barrett and Twycross, 2018; Busetto, Wick and Gumbinger, 2020). By collecting these stories and detailed descriptions, researchers are expected to uncover profound insights and offer more detailed pictures of why the truck drivers shortage occurs. These research methods serve as practical tools for navigating their various components (Lim, 2024).

Hence, this study shall use the qualitative research approach since it is appropriate for exploring the answer to the questions which regarding to the experience and perspective, especially from the practitioner's point of view (Busetto, Wick and Gumbinger, 2020; Oranga & Matere, 2023). These methods are expected to be effective for uncovering complex or complicated ideas and personal opinions that are difficult to quantify with figures. It shall be a better fit for the study's objectives, which include identifying critical elements that contribute to truck driver shortage, revealing the underlying issues caused by this problem, and is expected to uncover practical, experience-based solutions from industry insiders. This requires practical insight from experts and practitioners in the field. By focussing on deeper, more descriptive data, the study is anticipated to identify relevant trends and potential solutions to the truck driver shortage issue in Malaysia.

### **3.2.1 Semi-structured Interviews**

Based on Busetto, Wick and Gumbinger (2020), qualitative interviews are a casual conversation with specific objective including structured, unstructured, and semi-structured. Structured interviews are conducted with fixed and unchanging questions similar to survey with questionnaires while unstructured interviews are more casual,

and free-flowing, and open conversation, like autobiographical interviews (Busetto, Wick and Gumbinger, 2020; Lim, 2024). Semi-structured interviews combine both, using a guide with important keys and asking the follow-up questions based on the conversation. The interview guide consists of general topics or questions that should be covered (Busetto, Wick and Gumbinger, 2020). Semi-structured interviews include pre-set, open-ended questions, with more questions being further developed throughout the discussion (Denny and Weckesser, 2022). This provides the interviewer the freedom to explore responses in more depth or pursue new ideas that arise, ensuring both structure and flexibility are maintained (Lim, 2024).

The semi-structured interview technique will expect to foster reciprocity between the interviewer and the practitioners, allowing for unplanned follow-up questions, and enabling the practitioners to express their ideas and opinions about the truck driver shortage issues in Malaysia. However, its efficient application will require prior investigation in the research topic area to construct meaningful questions based on current knowledge (Kallio, et al., 2016). The semi-structured interview will plan to investigate practitioners' thoughts, feelings, and beliefs about a specific topic, and to delve deeply into individual and often critical issues such as truck driver shortage (Dejonckheere and Vaughn, 2019).

Additionally, the flexible structure of the interview shall enable the researcher to prompt or direct the practitioners when more information is needed. Therefore, the researchers are expected to receive the response from the practitioners and able to uncover not just surface-level issues, but also the root causes behind the shortage. As the conversation unfolds, along with the guides provided, the new ideas or insights may come out which the researchers may not expected, as different people look in different perspectives so

they will have different and perspective and perceptions especially from the real-life and human side of factors that caused truck driver shortage will also be expected to be explored. Because the interviewer can adapt or adjust the questions during the interview, they can focus on intriguing themes that come up naturally. This adaptable approach will allow the researchers uncover many aspects of a person's experience and can help them develop new ideas or generate new question to investigate later (Lim, 2024). This shall allow the researcher to develop more effective, practical solutions to address the truck driver shortage issue.

### **3.3 Data Collection**

Data collection is one of the important parts in a study. This is because without collecting the data, the researchers will not be able to answer the question of the study as it lacks necessary information. Data collection refers to a process of obtaining information, numbers, or opinions from a variety of sources, such as surveys, interviews, observations, and documents to answer research questions, test hypotheses, and assess outcomes (Kabir, 2016; Taherdoost, 2021). High-quality data collection ensures reliable analysis and credible results. Qualitative research, in particular, relies on extensive data to identify themes and develop findings through rigorous analysis (Barrett and Twycross, 2018). This study shall include both primary and secondary data.

#### **3.3.1 Primary Data Collection**

Primary data, also known as original and first-hand data collected by researchers with certain objectives. It is generally more valid, dependable, objective, and authentic than secondary data, which has already been published or used by others (Taherdoost, 2021). Essentially, primary data is information obtained directly from individuals by

researchers or skilled data collectors using procedures like as questionnaires, surveys, observations, and interviews (Mazhar, et al., 2021). In this study, the primary data shall be obtained through both face-to-face interview and online interview. The main target practitioners shall be middle to high level management staff, such as operations executives or managers. The target group shall include logistics companies and distributors in Malaysia who have prior experience in dealing with driver shortages, or truck driver recruitment and retention matters.

The interview section is planning to be conducted using Microsoft Teams, which provides a platform for interaction between researchers and practitioners. Prior to the interviews, questions shall be meticulously created to provide a structured process of data collecting. During the interviews, informants shall be free to express and address their ideas and opinions. The entire interview process shall be documented for detailed analysis and future reference.

Furthermore, key comments from the interviews shall be properly documented to give additional primary data for analysis. Collecting this data will be critical since it will directly support the research objectives connected to the truck driver shortage in Malaysia. The practitioners will expect to share vital insights based on their direct experience dealing with driver shortages during logistics operations. This precise information shall be able to help to increase the depth and trustworthiness of the research findings.

### **3.3.2 Secondary Data Collection**

Second data refer to the information collected from existing and published sources. The data is collected by others research for a different objective and the data can also be

used for new research (Taherdoost, 2021). A wide range of data is anticipated to be accessible from various sources, including e-books, textbooks, reports, academic journals, conference papers, and scientific articles. The resources are all downloadable through libraries and government databases. The information that is expected to be collected from these sources helps to support the theories, arguments, and concepts that form the foundation of this research, especially during the data analysis phase. Additionally, secondary data will play an essential role in enhancing the understanding of key ideas and theories. By using this type of data, researchers will be able to gain a deeper insight into the topic and enabling a more thorough analysis and interpretation of the results. The heavy use of secondary data will also add strength and credibility to the research findings. The secondary data that shall be used in this study is anticipated to be source from reputable platforms such as the Universiti Tunku Abdul Rahman (UTAR) library, Science Direct, Google Scholar, Springer Link, ResearchGate, Emerald Publishing, Multidisciplinary Digital Publishing Institute (MDPI), and others.

### **3.4 Sampling Design**

Sampling design is the process of choosing a subset from a wider population (Ahmed, 2024). In qualitative research, sampling typically aims to fully capture the subject under study (Lee & Landers, 2022). For this study on addressing the truck driver shortage crisis in Malaysia, sample size is important for both the validity and relevance of the results. Given that we are using thematic analysis in our study, a sample size of 12 to 20 participants is suggested (Ahmed, 2025). In our study, informants shall be limited to middle- or upper-level management teams from Malaysia logistics companies and distributors as they have experiential knowledge regarding to the truck driver shortage issue.

### **3.4.1 Target Group**

Target group is a subset of the larger population under investigation, distinguished by particular characteristics or standards that are directly related to the study question (Willie, 2024). In the study's context, logistics companies and distributors in Malaysia who have prior experience in dealing with driver shortages, or truck driver recruitment and retention matters are chosen as the target group.

In essence, the unit of analysis is the “who” or “what” for which data is analysed and conclusions drawn (Sedgwick, 2014). It can take on several forms or values and helps a researcher establish parameters for association and investigation. Geographic entities (countries, provinces, cities), individuals, groups of people, objects (journals, essays, pictures), and social artifacts (marriage, family relationships, partners) can all be employed as unit of analysis (Khan, 2021). For this study, the logistics companies and distributors in Malaysia are anticipated to be the unit of analysis. Personnels from top or middle-level management of the companies shall be selected to participate in the interviews. The reason behind this is that these managers frequently possess decision-making authority and operational knowledge, which are critical for understanding the complexities of truck driver shortage issues. All the experiences and recommendations are helpful in finding solutions for the particular problems related to the truck driver shortage issues. Furthermore, these strategic visions also provide practical relevance by aligning the study's findings with industry goals.

Given the large number of logistics companies and distributors in Malaysia, we approached 13 informants to participate in the interview sessions. It is anticipated to be conducted both in-person and virtually, with Microsoft Teams being used for online interviews to provide flexibility and convenience in recording the interviews.

### **3.4.2 Sampling Technique**

For this study, purposive sampling, which sometimes also referred to as expert or judgemental sampling (Ahmed, 2024) shall be applied. It is a kind of non-probability sampling in which researchers use their own judgment to select participants from the population for their research (Mulisa, 2022). By using purposeful sampling, researchers can specifically select individuals who can provide rich and diverse data, which is more in line with the qualitative research methodology (Hossan, Mansor and Jaharuddin, 2023; Subedi, 2023). Participants shall be chosen according to certain criteria, such as prior work experience or tacit knowledge related to the topic. Because the research ideas and elements are predetermined, it is discovered that this sampling method is more convenient and takes less time than other techniques. This allows researchers to concentrate on finding informants who are suitable for the study.

### **3.5 Data Processing**

Data processing in this study shall involve systematically handling and organizing the raw information gathered from semi-structured interviews. After each interview session, audio recordings shall be transcribed manually to preserve the original context and ensure accuracy. Notes shall be taken during the interviews and cross-referenced with the transcripts to capture any non-verbal cues or clarifications that support deeper understanding. Any incomplete, unclear, or irrelevant responses shall be reviewed and filtered out based on pre-determined criteria to maintain consistency and clarity. The data shall be categorised using keywords and group according to emerging patterns and themes.

### **3.5.1 Data Reliability and Validation**

To enhance the reliability and integrity of the collected data, the informants' narratives shall be carefully reviewed to ensure their relevance and logical coherence with the research objectives. The data shall be examined for completeness, consistency, and clarity, including identifying repeated, inconsistent, or missing information. Any unclear or suspicious responses shall be further validated through follow-up communication via phone calls or emails with the respective participants. Additionally, the processed data will be reviewed by the academic supervisor to ensure it aligns with the research framework and academic standards. This validation process is expected to ensure that only accurate and meaningful data are retained for analysis, thereby strengthening the overall quality of the study.

### **3.6 Data Analysis**

This study shall apply a qualitative data analysis method to interpret the information collected from interviews with logistics industry participants. The primary goal of the data analysis is to identify patterns, draw connections between responses, and address the research questions (Alem, 2020). After all interviews are transcribed, the data shall be organized and categorized manually. Each transcript shall be thoroughly reviewed to ensure a deep understanding of the content. Repeated readings of the transcripts shall be conducted to familiarize oneself with the data and identify recurring ideas. This structured process shall transform raw verbal data into meaningful insights that align with the study's objectives.

### **3.6.1 Thematic Analysis**

Thematic analysis is anticipated to be selected as the core method for analysing the interview data. Thematic analysis is particularly suitable for exploring complex human experiences and industry insights, providing a flexible framework for identifying and interpreting key themes (Nowell, et al., 2017). The analysis shall begin with initial coding, where significant statements, phrases, and ideas are highlighted across all transcripts. Once the codes are developed, similar codes shall be grouped together to form broader themes reflecting common patterns related to the challenges, ineffective measures, and potential solutions regarding the truck driver shortage in Malaysia. Each theme shall be refined to ensure clarity, distinctiveness, and relevance to the research questions.

### **3.7 Ethical Considerations**

The study shall be conducted in strict adherence to ethical research practices. Ethical clearance shall be obtained from the relevant academic authority prior to the commencement of fieldwork. All participants shall be informed of the study's purpose, their voluntary participation, and their right to withdraw at any point without penalty. Informed consent shall be obtained through a signed consent form before each interview, ensuring that participants understand how their data will be used (Mirza, Bellalem and Mirza, 2023). All collected data, both audio recordings and transcripts, shall be securely stored and accessed only by authorized individuals, including the final year project supervisor, Dean, and Head of Department at the Faculty of Science, UTAR. These materials shall be used solely for academic purposes and disposed of responsibly after the completion of the study, in accordance with data protection guidelines. By adhering

to these ethical principles, the study is expected to ensure the integrity of the research process, and the protection of all participants involved.

### **3.8 Conclusion**

A thorough explanation of the research design, research method, data collection, sampling design, data processing, and data analysis is covered in this chapter. This helps readers to have a better understanding on how this research is planned and carried out. Furthermore, special focus is placed on guaranteeing the high quality of the data by means of precisely defined ethical considerations, which are introduced at the end of the chapter.

## **CHAPTER 4**

### **4.0 DATA ANALYSIS**

Numerous topics were covered in this chapter, such as the interview findings, the demographic profiles of the chosen firms, and the research design. The data gathered for this study was analysed and summarised in this chapter using a qualitative research methodology. A total of thirteen interviews were performed to investigate this topic. Both online and in-person interviews were done with informants who work in the logistics industry in Malaysia. Based on the three research questions, informants were asked to answer eleven questions.

#### **4.1 Research Design**

The study concentrated on truck driver shortage issue in Malaysia, specifically focusing on the areas of Johor, Selangor, and Penang. The thirteen participating companies were identified by the letters A through Z in order to preserve confidentiality and adhere to ethical considerations. The informants consist of General Manager for TMS, Senior Manager for Transport, Transport Manager, Land Transport Managers, Head of Department, Head of Logistics Project, Transport Executive, Assistant Operation Manager, Operation Manager, and Logistics Manager. The duration of each interview with a firm representative was roughly 30 minutes. The interview questions and a confirmation letter were sent to each responder via email in advance upon request so that the responses may be prepared appropriately. Open-ended questions about the research topic were asked by researchers during the interview sessions. The details of every interview are as follows.

**Table 2:** List of Informants

Informant	Date of Interview	Company	Position of Informant	State
1	03/07/2025	A	General Manager for TMS	Selangor
2	03/07/2025	B	Senior Manager for Transport	Selangor
3	11/07/2025	C	Transport Manager	Selangor
4	12/07/2025	D	Land Transport Manager	Johor
5	14/07/2025	E	Transport Manager	Selangor
6	15/07/2025	F	General Manager	Selangor
7	24/07/2025	G	Head of Department	Selangor
8	30/07/2025	H	Head of Logistics Project	Johor
9	08/08/2025	I	Transport Executive	Selangor
10	12/08/2025	J	Transport Manager	Penang
11	12/08/2025	K	Assistant Operation Manager	Johor
12	13/08/2025	L	Operation Manager	Johor
13	14/08/2025	M	Logistics Manager	Selangor

## 4.2 Demographic Profiles of Company

### 4.2.1 Company A

Company A is a Danish shipping and logistics company founded in 1904. Recognized as a global leader in container shipping, port operations, and supply chain management, it maintains a presence in more than 130 countries worldwide. In addition to maritime transport, Company A also provides air freight services and is actively expanding its portfolio of end-to-end logistics solutions to strengthen its role as an integrated logistics

provider. In Malaysia, the company has been connecting businesses to global markets since 1974. Its offices are strategically located in Kuala Lumpur, Penang, Port Klang, and Tanjung Pelepas. Company A also operates its own transport management team, supported by a fleet of over 100 trucks, to ensure efficient inland logistics and seamless supply chain connectivity.

#### **4.2.2 Company B**

Company B, founded in December 1988, has over 30 years of experience in a variety of logistic services and solutions, including ambient and temperature-controlled warehouse, domestic transportation and distribution, freight forwarder, in-house logistic, as well as solution and consulting. With its extensive expertise in contract or third-party logistics, Company B is able to offer the best services to satisfy the demands of its clients. Company B is headquartered in Japan but has expanded its presence across Malaysia with branches in Bangi, Pasir Gudang, Senai, Penang, Kuala Lumpur International Airport (KLIA), Port Klang, and Nilai. Company B's transportation and distribution network covers the entire country, including the East Malaysia region, supported by a diverse fleet of temperature-controlled and ambient trucks, ranging in size from small lorry to full 40-foot trailers.

#### **4.2.3 Company C**

Company C, a global industrial gas supplier founded in 1879 in Germany and now headquartered in Dublin, has maintained a presence in Malaysia since 1960, with its main office located in Bandar Sunway. Company C manufactures and distributes industrial, specialty, and medical gases, while also providing related services such as gas equipment installation, pipeline systems, and associated engineering solutions. To

support its nationwide logistics operations, Company C manages a fleet of over 150 trucks dedicated to the safe and efficient transportation of gases.

#### **4.2.4 Company D**

Company D, established since 1991, is a logistics solution provider company and the headquarter of the company is located in Malaysia, Johor. Company D offers various types of services including trade compliance consultancy, public bonded warehouse and distribution, transportation solutions, and project logistics management. Its trade compliance consulting helps companies optimise their tax and duty plans and comply with customs regulations. The public bonded warehousing and distribution service lowers customer expenses by providing extensive storage facilities. While in the transportation solutions, Company D provides services such as air freight forwarding, ocean freight, and land transportation. Company D is a fully integrated land transportation solution provider as they operate a large fleet of trucks and specialised equipment with the purpose of handling various types of cargo. Company D has a total of 69 trucks.

#### **4.2.5 Company E**

Company E, which was founded in 1974, is headquartered in Selangor. It provides services such as customs brokerage, international freight forwarding, haulage and transportation, as well as warehouse management. Company E operates an extensive transportation network that enables smooth movement from port to customer, backed by various types of truck built to satisfy different client needs. With its well-placed fleet depots in Port Klang, Shah Alam, Butterworth, and Kuantan, Company E guarantees dependable and effective services. Company E's fleet consists of 50 prime movers, 200 trailers, and 50 trucks ranging from 3 tonnes to 20 tonnes. Every month on average,

Company E completes more than 4,000 countrywide deliveries throughout West Malaysia.

#### **4.2.6 Company F**

Company F was established in 1980 and headquartered in Port Klang, Selangor with multiple branches at major seaports and airports across Malaysia. Company F provides a comprehensive range of logistics and freight forwarding services, including sea and air freight forwarding, customs clearance, inland trucking and container haulage, warehousing and distribution, as well as heavy transport, lifting, and installation. Company F operates its own fleet of approximately 65 trucks, along with dedicated facilities and proprietary technological systems. Company F's haulage division is equipped with 20- and 40-foot trailers fitted with GPS tracking and side loaders, enabling the efficient transportation of hundreds of thousands of freight tons annually through its extensive fleet of trailers, trucks, and wagons.

#### **4.2.7 Company G**

Company G was a logistics service provider where their company headquarter is located in Malaysia, Selangor and established in year 2003. Company G offer five core services which are flexitank solutions and related services, integrated freight forwarding, land transportation, logistics centre operations, and fourth-party logistics (4PL) services. Moreover, Company G also having their operations in more than 15 countries, especially in Southeast Asia. Company G regarded as one of the top five firms in the world for producing Flexitanks. Additionally, it is the largest supplier of land bridge transportation between Thailand and Malaysia. It is the fourth-largest non-vessel operating common carrier (NVOCC) in Port Klang, the busiest port in Malaysia. The company's significant presence in Southeast Asia's logistics sector is demonstrated

by its operation of 20-foot-tall cube containers. In order to support their operation, Company G has operated around 200 trucks.

#### **4.2.8 Company H**

Company H was founded in 1993, and it was a one-stop logistics and forwarding service provider with its headquarters located in Johor, Malaysia, has gained 27 years of expertise. Company H's core business is providing transportation service, but there are also other offerings such as cross-border shipping, warehousing, project cargo management, air and sea freight forwarding, land transportation, cargo handling, and customs broking. Company H has complete control over quality, safety, and time efficiency because it runs 50 trucks, 75 trailers, and side loaders. With state-of-the-art facilities, such as an open yard system and a 15,000 square foot warehouse, Company H also provides flexible freight handling solutions backed by a committed staff that cares about customer satisfaction.

#### **4.2.9 Company I**

Company I, incorporated in 2021 in Malaysia, operates primarily in the trucking industry. Company I manages a fleet of 12 trucks, including both box trucks and curtain sider trucks, serving diverse transportation needs. Company I's operations cover the entirety of West Malaysia, ensuring reliable cargo movement and distribution across the region.

#### **4.2.10 Company J**

Company J, headquartered in Penang, started off with just 2 trailers to serve its customers has expanded into a fleet of about 40 trucks, supported by capable management with more than 40 years of transportation industry experience. Company J is dedicated to providing high-quality services with an emphasis on customer

satisfaction, safety, and on-time delivery. With the assistance of its skilled drivers, every cargo is meticulously monitored from order confirmation to loading and unloading to guarantee a seamless and prompt delivery. Through its dependable forwarding agents, Company J specialises in transshipment trucking under K8 Custom Forms from Free Trade Zones (FTZ) within Peninsular Malaysia as well as cross-border trucking, especially to Singapore, with daily import and export routes. Additionally, Company J offers both chartered and consolidated services that are customised to meet the demands of its clients for interstate transportation within Peninsular Malaysia. Company J has years of experience managing freight from a variety of industries, such as food and beverages, glass, machinery, as well as oil and gas equipment.

#### **4.2.11 Company K**

Company K is a solution-based logistics service provider headquartered in Malaysia, Johor and their year of registration was in year 2011. Company K is emphasis on cross-border road freight. In supporting the road freight, Company K has operated around 20 trucks including box truck, open truck, curtain sider truck, and low loader truck. Company K operating a fleet of trucks that travel between Singapore, Malaysia, and Thailand and guarantees an effective regional connectivity. Company K also provides various services including precast concrete transportation, package and consolidation, heavy lift and oversized transportation, freight forwarding, warehousing and distribution, cross-border trucking, marine offshore, and marine-related services. Additionally, Company K also provides complete marine and air freight solutions in addition to its land-based activities, offering a flexible variety of logistics services to satisfy various transportation demands throughout the region.

#### **4.2.12 Company L**

Company L was founded in 2012 and the company headquartered in Johor, Malaysia. Company L offers reasonably priced one-stop land transportation services both domestically and internationally, including to Singapore. Company L operates roughly 50 trucks including low loader trucks, open top trucks, V-frame trucks and platform trucks. Company L specialises in the transportation of hardware and building goods, oversees the complete delivery process to guarantee prompt and safe shipments. Company L aims to create enduring, trustworthy connections by learning about each client's needs and providing them with specialised, dependable, and cost-effective services.

#### **4.2.13 Company M**

Company M was established in 1992 and headquartered in Selangor, Malaysia. Company M is recognised as a leading importer and distributor of specialty fruits, vegetables, and marine produce. Company M operates five branches across Malaysia and maintains a fleet of 50 refrigerated trucks serving both West and East Malaysia. Company M's cold chain logistics services cater to a wide range of clients, including major supermarkets, hypermarkets, grocers, hotels, institutions, restaurants, and food and beverage businesses nationwide.

### **4.3 Data Analysis**

#### **4.3.1 Objective 1: To identify the key factors contributing to the truck driver shortage in Malaysia.**

*Informant 1 has highlighted that the company is not currently experiencing a driver shortage, but the issue is anticipated in the future. According to the sharing, one of the main challenges in recruiting young drivers is their lack of driving skills and experience,*

particularly as many trucks are shifting from manual to automatic transmission systems, which raises safety and competency concerns. In addition, younger generations are generally less interested in pursuing driving as a career due to the demanding working environment and irregular hours, preferring instead more flexible jobs such as working with Grab or Lalamove. The informant suggested that offering competitive salary packages and rotational working time schedules could help attract more young drivers. In terms of female drivers, the informant explained that recruitment remains limited due to traditional social perceptions that women are unsuitable for driving heavy vehicles such as prime movers. This perception, combined with the belief that women prioritise family responsibilities, creates additional barriers. Confidence in female drivers' skills to handle large trucks is also a concern for many companies, making them reluctant to take the risk of recruitment. The informant proposed that government schemes, incentives, and rebates could encourage companies to hire more female drivers. Furthermore, the informant shared that the company's driver turnover rate is currently low. However, several factors contribute to the broader driver shortage in Malaysia, including fear of accidents, unattractive salary schemes and commission structures based on mileage or trips, and the rising preference among younger people for flexible work opportunities such as becoming Grab drivers.

**Informant 2** explained that the truck driver shortage issue is not constant but occurs intermittently, depending on the month or specific situation. While there are no female drivers at all, with no female applicants, there is a steady number of youngsters applying for such roles. However, many drivers have shifted to alternatives such as delivery, courier services, and Grab, particularly during the Movement Control Order (MCO), as these jobs were perceived to be easier and provided higher income. The informant further highlighted the impact of the government's minimum wage increase

to RM1,700, noting that if companies are unable to meet this requirement, truck drivers would prefer to pursue government jobs instead. In terms of turnover, the rate was described as not particularly high, especially in Bangi, where working hours are more stable. Conversely, in Nilai, the turnover is higher due to the more demanding working schedules, with drivers often leaving once they secure jobs with regular hours. The informant also mentioned that retention challenges are greater in companies that operate on a trip-based system, as inconsistent workloads, such as having trips for three days but none for the following two, make it difficult to maintain a stable workforce. Ultimately, the ability to retain drivers depends heavily on the nature of the job and the overall package offered.

**Informant 3** confirmed that their company is currently experiencing a driver shortage, noting that recruiting new drivers is quite challenging and can take at least three months. They highlighted that it is particularly difficult to recruit female drivers, as R&R facilities are not well-equipped to accommodate women. Regarding younger drivers, the informant mentioned that many prefer to work as entrepreneurial drivers, Grab drivers, or mapping drivers. Despite these challenges, the informant indicated that the turnover rate for drivers is not high, as turnover is usually linked to low salaries or tight schedules. The main factors contributing to the truck driver shortage in Malaysia include the growth of Grab and entrepreneurial drivers, unattractive salary packages, where some companies only offer trip-based commissions without a fixed basic pay, and strict regulations.

**Informant 4** has highlighted several important points regarding the truck driver shortage in Malaysia. According to the sharing, the company has previously experienced shortages and continues to monitor the situation closely to anticipate and

*manage any future gaps. In terms of recruitment, the informant explained that one of the main challenges in hiring young and female drivers is the company's minimum requirements, which include being above 30 years old, having at least three years of driving experience, and passing a medical check-up. While these criteria ensure safety and operational standards, they limit opportunities for younger candidates and reduce the already small pool of female applicants. The informant further shared that the company's turnover rate is not high and remains manageable, though a few resignations occur when drivers struggle to adapt to strict operational and safety requirements. Finally, the informant emphasised several main factors contributing to the nationwide shortage, including unstable income due to fluctuating delivery volumes, the unattractive nature of long-haul journeys that disrupt work-life balance, and poor management of working and rest hours which leads to fatigue, stress, and health problems. These factors make the profession less appealing, particularly to younger generations, and contribute to the ongoing shortage.*

**Informant 5** *has highlighted that the company is currently not facing a truck driver shortage, as it operates a variety of transportation services including haulage, distribution trucks, and conventional trucks. According to the sharing, the company is able to retain drivers by offering attractive benefits such as higher commission compared to other companies and compliance with the minimum wage set by the government. However, the informant noted that a driver shortage may be anticipated in the headquarters located in Shah Alam, where the market is much larger. In terms of recruitment, the informant shared that there are no significant challenges in hiring young or female drivers. The informant further explained that turnover rates differ by location, with Shah Alam experiencing relatively high turnover. This is mainly because drivers holding GDL licences tend to compare benefits and salaries, moving to*

companies that provide higher pay. The competitive environment in Shah Alam also contributes to this movement, especially since short-distance delivery trips pay lower commissions compared to long-haul deliveries. Lastly, the informant emphasised several factors contributing to the wider driver shortage in Malaysia, including marriage, where Malay drivers may relocate to follow their spouse or address family issue like health issues, low salary and unstable shipment volumes that make sustaining a livelihood difficult, and boredom with the nature of the job. Some drivers may switch between different types of trucks, such as moving from car carriers to distribution trucks or from container trucks to long-haul or fuel trucks, while others may leave trucking industry and become a bus driver.

**Informant 6** has highlighted that the company is currently facing difficulties in recruiting drivers, which reflects the shortage in the industry. According to the sharing, one of the main challenges is the working environment and the salary. When it comes to young drivers, their tendency to leave within the first three months is high if the work environment or pay does not meet their expectations, making retention a significant issue. The informant further explained that the company does not experience a high turnover rate, as most of their drivers are from Sabah, and when provided with a stable income above RM4,000. Hence, they tend to stay longer and take fewer medical leaves. Lastly, the informant emphasised that low wages offered by many companies in Malaysia remain one of the main factors contributing to the overall truck driver shortage, as it reduces the attractiveness of the profession.

**Informant 7** indicated that the company is currently experiencing a driver shortage. One of the main challenges in recruitment is the lack of new entrants, as many young people prefer joining e-hailing services such as Grab instead of the trucking industry.

*The informant also mentioned that female drivers are generally not preferred, as their performance is perceived to be lower compared to male drivers, with females making fewer trips on average. Regarding turnover, the informant noted that it is not a major issue as long as drivers are satisfied with their income. However, the informant emphasised several key factors contributing to the overall truck driver shortage in Malaysia. These include the aging workforce, as many drivers who entered the industry in the 1970s are still active but now in the 45 to 55 age group, while younger generations show little interest in the profession. Additionally, unfavourable working conditions make white-collar jobs more appealing, and the high cost of obtaining an E licence further discourages newcomers from entering the industry.*

***Informant 8** has highlighted that the company is currently experiencing a driver shortage. According to the sharing, the informant has not had experience in handling female drivers, which limits insights into the challenges of recruiting them. However, the informant explained that turnover does occur in their company. The informant proposed that this is mainly due to salary and shipment orders. Since the company pays drivers based on trips, situations with fewer orders reduce their earnings and prevent them from reaching their salary targets. As a result, some drivers choose to leave and join companies that can offer more consistent orders and competitive pay.*

***Informant 9** has mentioned that the company is not currently experiencing a driver shortage. According to the sharing, the company only accepts male drivers thus the company will not provide opportunities to female driver. Coming to recruiting young drivers, the main challenges in recruiting younger drivers are related to punctuality issues and frequent requests for leave, which affect reliability. The informant further explained that the company does face a high turnover rate, mainly due to salary*

concerns, as some drivers leave in search of higher wages. Lastly, the informant emphasised that the main factors contributing to the truck driver shortage in Malaysia are low wage rates and the lack of overtime allowances, which reduce the attractiveness of the profession.

**Informant 10** has highlighted that the company has not experienced a driver shortage so far, but precautions are in place to manage the risk. According to the sharing, the company practice is that the drivers are not allowed to resign within 24 hours as stated in their contracts, where a two week notice period is required. The company has prepared the backup planning to handle such situations. In terms of recruitment, the informant has no experience in handling female drivers. The informant further shared that the turnover rate is mainly influenced by salary. The informant proposed that the truck drivers can earn relatively high wages without requiring a high education level, prerequisite that the candidates have two to three years of experience in the logistics sector. Thus, the informant emphasised that salary factor is one of the main reasons younger individuals are attracted to join. Lastly, the informant suggested in cases where companies report shortages, it may be because drivers prefer to move to other companies offering better trips and salaries.

**Informant 11** has highlighted that the company is currently experiencing a driver shortage, but the company is slowly increasing its headcount to address the issue. According to the sharing, one of the main challenges in recruiting female drivers is the physical demands of handling heavy load shipments, such as covering cargo with canvas and doing lashing, which even male drivers find challenging. The informant suggested that female drivers may be more suited to haulage or operating side curtain and box trucks, which are easier to manage compared to open trucks. Furthermore, the

*informant explained that the turnover rate is high, mainly due to uncertain shipment volumes and seasonal factors such as public holidays like Raya and Chinese New Year, when road bans prevent trucks from moving for several days. Drivers in such situations often seek companies that can meet their expected salary or trip requirements. Additionally, the company faces resignations from drivers with discipline problems, and the informant emphasised that they prefer being short of drivers rather than dealing with such issues. Lastly, the informant shared that low commission rates, caused by worsening market conditions, remain one of the main factors contributing to the truck driver shortage in Malaysia.*

***Informant 12** has highlighted that the company does not experience a driver shortage at present and does not anticipate one in the foreseeable future. According to the sharing, the informant suggested that one of the main challenges in recruiting younger drivers is because the young driver lack of ability to operate manual transmission lorries, which results in longer training periods thus they do not prefer to recruit young driver. For female drivers, the nature of the company's operations, which involve heavy or oversized cargo, creates additional challenges. The work often requires irregular hours or day and night shifts to coordinate with construction sites, which many female drivers find difficult to manage. Furthermore, tasks such as securing cargo also create physical limitations for some male drivers. The informant further explained that the company's turnover rate is among the lowest in the industry. However, the informant has recognised that low freight rates are the main cause of high turnover elsewhere. When transport fees are too low, drivers' earnings decline, prompting them to move to other companies offering higher pay. Lastly, the informant emphasised that certain unhealthy industry practices in Malaysia contribute to the driver shortage, such as manufacturers driving down freight rates by pressuring transport companies against*

one another and some companies undercutting prices to secure more orders. This 'race to the bottom' in freight rates not only reduces driver income but also encourages unsafe practices like speeding, making the profession less sustainable.

*Informant 13* has emphasised that the company is currently experiencing a driver shortage, especially even the company currently plans to expand operations by purchasing new trucks but faces difficulties in recruiting drivers. According to the sharing, one of the main challenges in recruitment is that no female candidates are willing to join the industry, largely due to the requirement of going outstation without proper rest stations, which makes the job less appealing. The informant further explained that the company does face a high turnover rate, mainly because of less attractive wages compared to drivers' expectations. Lastly, the informant emphasised that one of the main factors contributing to the overall truck driver shortage in Malaysia is that wages are not sufficient to support a family, making the profession unsustainable for many drivers.

#### **4.3.2 Objective 2: To assess the overall impact of the truck driver shortage on Malaysia's supply chain.**

*Informant 1* explained that currently, the company is not experiencing any critical losses due to the truck driver shortage. However, from a broader perspective, the informant highlighted that the shortage affects the entire industry in Malaysia. When there is a lack of drivers and demand exceeds supply, industries facing this shortage are forced to raise the salary, which in turn attracts more drivers to switch over to the industries. This creates more job opportunities for new drivers, especially when salary packages become more attractive. Nevertheless, the informant noted that this situation will persist only until the market eventually finds its balance. The key question, however,

remains. Who will bear the cost of this increased salary? The companies or the consumers?

**Informant 2** confirmed that the company had indeed experienced critical losses due to the truck driver shortage, particularly during challenging periods. He further emphasised that the impact of the government's decision to raise the minimum wage was significant, as it required salary adjustments across all levels. For example, if a driver's initial salary was RM1,300, it had to be increased to RM1,700 to meet the new requirement. However, this created a dilemma for employees who were already earning RM1,700 or more. The informant explained that it would be unfair to only raise the salaries of those below the new minimum, as higher-paid staff would feel dissatisfied when they saw juniors quickly catching up to their pay level. Consequently, companies were also forced to adjust salaries above the RM1,700 to maintain fairness and avoid resentment. This issue, described as a very big challenge, highlighted how the wage adjustment not only affected those earning below the required level but also caused a chain reaction that impacted those earning above it. Ultimately, this situation drove up operating costs for the company, adding further strain to its financial management.

**Informant 3** stated that their company has experienced critical losses due to the truck driver shortage, especially after the Covid period. During Covid, many drivers were retrenched, and when demand suddenly picked up again, there were not enough drivers in the market, as many had switched to working for Grab. The informant highlighted that the manufacturing industry is the most affected by this shortage. Additionally, the company's operating costs have increased due to the need to pay more for overtime, and customer satisfaction has also decreased.

**Informant 4** highlighted that the company had faced the significant losses due to a shortage of truck drivers previously. Depending on the route and assignment, the loss of revenue from having just one truck and driver might range from RM25,000 to RM35,000 per month, which significantly affected operational capacity and service commitments at the time. According to the informant, the truck driver shortage in Malaysia mostly affects the transporter, haulier, and freight forwarding industries, although the manufacturing, construction, and distribution sectors are also impacted. The informant further explained that the shortage has placed significant pressure on their company's supply chain operations. It has caused tighter schedules and delays in both pickups and deliveries, which in turn led to more customer complaints, higher overtime costs, and, in some cases, late delivery penalties. Overall service reliability has been impacted by these interruptions.

**Informant 5** shared that the company is not experiencing major critical losses due to the truck driver shortage, but during peak seasons they are sometimes forced to rely on outsourced drivers from other transporters to ensure that operations do not come to a halt. From the informant's perspective, the most affected industry would be the distribution sector, as drivers are the backbone of operations there, being directly responsible for delivering goods to outlets and stores to reach customers. For the informant's company, however, the shortage has not had a significant impact, since they are able to find outsourced drivers when needed, and the management ensures that losses are not incurred.

**Informant 6** shared that their company has experienced critical losses due to the truck driver shortage during Covid-19. When the industry shut down, many drivers left to work for Grab, but the company still need to bear the operating costs, as the trucks is

*still the company assets. They noted that logistics companies and B2B businesses are the most affected by the driver shortage. Additionally, the informant highlighted that operating costs have risen because minimum wages are high, and since these costs cannot be passed on to customers, the company must compensate for them on its own.*

**Informant 7** *noted that their company has experienced critical losses due to the truck driver shortage, especially during peak seasons when delivery failures occur frequently. These failures often result in losing customers, as in this industry, clients can easily switch to competitors offering lower costs or faster response times. The informant also highlighted that all industries are interrelated and affected by the shortage. They further explained that the shortage mostly affects customer satisfaction because deliveries are often not on time. Additionally, having too many trucks but not enough drivers creates high operating costs. The company still need to keep the costs low to retain customers, as exceeding costs could lead to further customer loss.*

**Informant 8** *stated that their company has experienced critical losses due to the truck driver shortage. Even if the trucks are not being used, the company still need to bear the monthly maintenance costs, which cannot be covered by revenue alone. They highlighted that the oil and gas industry is most affected by the shortage, as upstream processes require a lot of orders while downstream processes, like manufacturing, has fewer demands. The informant also noted that customer satisfaction will be affected because the company cannot fully support deliveries of raw materials and finished goods. This limitation provides opportunities for competitors to attract their customers. When facing a shortage, the company subcontracts to other transporters, which makes customers aware of alternative providers.*

**Informant 9** stated that their company has not experienced any critical losses due to the truck driver shortage. They noted that all industries are affected by the shortage. While their company is not currently facing a shortage, the informant explained that, in general, a shortage could lead to delivery delays, increased workload for existing drivers, and potential dissatisfaction from customers due to inconsistent delivery timelines.

**Informant 10** stated that their company has not experienced any critical losses due to the truck driver shortage. They noted that the food and pharmaceutical industries are particularly affected by the shortage. While their company is not currently facing a shortage, the informant explained that, in general, a shortage could risk losing customer confidence, increase operating costs, and make scheduling difficult, as deliveries can no longer be planned effectively.

**Informant 11** mentioned that their company had not experienced any direct critical financial losses due to the truck driver shortage, since they managed to cope by engaging subcontractors and vendors to support their orders. Nevertheless, the informant stated that the logistics company and food and beverage (F&B) sectors are most heavily affected in Malaysia, as the truck driver shortage will have direct disruptions on daily routines. Moreover, the informant also mentioned that the reliance on subcontractors has also created challenges in their supply chain operations, since the company cannot closely monitor and manage subcontractor trucks and must depend on external updates. This has led to delays in collections and deliveries, higher overtime costs, and reduced control over service reliability.

**Informant 12** emphasised that their company does not experienced losses due to lack of truck drivers. However, there was a situation where a significant order was received,

*but the number of available drivers was insufficient for order fulfilment. In order to resolve this situation, the company will force to collaborate with other transport firms to fulfil the order. Besides, since the informant's company does not experienced driver shortage at the moment, the only significant effect on their company was the increased cost in training new drivers. Moreover, the informant also stated that in comparison to other industries, container transport companies are more likely to face truck driver shortage issue.*

***Informant 13** stated that their company has experienced critical losses due to the truck driver shortage, particularly during periods of high volume, when outsourcing is required to meet customer demand. They noted that the warehousing industry is especially affected by the shortage. During peak volume periods, there are not enough trucks to meet demand, which can disrupt operations and affect service levels.*

#### **4.3.3 Objective 3: To suggest effective mitigation strategies for truck driver shortage in Malaysia.**

***Informant 1** stated that they were not aware of any government initiatives addressing the truck driver shortage. To attract and retain drivers, the company offers a high basic salary, reasonable working hours, and ensures fair distribution of work among drivers. The informant suggested that the government should enforce the installation of AI monitoring cameras in trucks to detect driver fatigue and reduce accidents, which could help make the profession more attractive. On technological advancements, they believe automation is a key solution. If referring to automatic transmission, it helps new drivers adapt faster compared to manual trucks. If referring to AVs, the informant noted that while such technology could reduce shortages, especially for long-haul routes, it*

*requires significant infrastructure and IT development and remains more of a future direction for the logistics industry.*

**Informant 2** *stated that the truck driver shortage issue has not gained significant attention from the government, particularly from the Ministry of Human Resources (HR) or the Ministry of Transport (MoT). They observed that there are currently no initiatives in place, as the government's focus is primarily on safety measures following recent incidents where lorries collided with buses, resulting in fatalities. To attract and retain drivers, the informant emphasised the importance of providing a very good working environment. This includes offering competitive packages, stable salaries, consistent trip schedules, and well-maintained lorries, along with safety-related incentives. The company places strong emphasis on safety as part of its strategy. The informant noted that attracting new drivers is challenging in Malaysia compared to countries like Japan, where drivers are more educated and better paid. Regarding technological advancements, the informant stated that automated vehicles would not be considered unless the technology becomes mature enough. They added that the current confidence level in such technology is still low.*

**Informant 3** *stated that they were not aware of any government initiatives aimed at addressing the truck driver shortage but expressed the desire for the government to allow immigrants from other lower income countries to work as truck drivers. To attract and retain drivers, the company offers a high basic salary, provides training such as safety handling for dangerous goods, and ensures the use of safe trucks equipped with cameras to prevent fatalities. The informant suggested that offering higher salaries would be an effective strategy to encourage more individuals to pursue a career in truck driving. Regarding technological advancements, such as automated vehicles, the*

*informant felt there was currently no potential in Malaysia due to the lack of supporting infrastructure.*

***Informant 4*** suggested that the government could subsidise driving licence programs by lowering course and training fees, as this would make it more affordable for individuals to apply for a truck driving licence. To attract and retain truck drivers, the company conducts continuous interviews to recruit qualified candidates and offers a “spare driver” option with a guaranteed minimum wage to ensure income stability and maintain available manpower. The informant believed that attracting more individuals to the profession requires both improving working conditions, such as increasing pay and benefits, as well as modernising the image of trucking. On the topic of technological advancements, the informant stated that automated vehicles could significantly help address the shortage, particularly in long-haul freight and logistics, by extending driving hours, allowing human drivers to focus on short-haul or complex tasks, and enhancing safety while reducing turnover.

***Informant 5*** mentioned that the government has reduced licensing fees, such as for the GDL licence, from around RM500 to RM200, making it more affordable to obtain compared to before. To attract and retain drivers, the company runs a “Smart Trucker” program in collaboration with polytechnics and other educational institutes, targeting fresh graduates. Under this program, the company covers the cost of the GDL licence, which is normally over RM1,000, making it easier to bring in young drivers. The company also complies strictly with minimum wage policies, provides job rotation opportunities for drivers to try different types of trucks, and maintains competitive benefits compared to other firms. The informant added that new strategies are not urgently needed, as drivers tend to have their own networks, making recruitment

relatively easy when needed. On technological advancements, they stated that automated vehicles are unlikely to be adopted in Malaysia in the near future. Although cars already have autopilot functions, such systems are not permitted locally, and the informant felt it would take at least another decade before this technology becomes feasible due to safety concerns.

**Informant 6** stated that they were not aware of any government initiatives aimed at addressing the truck driver shortage but noted that the current minimum wage makes it difficult for companies to maintain operational costs. To attract and retain drivers, the company ensures drivers earn a good income, provides insurance, and supplies fellowship uniforms. The informant suggested that offering training and financial assistance for obtaining a truck driving licence would help attract more individuals to the profession. Regarding technological advancements, the informant felt that the lack of infrastructure for automated vehicles limits their potential in Malaysia. However, they suggested that the government could implement a GPS system and mandate the installation of CCTV in trucks to improve road safety across all companies.

**Informant 7** stated that Human Resource Development Corporation is working with Port Klang Authority to upgrade individuals from a D licence to an E licence, as many individuals wish to change careers are concerned about not having the necessary qualification. This initiative fully covers the cost of training, which lasts two to three months until participants obtain the E licence. To attract and retain truck drivers, the company recruits candidates from different states by providing extra allowances and relocation benefits such as accommodation and meals. The informant observed that those from remote areas tend to stay longer in the company and show a stronger willingness to work. They also highlighted the use of attractive allowances as an

*incentive can help to retain truck drivers. For attracting more individuals to the profession, the informant suggested introducing a dress code to give drivers a professional image, addressing them with better titles to change the perception of driving as a blue-collar job, assigning skilled drivers to mentor new recruits, and improving compensation through KPIs and motivational programs. Regarding technological advancements, the informant noted that automated vehicles remain a long way from implementation in Malaysia due to immature infrastructure, government unpreparedness, and high investment costs.*

**Informant 8** *stated that they were not aware of any specific government initiatives aimed at addressing the truck driver shortage but stressed that the government should provide more support to the industry. They highlighted that the company's main challenge is high maintenance costs, which are further impacted when the government raises diesel prices. Increases in fuel prices drive up loading costs and indirectly affect drivers' salaries, as the company does not pass the additional costs on to customers but is instead forced to reduce drivers' pay. This, in turn, causes drivers to conserve diesel during transportation. The informant suggested that the government should control diesel prices to help ease the burden on companies and drivers. To attract and retain truck drivers, the company provides additional allowances such as meal allowances, overnight allowances for outstation trips from Singapore to Kuala Lumpur, and extra pay for carrying overweight cargo. Regarding technological advancements, they expressed the view that automated vehicles are not a viable solution in Malaysia due to road infrastructure limitations and frequent traffic congestion. They compared Malaysia to countries such as the US and Canada, where larger highways with three to four lanes make such technology more practical. In Malaysia, with most roads having*

only two lanes, they felt it would be unsafe to control automated trucks remotely, as this could increase the risk of road accidents.

**Informant 9** stated that they were aware of certain government proposals involving training and licensing programs aimed at encouraging more individuals to join the truck driving industry. However, they felt that greater awareness and stronger incentives are necessary for these initiatives to be effective. To attract and retain truck drivers, the company prioritises employee welfare by offering annual salary increases, festive bonuses, birthday allowances, and cell phone allowances for every employee. The informant suggested that increasing entry-level wages, providing clear career progression opportunities, offering better work-life balance through flexible schedules, and implementing training programs with incentives—particularly for younger drivers—would help attract more individuals to the profession. Regarding technological advancements, they noted that automated vehicles could, in the long term, reduce reliance on manual driving for long-haul routes, improve efficiency, and lower fatigue-related risks. Nonetheless, they emphasized that the technology is still in development and is not yet capable of replacing skilled drivers, especially for complex or urban deliveries.

**Informant 10** stated that they were not aware of any government initiatives aimed at addressing the truck driver shortage. To attract and retain drivers, the company focuses on driver welfare and competitive salaries. The informant suggested that introducing trip-based salaries would be an effective strategy to attract new drivers. Regarding technological advancements, they believed that automated trucks could make driving easier, particularly for new drivers, and could serve as an incentive for more people to join the profession.

**Informant 11** stated that they were not sure about any government initiatives aimed at addressing the truck driver shortage. To attract and retain drivers, the company plans to offer a basic salary with full EPF contributions each month, a minimum salary of RM4,000 for qualified drivers, and bonuses for those with no disciplinary issues. Additionally, to encourage recruitment, existing drivers are offered an extra RM500 for each new driver they successfully refer, provided the recruit works with the company for at least three months. The informant highlighted that a career in truck driving is not easy and should not be taken lightly, as reckless driving can endanger lives and cause losses to the company. They suggested that the company could assist newly licenced drivers by providing training, and if these drivers show willingness to learn, obey all rules, and successfully pass training, they could continue working with the company. Regarding technological advancements, the informant felt that while automated vehicles could help address the shortage, the cost is currently too high, making it unsuitable for the present market.

**Informant 12** stated that they were not aware of any government initiatives aimed at addressing the truck driver shortage. To retain drivers, the company avoids accepting low-freight-rate orders during off-peak seasons unless necessary to maintain customer relationships, guarantees that higher freight rates will directly translate into higher driver pay, and provides full sets of professional PPE to enhance the company's image while promoting safety compliance and reducing accident risks. The informant was unsure what new strategies could attract more people to the profession but believed it ultimately comes down to improving driver benefits and salaries. Regarding technological advancements, they stated that automated vehicles could only partially address shortages for fixed-route and specific cargo types. While their application is limited, such technology could help resolve wage-related issues and improve efficiency,

*enabling human drivers to focus on transport tasks that cannot be replaced by automation.*

***Informant 13** stated that they were not aware of any government initiatives aimed at addressing the truck driver shortage. To attract and retain drivers, the company creates a welcoming environment by celebrating drivers' birthdays monthly and offering a large bonus pool for those who meet customer satisfaction targets and keep accident numbers below six per year. The informant agreed with another logistics company's approach of encouraging young people to join the industry through career advancement programs, believing this could help attract more individuals to the profession. Regarding technological advancements, they noted that automated vehicles are not currently under consideration due to the lack of infrastructure and the continued need for skilled drivers.*

#### **4.4 Summary of Findings**

This study has successfully collected primary data that is in line with the research objectives. First, it identified the key factors contributing to the truck driver shortage in Malaysia, as highlighted by the informants. Secondly, it assesses the overall impact of the truck driver shortage on Malaysia's supply chain, by drawing on informants' experiences and insights. Thirdly, the study explored effective mitigation strategies for truck driver shortage in Malaysia, with informants sharing solutions they believed to be effective. To sum up, the thoughts of different informants are summarised in Table 3 and will be covered in more detail in Chapter 5.

**Table 3:** Summary of Informants' Opinions Based on the Three Research Objectives

<b>Research Objective 1</b>	<b>Research Objective 2</b>	<b>Research Objective 3</b>
<ul style="list-style-type: none"> <li>- Aging workforce</li> <li>- Low interest from younger generations</li> <li>- Demanding work environment with irregular hours</li> <li>- Preference for alternative jobs</li> <li>- Limited R&amp;R facilities for women</li> <li>- Negative perceptions of female drivers</li> <li>- Lack of driving skills and experience</li> <li>- Family matters</li> <li>- Unattractive salary</li> <li>- Inconsistent, trip-based workloads</li> <li>- Unhealthy industry practices</li> <li>- Fear of injuries</li> <li>- Strict regulations and requirements</li> </ul>	<ul style="list-style-type: none"> <li>- Forced to raise salary</li> <li>- Increase operating costs</li> <li>- Delays in pickups and deliveries</li> <li>- Delivery failures occur frequently</li> <li>- Deliveries are often not on time</li> <li>- Forced to rely on subcontractors</li> <li>- Decline in service reliability and efficiency</li> <li>- Loss of revenue</li> <li>- Add further strain to financial management</li> <li>- Risk of losing customers</li> <li>- Clients can easily switch to competitors</li> <li>- Drop in customer satisfaction</li> <li>- Increase workload for existing drivers</li> <li>- Disruptions on daily routines</li> <li>- Tighter schedules</li> <li>- Make scheduling difficult</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce barriers of entry</li> <li>- Implement career advancement programs and continuous training</li> <li>- Allow immigrants to work as truck drivers</li> <li>- Cover licence fees and training costs</li> <li>- Control of diesel prices to reduce burdens on companies and drivers</li> <li>- Collaborate with polytechnics or educational institutes to recruit fresh graduates</li> <li>- Improve driver welfare</li> <li>- Create professional image</li> <li>- Equip trucks with GPS, CCTV, and AI monitoring cameras</li> </ul>

## **4.5 Conclusion**

This chapter presented the key data collected from thirteen informants through interviews. Section 4.3, Data Analysis, provides a brief description of the informants' narratives in relation to the three research objectives. The complete interview transcripts are included in Appendix C. The following chapter will further analyse the data obtained from informants and compare the findings with insights from the literature review.

## CHAPTER 5

### 5.0 DISCUSSION AND CONCLUSION

#### 5.0 Introduction

In order to provide an overview of the research, this chapter analyses the information obtained from informants and presents the results from Chapter 4. The information gathered from literature reviews and interviews are used to look for similarities or differences and is then intuitively interpreted. By going over the implications of study, scope of study, limitation of study, future research, and conclusion, this chapter will further strengthen the findings' comprehensiveness.

#### 5.1 Discussion

##### 5.1.1 Research Question 1

Research Question 1: What are the key factors contributing to the truck driver shortage in Malaysia?

**Table 4:** Information Obtained from Interview Results and Literature Review for Research Question 1

<b>Theme</b>	<b>Explanation (Literature Review)</b>	<b>Explanation (Interview)</b>
Shifting Workforce Demographic	<ul style="list-style-type: none"><li>• Imbalance between the aging workforce and the young workforce entering the trucking industry.</li><li>• Challenges in attracting young talent to the trucking sector.</li><li>• Negative stereotypes on the trucking industry.</li></ul>	<ul style="list-style-type: none"><li>• Aging workforce, many drivers now in 45 to 55 age group.</li><li>• Younger generation prefer flexible jobs like Grab, Lalamove, courier or entrepreneurial driving.</li><li>• Negative perceptions of trucking such as</li></ul>

	<ul style="list-style-type: none"> <li>• Underrepresentation of women in the trucking industry.</li> </ul>	<p>demanding hours, unattractive work-life balance.</p> <ul style="list-style-type: none"> <li>• Low number of female drivers due to stereotypes, family priorities, physical limitations, and lack of facilities.</li> </ul>
Poor Workforce Condition	<ul style="list-style-type: none"> <li>• Low wages.</li> <li>• Frustrating work environment and condition.</li> <li>• Low job satisfaction level.</li> <li>• Risk of injury or death.</li> </ul>	<ul style="list-style-type: none"> <li>• Low wages and unattractive salary packages, often commission and trip-based only.</li> <li>• Irregular hours, long-haul trips, fatigue, stress, poor rest time management.</li> <li>• Risk of accidents and injuries, especially with heavy loads and lashing.</li> <li>• Dissatisfaction when workloads are unstable.</li> <li>• No female applicants or unwillingness to join due to outstation trips, lack of R&amp;R facilities, and heavy work.</li> </ul>
Challenges in Entry and Recruitment	<ul style="list-style-type: none"> <li>• High barriers of entry.</li> <li>• Age restriction.</li> </ul>	<ul style="list-style-type: none"> <li>• High cost of E licence discourages newcomers.</li> <li>• Strict company requirements which required age above 30, 3 years' experience, and medical check-up.</li> <li>• Lack of young drivers due to skill gap.</li> </ul>

Firstly, the literature highlights that one of the factors that contribute to the truck driver shortage in Malaysia is the aging workforce under the theme of shifting workforce demographic. The trucking industry faces workforce gaps because of the growing of average age among the drivers but a lower rate of younger enter the industry (Chapter

2.2.1.2). The growing age of the drivers will lead to health issues and fatigue and directly affect the productivity and arouse safety concern. The interview findings support this concern. **Informant 7** emphasised that a significant portion of truck drivers in Malaysia enter the trucking industry in the 1970s are still active. However, the particular group now fall within 45 to 55 age group. This will become a challenge for companies to maintain the operational capacity when the aging drivers is approaching retirement. **Informant 7** further elaborated that nowadays younger workers are generally reluctant to enter the industry because of the demanding work conditions. Hence, this situation made the industry heavily reliant on the aging workforce. This aligns with literature that stresses the importance of balancing workforce demographics to ensure sustainability in the industry.

Previous studies indicate that youth participation in trucking is limited due to unattractive work conditions, lack of career development opportunities, and insufficient awareness about the profession (Chapter 2.2.1.2 & Chapter 2.2.1.3). Interview insights expand on this aspect as many informants highlights that younger drivers are increasingly attracted to more flexible jobs compared to become a truck driver which is mostly trip-based. **Informant 3** mentioned that there is a trend that many people including youngers or exiting truck driver prefer to work as entrepreneurial drivers due to flexible characteristics of the job. The opinion of **Informant 3** is aligned with **Informant 1, Informant 2 and Informant 7** who also emphasised that many young people prefer joining e-hailing services such as Grab and Lalamove instead of the trucking industry. **Informant 2** highlighted that during the COVID-19 MCO, many young drivers transitioned to delivery services for higher income, reflecting a shift in workforce preferences. The shifting from trucking industry to e-hailing service is because young people prefer flexible working schedule and environment. Furthermore,

it will provide more stable and consistent income compared to becoming a truck driver which based on the trip-based that forced to deal with the fluctuation order.

The literature highlights that trucking always perceived as a “male-dominated” profession, where the social stereotypes and cultural norms discourage female participate in the trucking industry (Chapter 2.2.1.4). Driving heavy vehicles is often associated with masculinity, toughness, and long hours away from home. These reinforcing the idea that women are unsuitable to join the career as a truck driver. These perceptions are deeply ingrained and contribute to the underrepresentation of women in the industry. The interviews confirmed these findings. **Informants 1, 3 and 5** explained that the trucking profession is widely seen as “unsuitable” for women, due to safety concerns, lack of proper facilities such as R&R facilities, and the physical demands of the job. **Informant 7** noted that expectations in Malaysia often discourage women from pursuing careers that involve long-distance travel and irregular working hours, and the informant proposed that female driver is not preferred as the thought that female is less perform as compared to male. These perception makes female drivers even rarer. Moreover, **informant 1** pointed out that women more prioritise family responsibilities. Meanwhile, **informant 8** highlighted that negative stereotypes are not just external but also internal within the industry, as some companies also doubt women’s ability to perform in this role and tasks. Meanwhile, stereotypes affect not only women but also young entrants. **Informant 1 and informant 12** mentioned that younger drivers are often perceived as inexperienced, irresponsible, or lacking the maturity required for handling high-value cargo especially shifting from manual to automatic transmission systems. Such perceptions further exclude both women and younger candidates and create a double barrier that limits diversity and renewal of the workforce. In addition, **informant 5** also highlighted that family-related commitments

significantly affect truck drivers' willingness to stay in the profession. In particular, long-haul trips and irregular schedules often keep married drivers away from home, creating difficulties in balancing work and family responsibilities. Besides, **informant 5** also mentioned that some of the driver may opt to follow the spouse's and relocate, these makes them decide to leave the career. This shows that marriage and family obligations, alongside demographic and economic challenges, play an important role in influencing driver turnover and discouraging some individuals from either joining or remaining in the trucking industry.

Moving to the second theme which is poor workforce condition, literature consistently highlights that low wages, unstable income, and lack of incentives discourage recruitment and retention in the trucking sector (Chapter 2.2.2.1). Interview data corroborate this trend. **Informants 1, 2, 6, 9, 10, 12, and 13** agree that low wages will contribute to truck driver shortage. On the other hand, **informant 7** also mentioned that the turnover rate will decrease as long as the income is satisfactory. While **informant 1, 2, and 8** mentioned that some companies are trip-based system without basic salary. Hence, during months with fewer trips, drivers' earnings drop significantly, prompting them to leave for better-paying opportunities. **Informant 12** highlighted that low freight rates set by manufacturers led to the lower earning to the driver and force drivers to switch companies to maintain a sustainable income and support their living. Furthermore, **informant 4 and informant 8** highlighted that the income is mainly associated with the order volume hence the unstable income happened because of the fluctuating delivery volumes, creates financial uncertainty for drivers. Periods with fewer orders reduce their earnings and hinder them from achieving their expected salary targets, a finding consistent with literature that emphasizes the impact of irregular workload patterns on income stability in the trucking industry. **Informant 13** reinforced

that wages often do not meet the needs of drivers supporting families, making the profession unsustainable. These findings suggest that the salary structure directly influences job satisfaction and workforce stability, which aligns with literature stressing fair compensation as critical for retention (Chapter 2.2.2.1).

Additionally, the frustrating working environment also contributed to truck driver shortage in Malaysia. Studies indicate that long hours, irregular shifts, and unsafe work conditions reduce job satisfaction among truck drivers (Chapter 2.2.2.2). Interviews reveal similar challenges. **Informants 4 and 6** reported fatigue, stress, and limited rest facilities which is the harsh working environment are key deterrents. **Informant 4 and informant 12** noted that poor management of working, and rest hours results in exhaustion and health problems, discouraging younger drivers from staying in the profession. **Informant 12** also further explained that irregular trip schedules, particularly in trip-based systems, make work-life balance difficult, further reducing job appeal. **Informant 3** added that insufficient R&R facilities, particularly for female drivers, exacerbate discomfort and safety risks. Furthermore, **informant 12** indicated that unhealthy industry practices in Malaysia also contribute to the driver shortage, such as manufacturers will driving down freight rates by pressuring transport companies against one another and some companies undercutting prices to secure more orders. **Informant 5** further emphasized that beyond stress and fatigue, some drivers perceive trucking as monotonous and boring, especially during long trips. This sense of repetitiveness lowers motivation and makes the job less appealing compared to alternative employment such as becoming bus driver that offers greater variety or stimulation. These findings indicate that poor working conditions, combined with exploitative industry practices and low pay, significantly reduce the attractiveness of

trucking jobs, confirming literature that links environmental factors with driver retention.

The trucking profession is inherently associated with risks, including road accidents, musculoskeletal injuries, exposure to hazardous materials, and psychological stress, which have been consistently highlighted in the literature (Chapter 2.2.2.4). These risks not only make the job physically demanding but also discourage new entrants, particularly younger drivers and women, from pursuing long-term careers in trucking. Findings from the interviews strongly reinforced these concerns. **Informant 1** emphasized fears of accidents, heavy cargo handling, and long working hours as key deterrents for potential drivers. In addition, **informant 4** highlighted that fatigue, stress, and irregular schedules increase the risk of accidents and reduce overall job safety. On the other hand, **informant 11** also pointed out that truck driver sometimes is required to handle heavy load shipments, such as covering cargo with canvas and doing lashing which may cause the risk of injury further discourage female and younger to become drivers. **Informant 1** also raised concerns about the lack of sufficient R&R facilities, particularly for female drivers, linking this issue to broader personal safety challenges on the road. Moreover, **informants 4 and 12** pointed out poor management of working and rest hours by employers happened in the trucking industry. This also can lead to health problems such as chronic fatigue and elevate the likelihood of accidents. These insights show that the risk of injury or death is not only a structural problem within the industry but also an operational and managerial issue.

Next, the literature identifies challenges in entry and recruitment licensing, certifications, training costs, and legal requirements as significant barriers that delay entry for new drivers (Chapter 2.2.3.1). Interviews confirmed these findings, with

**informant 7** emphasising that obtaining an E licence or GDL is expensive, which discourages young candidate or fresh graduate that just starting their career life. **Informant 1** highlighted that many young drivers lack sufficient driving skills and practical experience, particularly as the industry transitions from manual to automatic trucks. This raises concerns about safety and competency when younger, inexperienced drivers attempt to handle heavy vehicles. In addition, **informant 12** further explained that the requirement for manual transmission training extends preparation periods, making recruitment unattractive and resulting in companies avoiding younger drivers who may lack such skills. beyond financial and skill-based barriers, company of **informant 4** and **9** have established some restriction. **Informant 9** mentioned that some company only open truck driver vacancy to male. **Informant 4** added that some companies impose strict internal requirements such as drivers needing to be above 30 years old, having at least three years of driving experience, and passing a medical check-up before being considered for employment. While these policies aim to ensure reliability and safety, they simultaneously exclude younger applicants and female candidates, who are already underrepresented in the industry. These align the studies mentioned in the literature review that stated licensing fees, training cost and price of medical check-up are the factors that discourage people to become truck drivers (Chapter 2.2.3.1).

Lastly, studies indicate that minimum driving ages and required years of experience delay workforce replenishment (Chapter 2.2.3.2). Interview responses align with this. **Informant 4** noted that many companies have their own barrier such as require drivers to be over 30 years old with at least three years of experience and followed by medical check-up. **Informant 4** explained that these requirements reduce the safety concern, but it reduces opportunities for younger applicants and limit the already small number

of female candidates. **Informant 7** added that this restriction contributes to a generational gap in the workforce, forcing companies to rely on older drivers. The findings confirm that strict age and experience requirements exacerbate the shortage by limiting new entrants into the trucking sector (Chapter 2.2.3.2).

### 5.1.2 Research Question 2

Research Question 2: What is the overall impact of the truck driver shortage on Malaysia’s supply chain?

**Table 5:** Information Obtained from Interview Results and Literature Review for Research Question 2

Theme	Explanation (Literature Review)	Explanation (Interview)
Operational Disruptions and Supply Chain Delays	<ul style="list-style-type: none"> <li>• Delays in pickups and deliveries.</li> <li>• May not be able to fulfil orders on time or at all.</li> <li>• Lower operational efficiency.</li> <li>• Poor performance.</li> <li>• Hinder delivery.</li> <li>• Reduce inventory turnover.</li> <li>• Stop production.</li> </ul>	<ul style="list-style-type: none"> <li>• Disruptions on daily routines.</li> <li>• Tighter schedules.</li> <li>• Delays in pickups and deliveries.</li> <li>• Delivery failures occur frequently.</li> <li>• Deliveries are often not on time.</li> <li>• Make scheduling difficult.</li> </ul>
Cost Pressures and Financial Consequences	<ul style="list-style-type: none"> <li>• Forced to raise salary and perks.</li> <li>• Further add to the financial strain on transportation companies.</li> <li>• Increase operating expenses.</li> <li>• Financial losses.</li> <li>• Decreased sales.</li> </ul>	<ul style="list-style-type: none"> <li>• Forced to raise salary.</li> <li>• Increase operating costs.</li> <li>• Loss of revenue.</li> <li>• Add further strain to financial management.</li> <li>• Forced to rely on subcontractors.</li> </ul>

Decline in Service Quality and Customer Satisfaction	<ul style="list-style-type: none"> <li>• Affect the quality of services and customer satisfaction.</li> <li>• Unhappy customers.</li> <li>• Clients may become frustrated and lose faith in a business.</li> <li>• Service quality deteriorates.</li> <li>• Seriously impede customer retention.</li> </ul>	<ul style="list-style-type: none"> <li>• Decline in service reliability and efficiency.</li> <li>• Drop in customer satisfaction.</li> </ul>
Damage to Company Reputation and Market Position	<ul style="list-style-type: none"> <li>• Damage a company's reputation and undermine shareholder trust.</li> <li>• Harm a business's reputation with customers, partners, and even investors.</li> <li>• Deteriorating brand loyalty, unfavourable WOM, and public criticism.</li> <li>• Difficult to get new business or keep hold of current clients.</li> <li>• Reduce market share and long-term competitiveness.</li> <li>• Affect a company's standing in the logistics and transportation sector.</li> <li>• Diminish crucial competitive advantage in the marketplace.</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of losing customers.</li> <li>• Clients can easily switch to competitors.</li> </ul>
Increased Risks to Road Safety	<ul style="list-style-type: none"> <li>• Increase fatigue.</li> <li>• Employed will have increased workloads and longer working hours.</li> <li>• Recruiting drivers with less experience or training.</li> <li>• Due to their inexperience, younger drivers, especially are statistically more likely to be fatigued and involved in accidents.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase workload for existing drivers.</li> </ul>

**Informants 4 and 11** highlighted that the truck driver shortage has resulted in delays in pickups and deliveries. Similarly, **informant 9** also emphasised that truck driver shortage can lead to delays in deliveries. Their observations are consistent with existing literature, which indicates that delay in pickups and deliveries are impacts of truck driver shortage (Chapter 2.3.1). The literature suggests that the shortage of truck drivers may result in carriers being unable to fulfil orders on time or, in some cases, unable to fulfil orders at all (Chapter 2.3.1). This is strongly supported by **informant 7**, who pointed out that delivery failures are particularly common during peak seasons, when demand is high and available driver capacity is insufficient. The informant further highlighted that due to the shortage of truck drivers, deliveries are often not completed on time. The literature highlights that truck driver shortages can result in lower operational efficiency, poor performance, and hindered deliveries (Chapter 2.3.1). These concerns were echoed by several informants. **Informant 4** explained that the shortage has led to tighter schedules. Similarly, **informant 10** noted that the shortage makes scheduling difficult, as deliveries can no longer be effectively planned in advance. **Informant 11** further reinforced this by stating that the shortage directly disrupts daily routines.

Although in the literature review, it is also mentioned that truck driver shortage can reduce inventory turnover and stop production (Chapter 2.3.1), no informants has mentioned on these impacts.

The literature review highlights that truck driver shortages inevitably lead to increasing operating costs for logistics companies, as firms are forced to raise salaries and perks to attract and retain skilled drivers, while also bearing additional expenses from inefficiencies and disruptions (Chapter 2.3.2). This was strongly reflected in the

informants' views. **Informant 1** noted that when demand exceeds supply, companies are compelled to increase salaries to draw drivers into the sector, while **informant 2** explained that salaries had to be adjusted beyond the government-mandated minimum wage of RM1,700. These adjustments not only raised pay for those earning below the threshold but also triggered a ripple effect, increasing the wages of drivers already above it, thereby putting further strain on financial management.

At the same time, informants highlighted other areas where the shortage inflated costs. **Informants 3 and 11** pointed out that higher overtime pay became unavoidable, with **Informant 4** further linking these costs to penalties for late deliveries. **Informants 5 and 11** explained that during peak seasons companies sometimes relied on outsourced drivers, which added expenses but reduced operational control. **Informant 6** described how companies still had to bear asset-related costs such as truck ownership and maintenance even when drivers left, while **Informant 8** stressed that underutilised trucks led to high fixed costs, including unavoidable monthly servicing. **Informant 12** further added that training new drivers imposed another layer of financial burden.

The literature also highlights that these rising expenses translate into broader financial losses through missed deliveries, reduced capacity, and inefficiencies that cut into sales (Chapter 2.3.2). **Informant 4** reinforced this with a concrete example, noting that the loss of even a single truck and driver could result in monthly revenue losses of RM25,000 to RM35,000. This shows that the shortage does not merely raise costs at an operational level but can also erode overall profitability and weaken service commitments.

The literature review emphasised that truck driver shortages can negatively impact service quality and customer satisfaction, leading to unhappy customers, frustration,

and a decline in client trust, ultimately hindering customer retention (Chapter 2.3.3). The informants' insights strongly align with these findings. **Informant 3** highlighted that customer satisfaction has noticeably decreased, while **informant 4** pointed out that overall service reliability has been disrupted. **Informant 7** further explained that late deliveries are the main reason that affects customer satisfaction, and **informant 8** noted that the inability to fully support deliveries of raw materials and finished goods also affects customer satisfaction. Similarly, **informant 9** described how inconsistent delivery timelines create customer dissatisfaction. Adding to this, **informant 11** explained that reliance on subcontractors have reduced control over service quality. Finally, **informant 13** stressed that during peak seasons, the shortage of trucks prevents demand from being met, disrupting operations and further undermining service levels.

The literature review highlights that truck driver shortages can make it difficult for companies to secure new business or retain existing clients, ultimately reducing long-term competitiveness and diminishing crucial competitive advantage in the marketplace (Chapter 2.3.4). This aligns with the views of **informant 7**, who explained that during peak seasons, frequent delivery failures often result in customer loss. The informant further noted that companies are pressured to keep costs low in order to retain customers, as rising costs could accelerate further customer attrition. Similarly, **informant 8** added that these limitations create opportunities for competitors to attract dissatisfied customers. In particular, when shortages force companies to subcontract to other transporters, customers become exposed to alternative providers, which can weaken loyalty and erode the company's market position.

The literature review emphasises that truck driver shortages can damage a company's reputation and undermine shareholder trust. Such shortages harm a business's standing

not only with customers but also with partners and investors, while deteriorating brand loyalty and generating unfavourable word-of-mouth and public criticism (Chapter 2.3.4). However, none of the informants in this study mentioned anything related to the aforementioned.

The literature review highlights that a shortage of truck drivers often results in employed drivers facing increased workloads and longer working hours (Chapter 2.3.5). This point was also echoed by **informant 9**, who explained that the shortage generally leads to heavier workloads for the existing drivers.

The literature review also highlights that the truck driver shortage can increase fatigue among drivers and force companies to recruit less experienced or inadequately trained drivers. Due to their inexperience, younger drivers in particular are statistically more prone to fatigue and accidents, thereby heightening safety risks (Chapter 2.3.5). However, none of the informants in this study mentioned these impacts.

### 5.1.3 Research Question 3

Research Question 3: What are the effective mitigation strategies for truck driver shortage in Malaysia?

**Table 6:** Information Obtained from Interview Results and Literature Review for Research Question 3

Theme	Explanation (Literature Review)	Explanation (Interview)
Government Initiatives	<ul style="list-style-type: none"> <li>ATA proposed lower age limits for licensing.</li> <li>Immigration policies to attract foreign drivers.</li> </ul>	<ul style="list-style-type: none"> <li>Reduced GDL licence fees from RM500 to RM200.</li> <li>Government launched a program called Professional advancement in Trucking and Haulage</li> </ul>

	<ul style="list-style-type: none"> <li>• Public campaigns to improve a profession's image.</li> </ul>	<p>(PATH) to offers training course.</p> <ul style="list-style-type: none"> <li>• Suggested subsidised training, immigrant driver recruitment, and diesel price control.</li> </ul>
Technological Advancements	<ul style="list-style-type: none"> <li>• AVs reduce fatigue, improve efficiency.</li> <li>• ITS improves route optimisation and safety.</li> <li>• IoT enhances fleet management and compliance.</li> </ul>	<ul style="list-style-type: none"> <li>• AVs seen as long-term, not feasible currently.</li> <li>• Concerns over poor infrastructure, high cost, and safety issues.</li> <li>• Preferred immediate technology such as AI fatigue cameras, automatic transmission, GPS, CCTV.</li> </ul>
Company Practices	<ul style="list-style-type: none"> <li>• Multi-channel recruitment via schools, military, and welfare offices.</li> <li>• Improving driver retention (salary, benefits, work-life balance).</li> <li>• Attracting female drivers</li> <li>• Adopt seasonal hiring and flexible work schedule.</li> </ul>	<ul style="list-style-type: none"> <li>• Recruitment via education partnerships and training.</li> <li>• Competitive salaries, allowances, and stable income.</li> <li>• Retention efforts include social activities (e.g., birthday celebrations).</li> <li>• Include welfare support such as insurance, EPF, PPE, accommodation.</li> <li>• Professional image-building: uniforms, job titles, recognition.</li> </ul>

In terms of government initiatives, some informants acknowledged that certain measures have already been implemented. **Informant 5** highlighted that the government reduced the cost of GDL from about RM500 to RM200, making it more affordable for individuals to enter the trucking profession. This initiative directly addresses the cost barrier, which often discourages potential drivers from pursuing the licence. Similarly, **informant 7** referred to the Professional Advancement in Trucking and Haulage (PATH) program, which offers training courses and helps D licence holders upgrade to E licence, thereby expanding the pool of qualified drivers.

**Informant 9** also mentioned government proposals to introduce more training and licensing programs, although they stressed that these require stronger incentives and greater awareness to be effective. These findings suggest that while some government efforts exist, however their reach and visibility are limited, which leads to many in the industry to remain unaware of such measures.

At the same time, most informants believed that the government has done very little to directly address the shortage issue. For instance, **informant 3** emphasised the need for Malaysia authorities to change regulations by allowing immigrants from lower-income countries to work as truck drivers, thereby filling gaps in the local workforce. This recommendation reflects a strategy already adopted by Canada, which has included truck drivers in its Express Entry immigration program to fast-track skilled workers into the labour market (Chapter 2.4.1.2). By creating immigration pathways, Canada has been able to attract foreign drivers and strengthen its logistics workforce. In this case, **informant 3's** perspective highlights that Malaysia could similarly benefit from utilising its regional position, especially given the availability of neighbouring labour markets such as Indonesia, Bangladesh, and Nepal.

Other suggestions raised by **informants 4 and 6** included subsidising training fees to make the licensing process more accessible. Besides, **informant 8** mentioned hoping to stabilising diesel prices to reduce financial strain on both companies and drivers. These perspectives highlight that industry stakeholders not only expect the government to lower entry barriers but also to ensure economic stability that supports drivers' income and companies' sustainability.

Taken together, the findings reveal that while Malaysia has introduced certain initiatives like reduced licensing fees and the PATH program, these measures are not sufficient to

significantly improve recruitment and retention. Informants called for broader reforms, including **immigration policies, training subsidies and fuel price control**, which align with international best practices but remain absent from Malaysia's current strategy.

In terms of technological advancement, informants offered differing perspectives on the role of automation and digital tools in addressing the truck driver shortage. Some informants viewed AVs as a potential long-term solution. For example, **informants 4, 9, 10, 11, and 12** believed that AVs could eventually reduce dependence on human drivers, especially for long-haul and fixed-route operations. They emphasised that AVs would allow trucks to operate for longer hours without the restrictions of driver rest periods, potentially improving delivery efficiency and reducing fatigue-related risks. These views resonate with literature suggesting that AVs are most suitable for middle-mile operations and can generate significant cost savings by minimising human error (chapter 2.4.2.1).

However, the majority of informants expressed scepticism toward AV adoption in Malaysia's current context. **Informants 2, 3, 5, 6, 7, 8, and 13** argued that the country's road infrastructure, high investment costs, and lack of regulatory readiness make AVs impractical at present. **Informant 8**, for instance, compared Malaysia's narrow two-lane highways with countries like the U.S. and Canada, where wider, multi-lane highways create safer conditions for AV deployment. **Informant 7** also highlighted government unpreparedness, and the significant financial burden associated with adopting such technologies. These perspectives suggest that while AVs are being actively tested in developed economies, their feasibility in Malaysia remains limited, at least in the near future.

Alongside debates on AVs, several informants pointed to more immediate and practical technologies that could support driver recruitment and retention today. **Informant 1** suggested the installation of AI fatigue monitoring cameras to detect drowsiness and improve safety, as well as automatic transmissions, which make it easier for new drivers to adapt compared to manual trucks. **Informant 6** proposed wider use of GPS and CCTV systems to track vehicles, improve accountability, and reduce accidents, thereby enhancing both efficiency and driver welfare. These practical recommendations align closely with the literature on ITS and the IoT, which emphasise real-time monitoring to improve working conditions (chapter 2.4.2.2 and chapter 2.4.2.3).

Taken together, the findings show a clear divide: while 5 of the informants recognised AVs as a future-oriented solution, 7 of the informants disagreed due to lack of incremental and affordable technologies that address safety and efficiency in the short term. The literature reinforces this view, highlighting that full automation is still several years away from widespread adoption, while ITS and IoT applications are already helping companies manage fleets more effectively. Thus, Malaysia's industry stakeholders appear to adopt a pragmatic approach, prioritising technologies that are immediately compatible with the local context rather than pursuing advanced innovations that demand infrastructure and policy changes beyond the current capacity.

In terms of company practices, all informants consistently agreed that industry-led initiatives are the most immediate and effective strategies to address the truck driver shortage in Malaysia. Across the interviews, companies emphasised offering competitive salaries and allowances as their main tool for attracting and retaining drivers. **Informants 2, 3, 8, 9, 10, and 11** noted that high basic pay, overtime allowances, trip-based payments, and festive or performance-related bonuses are

essential to motivate drivers and reduce turnover. **Informant 11** further highlighted referral bonuses as a recruitment method, rewarding existing drivers who successfully bring in new candidates. These findings echo literature which emphasises that competitive pay and financial incentives remain core to improving driver retention worldwide (Chapter 2.4.3.2).

Beyond salaries, many informants also highlighted the importance of driver welfare and working conditions. **Informants 6, 7, and 12** reported providing insurance coverage, EPF contributions, personal protective equipment (PPE), accommodation support, and relocation allowances to ease the financial and physical strain of truck driving. **Informant 3** added that training on safe handling of dangerous goods, combined with equipping trucks with safety cameras, helps create a more secure working environment. Such initiatives reinforce the literature's emphasis on improving health, safety, and work-life balance as key retention strategies (Chapter 2.4.3.2).

Another key strategy raised was professionalisation of the trucking role. In this case, **informants 7 and 12** suggested that uniforms, formal job titles, and structured mentorship programs not only enhance professionalism but also help improve the social image of the occupation. Similarly, **informant 13** shared that their company boosts morale and recognition by celebrating drivers' birthdays and rewarding those who achieve safety and customer satisfaction targets. These efforts indicate that companies are working to rebrand truck driving as a respected and community-oriented career, rather than a low-status, blue-collar job. The literature supports this view, noting that rebranding strategies and employer recognition schemes can improve retention by fostering a sense of belonging and dignity among workers (chapter 2.4.3.2).

Recruitment programs also featured prominently in the responses. **Informant 5** highlighted the Smart Trucker program, where collaboration with polytechnics and training institutions enables companies to cover licence costs and attract younger graduates. This reflects the literature's emphasis on multi-channel recruitment through schools, training institutions, and even military veterans as untapped talent pools (chapter 2.4.3.4). However, unlike developed countries, no informants discussed recruiting female drivers which the literature identifies as important tool to expand the workforce and manage peak demand (chapter 2.4.3.3).

Taken together, the findings show that companies in Malaysia are carrying the primary responsibility for addressing the shortage, using a mix of financial incentives, welfare measures, professionalisation, and recruitment programs. These practices strongly align with international best practices but also highlight gaps, particularly in workforce diversity and flexible hiring. While such company-led initiatives are valuable, the heavy reliance on firms alone, without stronger government support, raises questions about the sustainability of these solutions in the long term.

## **5.2 Implication of Study**

This study emphasises the crucial role of government, companies, and technology in addressing Malaysia's truck driver shortage. Government support is particularly important, as measures such as reducing GDL licence fees and launching the PATH program have already been introduced to ease the problem. Further interventions, including subsidised training schemes, the recruitment of immigrant drivers, and diesel price control, could provide more direct relief to the industry. At the same time, technological adoption offers opportunities to improve operational efficiency and

reduce driver strain. While long-term solutions such as AVs, ITS, and IoT applications hold potential, immediate progress can be achieved through cost-effective tools such as AI fatigue cameras, automatic transmission, GPS, and CCTV, which enhance safety and optimise fleet performance without requiring major infrastructure changes.

Equally important are company practices, which play a decisive role in both recruitment and retention. Competitive salaries, allowances, and welfare benefits such as insurance, EPF, PPE, and accommodation help strengthen the industry's attractiveness, while social engagement activities like birthday celebrations and employee recognition foster loyalty and morale. Partnerships with educational institutions and initiatives to improve the professional image of the job through uniforms, job titles, and career advancement programs further reinforce the long-term stability of the workforce.

Overall, the findings indicate that the truck driver shortage cannot be resolved by one party alone. Governments must provide targeted policy support, companies need to invest in welfare and professionalisation, and technology should be adopted in a way that is practical and context-specific. Collaboration across these areas will create a more sustainable pathway to resolving the shortage compared to relying solely on long-term or isolated solutions.

### **5.3 Scope of Study**

This research drew in thirteen informants from different states in Malaysia, comprising eight from Selangor, four from Johor, and one from Penang. The informants hold key positions such as General Manager for TMS, Senior Manager for Transport, Transport Manager, Land Transport Managers, Head of Department, Head of Logistics Project, Transport Executive, Assistant Operation Manager, Operation Manager, and Logistics

Manager. The successfully collected insights from informants across these three states provided diverse perspectives and strengthened the overall value, as well as the credibility of the study.

#### **5.4 Limitation of Study**

Although this study provides important insights into the truck driver shortage crisis in Malaysia, it has several limitations. The research was based on interviews with 13 companies, mainly from the logistics sector as well as a gas distributor and a fruit distributor. While these organisations offered valuable perspectives, the study did not extend widely to other industries that also rely heavily on trucking, such as e-commerce, retail, and manufacturing. As a result, the findings may not fully represent the diversity of challenges faced across different sectors.

Geographically, the research was limited to Peninsular Malaysia, with a focus on Selangor, Johor, and Penang. East Malaysia was not included in this study, even though states such as Sabah and Sarawak also depend significantly on trucking. This means that regional variations, such as issues related to infrastructure, road conditions, and driver availability in East Malaysia, were not captured.

In addition, the study was conducted under the time and resource constraints. These limitations restricted the scope of data collection, and not all of the most ideal candidates could be interviewed. Nevertheless, every effort was made to engage the most suitable available participants to ensure the findings remained credible and relevant.

## **5.5 Future Research**

For future research, a larger sample size and broader inclusion of industries would provide a more comprehensive picture of the truck driver shortage. Expanding the study to include e-commerce, retail, and manufacturing sectors could capture a wider range of viewpoints and operational challenges, producing more reliable and broadly applicable results. Similarly, extending the geographical scope to East Malaysia would allow researchers to examine unique logistical challenges in those regions, providing a more holistic national perspective. To address the issue of limited resources and access, future research may also benefit from closer collaboration with industry associations, government agencies, or professional networks. Such a collaboration could provide wider access to informants and greater support, enabling more extensive and higher-quality data collection.

## **5.6 Conclusion**

To sum up, government initiatives, technological advancements, and company practices are essential in addressing the truck driver shortage crisis in Malaysia. Although policies, quick adoption of technology, and company-driven retention tactics are promising, obstacles like inadequate infrastructure, recruitment difficulties, and sustainability concerns still exist. In order to capture a variety of operational issues, future study should broaden its scope to encompass a bigger sample size, a wider range of industries, including manufacturing, retail, and e-commerce, as well as geographic extension to East Malaysia. To increase the quality and accessibility of data, closer cooperation with government agencies, industry associations, and professional networks is also advised. It is anticipated that the knowledge gained from this study,

together with future research areas, will offer a more comprehensive and useful basis for creating policies that can effectively address the truck driver shortage crisis.

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## APPENDICES

### Appendix A

#### Figure

Table   Data				
Year(s) 2023				
Weight of Shipments by Transportation Mode				
Mode Name	Tons (millions)			
	Total	Domestic	Export	Import
Grand Total	20,240	17,867	1,218	1,155
Air (includes truck-air)	7	2	3	2
Multiple Dms Modes and Mail	645	526	61	57
No Domestic Dms Mode	114			114
Other and Unknown	84	77	6	1
Pipeline	4,021	3,490	259	272
Rail	1,598	1,113	317	169
Truck	12,975	12,015	462	497
Water	797	644	110	43

Notes: Data do not include imports and exports that pass through the United States from a foreign origin to a foreign destination by any mode. Numbers may not add to totals due to rounding. Data in this version are not comparable to similar data in previous years because of updates to the Freight Analysis Framework. Source: U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Federal Highway Administration (FHWA), (2017) Freight Analysis Framework, FAF5 [datasets]. <https://doi.org/10.21949/1529116>

Figure 1 – Weight of shipments by transportation mode in United States (Bureau of Transportation Statistics, 2025).

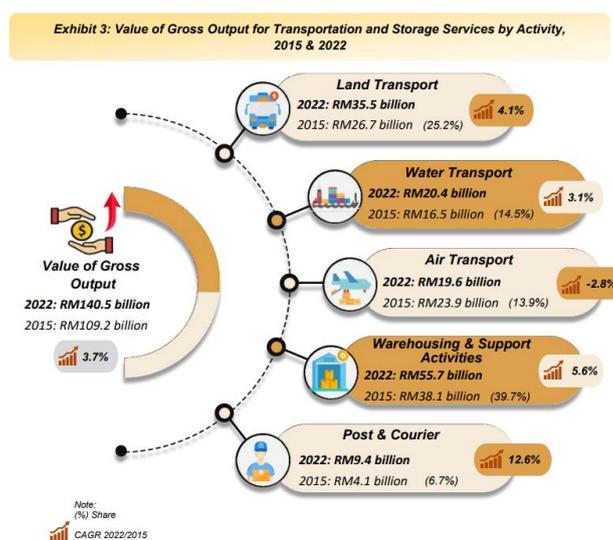


Figure 2 – Value of gross output for transportation and storage services by activity, 2015 & 2022 in Malaysia (Department of Statistics Malaysia, 2024).

## **Appendix B**

### **Research Interview Question**

**Research Objective 1: To identify the key factors contributing to the truck driver shortage in Malaysia.**

Questions:

1. Does your company currently experience a driver shortage, or do you anticipate one in the near future?
2. What challenges, if any, do you face in recruiting young and female drivers?
3. Is the turnover rate for drivers high? If so, what factors do you believe contribute to this?
4. In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Research Objective 2: To assess the overall impact of the truck driver shortage on Malaysia's supply chain.**

Questions:

1. Has your company experienced any critical losses due to the truck driver shortage?
2. In your view, which industry in Malaysia is most affected by the truck driver shortage?
3. How has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Research Objective 3: To suggest effective mitigation strategies for truck driver shortage in Malaysia.**

Questions:

1. Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones? If no, what kind of initiatives that you hope governments could take?
2. Has your company implemented any strategies to attract or retain truck drivers?
3. What new strategies do you think would help attract more individuals to pursue a career in truck driving?
4. How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

## Appendix C

### Interview Transcripts

#### Informant 1 – Company A

**Interviewer** – Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 1** – No, currently my company is not experiencing a driver shortage, but there will be one in the future.

**Interviewer** – What challenges, if any, do you face in recruiting young and female drivers?

**Informant 1** – For young drivers, the challenge is their driving skills or experience. Even though nowadays most of the trucks opt for auto gear transmission over manual transmission systems, safety and hands-on driving experience are still very important. Another issue is that the younger generation is not really interested in working as a truck driver. The working environment and working hours are much different from normal jobs. They prefer flexible working hours jobs such as delivery rider, Grab or Lalamove. I think offering better salary packages and rotating work schedules can help encourage more young drivers to join. When it comes to female drivers, the challenge is the traditional mindset in society that women are not suitable for driving heavy

vehicles such as prime movers or big container trucks. Very few companies in Malaysia dare to recruit female as truck drivers. The most provided excuse is that they are concern about the female drivers' attendances because they assume women will prioritise their family and children. There is also a confidence gap, as some companies doubt the female drivers' skill in handling trucks. If the government could introduce more incentives or rebates, it might encourage companies to recruit female drivers and increase their participation in this industry.

**Interviewer** – Is the turnover rate for drivers high? If so, what factors do you believe contribute to this?

**Informant 1** – The turnover rate is low.

**Interviewer** – In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 1** – Truck drivers are scared of accidents. The rise of Business-to-Consumer (B2C) delivery has also affected the industry. Additionally, salary packages or schemes based on mileage or trips are not attractive to truck drivers. Many young people prefer to work as Grab drivers because of the shorter and more flexible working hours.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 1** – Currently no.

**Interviewer** – In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 1** – It affects the entire industries in Malaysia. When there is a shortage of drivers and demand is greater than supply, the industries that face the shortage will raise the salary and this will attract more drivers to switch over to the industry. It creates more job opportunities for new drivers when the salary package is attracting people to become truck drivers. But this situation will only continue until the market finds a balance. The question is, who will bear the cost of this increased salary? The companies or the consumers?

**Interviewer** – How has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 1** – Not applicable.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones?

**Informant 1** – No.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 1** – Yes, we offer a high basic salary and reasonable working hours. We also make sure that every truck driver can carry out their job each day, with work fairly distributed.

**Interviewer** – What new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 1** – The government should enforce the installation of AI monitoring cameras in trucks to monitor driver behaviours, such as fatigue, to help reduce accidents.

**Interviewer** – How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 1** – Technology advancement is always the solution for the issue. If the automated vehicles are auto transmission vehicles, then yes. It helps new drivers in learning to handle the trucks much faster compared to manual systems. But if the automated vehicle is fully autonomous, self-driving trucks, then it definitely will help to reduce the shortage, especially for long-haul drivers, though not so much for last-mile deliveries. However, it will take time to get all the facilities and IT advancement or network in place. It is a concept and future direction for all the logistics industries towards automated delivery.

### **Informant 2 – Company B**

**Interviewer** – The first question is: ‘Does your company currently experience a driver shortage, or do you anticipate one in the near future?’

**Informant 2** – This issue is on and off. Sometimes we face it, but not always. It depends on the month or situation. For example, during the MCO, we faced a very serious truck driver shortage because many drivers left for delivery, courier services, and Grab, as it was easier to earn more at that time.

**Interviewer** – So, the truck drivers become Grab drivers?

**Informant 2** – Yes. This situation happened because during MCO, being a Grab driver was easier and could earn more money, so they preferred that over truck driving, which made it hard to find truck drivers. Now, the government has increased the minimum wage to RM1,700. If you cannot give the truck drivers RM1,700, then they would rather take government jobs. For now, we do not face any truck driver shortage issue. No truck drivers have resigned, so there is no issue.

**Interviewer** – Understood. Are your truck drivers mostly youngsters?

**Informant 2** – No, most of them are older drivers because my company now has two warehouses, one at Bangi and one in Nilai. In Bangi, the working hours are normal, so the truck drivers are usually older. But in Nilai, the working hours is during midnight, so the truck drivers there are younger.

**Interviewer** – Understood. Do you think it is difficult to find young and female drivers?

**Informant 2** – For female drivers, there are none. No female applicants at all. But for youngsters, there are quite a lot who apply.

**Interviewer** – Is the turnover rate of drivers high?

**Informant 2** – Practically, it is not considered high. Especially in Bangi, where the working time is more stable, there is less truck driver resign. But in Nilai, yes, because the working time is more challenging. Once they found a job with more normal working hours, they will leave.

**Interviewer** – Understood. So, in your opinion, Malaysia is currently not facing this issue?

**Informant 2** – I have communicated with others in the same industry. Of course, the circle is not big. Some companies do face this issue. The reason is simple. It depends on the overall package. Is there any incentive, basic pay, or fixed job? Some companies run on a trip-based system. If there are trips for 3 days, but no trips for 2 days, then it will be difficult to retain the truck drivers. It really depends on the job itself and the overall package. Normally, if you can provide a certain level of income, then it will not be an issue.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If no, what kind of initiatives that you hope governments could take?

**Informant 2** – In the market, this issue has never really reached the government, especially the HR or MoT. They do not see truck driver shortage as an issue. So far, there are no initiatives. Their attention is more on the bigger issue, which is safety.

Recently, there were cases where lorries hit buses and many people died. The government is only focusing on safety measures.

**Interviewer** – Just now you mentioned the truck driver shortage issue during the MCO. Has your company experienced any critical losses because of it?

**Informant 2** – Yes. During that time, it was very hard to find truck drivers and many resigned because they preferred to be Grab drivers. Also, when the government raised the basic salary, if we did not follow and increase our pay, then the truck drivers would leave.

**Interviewer** – Understood. So, did the government's increase in basic salary have effects on your company?

**Informant 2** – Yes. The effect is quite big because everybody's salary must be raised. Do you know where is the problem? If the truck driver's initial salary is RM1,300, you now need to raise it to RM1,700. But what about those who were already earning RM1,700? Should we raise theirs too? We cannot just give everyone the same RM400 increase because some only need RM200 or even RM10 to reach RM1,700. But for those already at RM1,700 or RM1,800, when they see the juniors catching up so quickly, they will feel dissatisfied. So, the company also needs to adjust the salaries of those above RM1,700. This is a very big challenge. The increase in basic salary not only affects those below the minimum wage, but also impacts those already earning above

it. If not managed well, the higher-paid staff may resign because they feel emotionally imbalanced.

**Interviewer** – Then, during that time when the government raised the basic salary, did your operating costs increase?

**Informant 2** – Yes, the operating cost will increase.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 2** – First, you must give the truck drivers a very good working environment. The environment includes packages, salary, stable trips, and well-maintained lorries. Incentives are also important, especially those related to safety. My company focuses more on safety.

**Interviewer** – For the last question, since our topic is about the possible truck driver shortage issue in the future, considering that youngsters nowadays are not willing to be truck drivers and with the pressures from e-commerce, do you think there are other technologies, such as autonomous driving, that can help address this issue?

**Informant 2** – This issue is more challenging in Malaysia compared to foreign countries. Normally, the educational level of truck drivers in Malaysia is lower as compared to other countries like Japan. Their truck drivers are generally more highly educated, so the income levels are totally different. That's why, in Malaysia, offering packages are very important. This is what I think. So, when we provide the truck drivers packages, incentives, allowances, and manage well, we can retain the truck drivers. It is not only to attract them to work, but also maintain them to work for long-term. Attracting new drivers is a bit difficult in Malaysia right now. Realistically, if people have other options, they usually will not become drivers, especially truck drivers. Jobs like Grab are seen as more comfortable and less demanding, while truck driving is one of the toughest jobs.

**Interviewer** – Yes. In other countries, when there are not enough truck drivers, the government will call those army to become truck drivers. So, does this mean the Malaysian government currently still does not have any such measures?

**Informant 2** – Yes. The situation in foreign countries is different.

**Interviewer** – Okay, then I would like to ask, has your company ever considered adapting to autonomous driving? Since in the future, there might be fewer people willing to drive. Have your company considered autonomous driving or start to invest in autonomous driving?

**Informant 2** – Unless the technology is mature enough, we will not consider it.

**Interviewer** – So, for now, you still do not see the potential?

**Informant 2** – Yes, we still cannot see it. Actually, the confidence level is not there yet.

**Interviewer** – Understood, that's all for our questions. Thank you very much.

### **Informant 3 – Company C**

**Interviewer** – Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 3** – Yes, it is quite difficult to recruit new drivers. It takes at least three months to hire someone.

**Interviewer** – What challenges, if any, do you face in recruiting young and female drivers?

**Informant 3** – It is very difficult to recruit female drivers because R&R facilities are not well-equipped to cater for women. As for the younger generation, they prefer to be entrepreneur drivers or Grab drivers or mapping drivers.

**Interviewer** – Is the turnover rate for drivers high? If so, what factors do you believe contribute to this?

**Informant 3** – No. Usually, turnover rate is linked with low salary or tight schedule.

**Interviewer** – In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 3** – The main factors contributing to the truck driver shortage in Malaysia include the growth of Grab and entrepreneurial drivers. Another factor is the unattractive salary packages, where some companies only offer trip-based commissions without a fixed basic pay. Lastly, there is also strict regulations.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 3** – Yes, especially after the Covid period, because during Covid, a lot of drivers were retrenched, and when demand suddenly picked up again, there were not enough drivers in the market as many of them had switched to Grab during Covid.

**Interviewer** – In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 3** – Manufacturing industry.

**Interviewer** – How has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 3** – The operating costs are higher as we need to pay more for overtime, and customer satisfaction has also decreased.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones? If no, what kind of initiatives that you hope governments could take?

**Informant 3** – No, but I wish the government would let immigrants from other countries to work as truck drivers.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 3** – We offer a high basic salary. We also provide drivers training, such as safety training for handling dangerous goods. We also provide safe trucks with cameras to make sure there is no fatalities rate.

**Interviewer** – What new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 3** – Offer higher salary.

**Interviewer** – How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 3** – So far, I do not see any potential as Malaysia does not have the infrastructure.

**Informant 4 – Company D**

**Interviewer** – Here is the first question. Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 4** – Yes, we have experienced driver shortages previously, and we continue to manage and control the situation closely to anticipate and manage any future gaps.

**Interviewer** – Okay, the second question is, what challenges, if any, do you face in recruiting young and female drivers?

**Informant 4** – One of the main challenges we face in recruiting young and female drivers is due to our company's minimum recruitment criteria. We require all driver candidates to be above 30 years old, possess at least three years of driving experience, and the candidates need to pass a medical check-up to ensure they are fit for duty. These requirements are in place to ensure that candidates meet our operational and safety standards. As a result, younger candidates, especially those newly licenced, may not yet qualify. Additionally, while we welcome female applicants. However, the pool of female drivers who meet these criteria is relatively small, which limits our recruitment opportunities in that demographic.

**Interviewer** – Understand the situation. Moving on to the next question. Is the turnover rate for drivers high? If so, what factors contribute to this?

**Informant 4** – Actually, the turnover rate in our company is not high, it remains in a manageable and controllable level. But we do see a few resignations, usually from drivers who cannot adapt to our operational procedures or who struggle with our strict safety requirements. There were few of the drivers resign due to they cannot align with our operations and safety requirement.

**Interviewer** – The fourth question. In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 4** – There are several key factors that contribute to the truck driver shortage in Malaysia. First is the unstable income, many truck drivers face inconsistent monthly earnings due to fluctuating delivery volumes. Second is long-haul journeys, truck drivers often need to travel long distances, spending days away from home. The demanding nature of long-haul driving affects work-life balance and is especially unattractive to younger generations. And third is poor management of working and rest hours. Irregular schedules, insufficient rest periods, and pressure to meet tight deadlines can lead to fatigue, stress, and health issues. The lack of proper enforcement or awareness of driving hour regulations makes the profession less sustainable.

**Interviewer** – I see. Has your company experienced any critical losses due to the truck driver shortage?

**Informant 4** – Yes, our company has previously experienced critical losses due to a shortage of truck drivers. On average, the absence of just one truck and driver could result in revenue losses ranging from RM25,000 to RM35,000 per month, depending on the route and assignment affected. This had a significant impact on our operational capacity and service commitments during that period.

**Interviewer** – In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 4** – In Malaysia, I would say the transporters, hauliers, and freight forwarding industries are the most affected. But the shortage also impacts manufacturing, construction, and distribution sectors quite significantly.

**Interviewer** – How has the truck driver shortage affected your company's supply chain operations, like delivery schedules, customer satisfaction, or operating costs?

**Informant 4** – Of course, yes. the truck driver shortage has significantly impacted our supply chain operations. It has resulted in tighter schedules and delays in both pickup and delivery activities. These disruptions have led to increased customer complaints, overtime costs for both operations and drivers, and, in some cases, late delivery charges and penalties. Overall, it has placed added pressure on our resources and affected service reliability.

**Interviewer** – And then, are you aware of any government initiatives aimed at addressing the truck driver shortage? Or what initiatives that you think governments could take to deal with this issue?

**Informant 4** – Yes, governments in many countries, including Malaysia, are working on this, especially after COVID-19 increased logistics demands. For Malaysia, one useful step would be subsidizing driving licence programs or lowering the cost of licence courses and training. This would make it easier and more affordable for people to pursue truck driving as a career.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 4** – Yes, we continuously conduct interviews to recruit qualified drivers. We also offer a “spare driver” option with a guaranteed minimum wage. This helps provide income stability and keeps manpower available.

**Interviewer** – The next question, what new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 4** – In my opinion, two things are crucial: improving pay and benefits, and modernizing the image of truck driving. If the job is seen as more professional and rewarding, it will attract more people.

**Interviewer** – How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 4** – Automated vehicles could really help, especially for long-haul freight. They could extend driving hours, let human drivers focus on short-haul or complex routes, and improve safety. In the long run, they may also help reduce turnover.

**Interviewer** – Okay. Thank you very much sir, we have done for the interview section. Thank you for willingness to help us with this interview.

**Informant 4** – You're welcome.

#### **Informant 5 – Company E**

**Interviewer** – Okay here is the first question. Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 5** – Currently we are not facing a truck driver shortage. This is because we run a variety of transportation services, such as haulage, distribution trucks, and conventional trucks. We also provide good benefits like higher commissions compared to other companies, and we follow the minimum wage set by the government. However, I anticipate that shortages may occur at our HQ in Shah Alam since the market there is much bigger.

**Interviewer** – Do you face any challenges in recruiting young and female drivers?

**Informant 5** – No, not at the moment.

**Interviewer** – I see. Let's move to the next question. Is the turnover rate for drivers high? If so, what factors do you think contribute to this?

**Informant 5** – In Shah Alam, yes, the turnover rate is quite high. Many drivers with GDL licences tend to compare benefits and switch to companies that offer higher salaries. Since there are many competitors in Shah Alam, drivers will move if they are dissatisfied. For short-distance deliveries, the commission is a bit lower compared to long-haul deliveries, which also affects their decision.

**Interviewer** – So, in your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 5** – From what I've seen, there are several reasons. First, is the marriage, I found that most drivers are Malay, and when they get married, they often follow their spouse and move to another state, changing companies. Second, family or health issues can force drivers to quit. Third, is the salary issue, if shipments are too low and case them can't sustain their income, they leave. Another factor is boredom with the nature of the job. Some drivers prefer different types of trucks, like container trucks, side loaders, or car carriers. If they get bored, they switch jobs, sometimes even moving from being a truck driver to a bus driver.

**Interviewer** – Is there any critical losses due to the truck driver shortage that your company facing or faced before?

**Informant 5** – Not really, but sometimes during peak seasons we are forced to use outsourced drivers from other transporters because operations cannot stop.

**Interviewer** - In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 5** – I think the most affected company will be the distribution industry. Drivers are the core there since they need to deliver goods to outlets and stores directly to customers.

**Interviewer** – How has the truck driver shortage affected your company’s supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 5** – It has not affected us much. We can always find outsourced drivers, and our company does not allow losses to happen.

**Interviewer** – The next question. Are you aware of any government initiatives aimed at addressing the truck driver shortage? If no, what kind of initiatives that you hope governments could take?

**Informant 5** – If I’m not mistaken, the government reduced the fee for getting a GDL licence, from around RM500 to RM200. So, it’s cheaper now for drivers to get licenced compared to before.

**Interviewer** – I see. So, has your company implemented any strategies to attract or retain truck drivers?

**Informant 5** – Yes, we do have a program called “Smart Trucker,” which the smart trucker refers to the degree holders. We collaborate with polytechnics and educational institutes to attract fresh graduates. The company covers the cost of their GDL licence but not include the renewal, which is over RM1,000, so this helps a lot. Besides, we also strictly follow government policies like the minimum wage as compared to other

companies. In addition, we also offer job rotation so drivers can try operating different types of trucks if they want variety.

**Interviewer** – What new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 5** – Actually, I don't think we need new strategies. Drivers have their own networks and societies. If a company wants to recruit, it's very easy to get the contact of the person in charge of the company through these networks.

**Interviewer** – Lastly how do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 5** – In Malaysia, it won't happen anytime soon. Even though cars already have autopilot systems, they're not allowed by the government to be used in Malaysia. Maybe in 10 years, but for now it's still too dangerous.

**Interviewer** – This is the end of this interview session. Thank you very much for spending time in answering our questions. Thank you so much.

**Informant 5** – You're welcome. I will always be willing to help.

## **Informant 6 – Company F**

**Interviewer** – Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 6** – Yes, it is hard to recruit good drivers

**Interviewer** – What challenges, if any, do you face in recruiting young and female drivers?

**Informant 6** – For younger drivers, if the working environment and pay are not good during the first three months, they will leave straight away.

**Interviewer** – Is the turnover rate for drivers high? If so, what factors do you believe contribute to this?

**Informant 6** – So far, no. Most of our drivers are from East Malaysia, mostly Sabah. If we are able to provide them with a good income above RM4,000, they will stay longer and take fewer medical leaves.

**Interviewer** – In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 6** – Usually, it is because Malaysia companies do not pay high wages.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 6** – Yes, during Covid-19, where the industry is shut down, many drivers left to work for Grab, but we still need to bear the operating costs, as the trucks is still our assets.

**Interviewer** – In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 6** – Logistics companies and B2B businesses.

**Interviewer** – How has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 6** – Operating costs are high as the minimum wages are high, and since we cannot pass these costs to the customer, we need to compensate for them on our own.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones? If no, what kind of initiatives that you hope governments could take?

**Informant 6** – No, but the minimum wage makes it hard for the company to maintain operating costs.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 6** – Yes, we ensure our drivers can make a good income. We also provide insurance and supply fellowship uniforms.

**Interviewer** – What new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 6** – Provide training and help them to pay for their driving licence.

**Interviewer** – How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 6** – There is a lack of infrastructure for automated vehicles. However, the government can implement GPS systems and enforce the installation of CCTV in trucks to monitor operations across every company.

### **Informant 7 – Company G**

**Interviewer** – Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 7** – Yes

**Interviewer** – What challenges, if any, do you face in recruiting young and female drivers?

**Informant 7** – There are no new entries because young people prefer to join Grab. As for female drivers, they are less preferred since they cannot complete as many trips as male drivers. Males can make around four trips, while females may only manage about 2.5 trips, which is not very favourable.

**Interviewer** – Is the turnover rate for drivers high? If so, what factors do you believe contribute to this?

**Informant 7** – So far, no. As long as the drivers are satisfied with their income.

**Interviewer** – In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 7** – One factor is the aging workforce. Most drivers started in the industry in the 1970s, when there were only five companies and everything had to be built from scratch. These drivers are still on board, supporting the industry, while newcomers are reluctant to join. Around 60 to 70% of drivers are between 45 and 55 years old. Another factor is the unfavourable working conditions, which led many to prefer white-collar jobs. Additionally, the cost of obtaining a CDL in Class E is high.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 7** – Yes, especially during peak seasons, when we face many delivery failures. This results in losing customers, as in this industry, customers can easily switch to competitors offering lower costs or faster response times.

**Interviewer** – In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 7** – All industries are interrelated and affected.

**Interviewer** – How has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 7** – It mostly affects customer satisfaction because deliveries are often not on time. Additionally, having too many trucks, but not enough drivers creates high operating costs. We still need to keep the costs low, or else, the customers will leave.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones? What initiatives that you think governments can do in order to attract more people join to become truck drivers?

**Informant 7** – HRD Corp is working with LPK to help individuals upgrade from a D licence to an E licence. This supports those who want to change careers but are concerned about not having an E licence. They cover the full cost and provide 2 to 3 months of training until the individual obtains the E licence. Another initiative is approving opportunities in outskirts areas to give more people access to the industry.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 7** – We recruit drivers from different states by providing extra allowances and relocation support, such as accommodation and meals. Drivers from remote areas tend to stay longer and are more willing to work. Offering attractive allowances also helps to attract new drivers.

**Interviewer** – What new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 7** – Implement a dress code can make drivers feel like they are a part of the company, similar to a land pilot. Using better titles to address drivers may attract younger people and help to change their mindset on driving is only a blue-collar job. We also need skilled drivers to mentor and train new drivers. Compensation through key performance indicators (KPIs) and motivational incentives can be improved to further encourage people to join the industry.

**Interviewer** – How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 7** – There is a long way to go, as the infrastructure is not mature enough and the government is not ready to take the lead. Implementing automated vehicles would also require a high investment cost.

### **Informant 8 – Company H**

**Interviewer** – So we'll start with the first question. Does your company currently experience a truck driver shortage, or do you anticipate one in the near future?

**Informant 8** – Yes, we're facing truck driver shortage currently.

**Interviewer** – What challenges, if any, do you face in recruiting female drivers?

**Informant 8** – I have not experienced handling female drivers before.

**Interviewer** – I see. Let's move on to the next question. Is the turnover rate for drivers high? If so, what factors do you believe contribute to truck driver shortage?

**Informant 8** – Yes, the turnover rate is high. I think is because of the salary and shipment orders. When there are fewer orders, the drivers cannot achieve their salary targets. So, they will look for companies with consistent orders and more competitive pay since, in our company, salary is based on trips.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 8** – Yes. We still need to bear the monthly maintenance cost even if trucks are not being used. The company must pay for this commitment, and the cost cannot be covered by revenue alone.

**Interviewer** – Next, in your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 8** – Oil and Gas, because of the upstream and downstream processes. Upstream requires a lot of orders, while downstream like manufacturing has fewer.

**Interviewer** – Does the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 8** – Of course, it will affect customer satisfaction because we cannot fully support deliveries of raw materials and finished goods. This limitation opens opportunities for competitors to win over our customers. When we face a shortage, we subcontract to other transporters, and our customers then become aware of those new providers.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If not, what do you expect the government can consider?

**Informant 8** – I think the government needs to support us. Our main issue is maintenance costs, and sometimes the government increases diesel prices. This raises loading costs and impacts drivers' salaries. When fuel prices go up, we cannot pass the cost to customers, so we are forced to deduct from drivers' pay. This also pushes drivers to save diesel during trips, which is not ideal. The government should control diesel prices.

**Interviewer** – Has your company implemented any strategies to attract more individuals to pursue a career in truck driving or retaining truck drivers?

**Informant 8** – Yes. We provide extra allowances, like meal allowances. For example, if drivers go on outstation trips, such as from Singapore to Kuala Lumpur, and need to stay overnight, we provide an overnight allowance. Also, if they carry overweight cargo, they receive extra pay.

**Interviewer** – Last question, do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 8** – I don't think it is suitable for Malaysia. Our roads often have traffic jams, and most highways have only two lanes. It would not be practical to control automated trucks remotely, as the risk of accidents is high. In countries like the US and Canada, with wider roads and better infrastructure, it may work, but not here.

**Interviewer** – I think that's all for the interview. Thank you for your willingness to help us in this final year project.

**Informant 8** – Alright. You're welcome.

#### **Informant 9 – Company I**

**Interviewer** – Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 9** – No.

**Interviewer** – What challenges, if any, do you face in recruiting young and female drivers?

**Informant 9** – Our company only accepts male drivers. As for younger drivers, the main challenges include punctuality and frequent requests for leave.

**Interviewer** – Is the turnover rate for drivers high? If so, what factors do you believe contribute to this?

**Informant 9** – Yes. One of the main reasons is salary concerns. Some drivers leave the company in search of higher wages.

**Interviewer** – In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 9** – Low wage rates and the lack of overtime allowances.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 9** – No.

**Interviewer** – In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 9** – All industries are affected.

**Interviewer** – How has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 9** – While we are not facing a shortage currently, the general impact of a shortage could include delivery delays, increased workload for existing drivers, and potential dissatisfaction from customers due to inconsistent delivery timelines.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones? If no, what kind of initiatives that you hope governments could take?

**Informant 9** – We are aware that some government bodies have proposed training and licensing programs to encourage more individuals to join the industry, but more awareness and incentives may be needed for these initiatives to be effective.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 9** – Yes. Our company prioritises employee welfare, offering annual salary increases, festive bonuses, birthday allowances, and cell phone allowances for every employee.

**Interviewer** – What new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 9** – Increase entry-level wages and provide clear career progression paths, offer better work-life balance with flexible schedules, and provide training programs and incentives for new drivers, especially the younger generation.

**Interviewer** – How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 9** – In the long term, automated vehicles can help reduce reliance on manual driving for long hauls, improve efficiency, and lower fatigue-related risks. However, for now, the technology is still developing and cannot fully replace skilled drivers, especially for complex or urban deliveries.

**Informant 10 – Company J**

**Interviewer** – Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 10** – So far, we have not experienced a driver shortage. Our policy requires drivers to provide a 24-hour notice before resigning, and they must follow the contract's two-week notice period. While we are aware of the potential for shortages, we always have backup plans in place. From my experience, we have new drivers coming to our company for interviews every month. I don't think Malaysia has a shortage of drivers.

**Interviewer** – What challenges, if any, do you face in recruiting young and female drivers?

**Informant 10** – I do not face any challenges in recruiting young and female drivers. This is because for young drivers, their behaviour has been generally good so far and I have no experience in handling female drivers.

**Interviewer** – Is the turnover rate for drivers high? If so, what factors do you believe contribute to this?

**Informant 10** – Yes, the turnover rate for drivers is high. Salary is a key factor. Truck drivers can earn relatively high wages without needing a high education level. They just

need some experience of two or three years in the logistics sector. Salary is the main reason people, especially younger individuals, are attracted to this sector.

**Interviewer** – In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 10** – If a company experiences a shortage, it is usually because drivers leave for better opportunities. Drivers tend to stay long if the company offers good trips and salary; otherwise, they may go for interviews at other companies.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 10** – No.

**Interviewer** – In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 10** – Food industries and pharmaceutical industries.

**Interviewer** – How has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 10** – It risks losing customer confidence, increases operating costs, and makes scheduling difficult, as we can no longer plan deliveries effectively.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones?

**Informant 10** – No.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 10** – Yes, the company focuses on driver welfare and salary.

**Interviewer** – What new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 10** – Offering trip-based salaries is a great strategy to attract new drivers.

**Interviewer** – How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 10** – Yes, automated trucks make driving easier, especially for new drivers. This could help attract more drivers to join our team.

### **Informant 11 – Company K**

**Interviewer** – I would like to start with the question which, does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 11** – Yes, we are experiencing one now, but we are slowly increasing our driver headcount.

**Interviewer** – The second question, what challenges, if any, do you face in recruiting young and female drivers?

**Informant 11** – Female drivers usually cannot handle heavy-load shipments, such as covering cargo with canvas or doing lashing. Even male drivers sometimes find this challenging. For female drivers, I think it's better for them to work with haulage or side curtain or box trucks, which are easier to manage compared to open trucks.

**Interviewer** – Is there high turnover rate for drivers in your company? If so, what factors do you believe contribute to this?

**Informant 11** – Yes, it is. The main reason is the uncertainty of trips, shipments, or projects. Sometimes drivers need to rotate jobs, and during major public holidays like Raya or Chinese New Year. Furthermore, trucks cannot move for a few days due to road bans. Drivers will then look for other companies that can meet their salary or trip expectations. Every company has ups and downs, and we cannot stop drivers from resigning, especially those with discipline problems. In fact, we prefer being short of drivers rather than keeping drivers who cause issues.

**Interviewer** – Understand. Next question. In your opinion, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 11** – In my opinion I think is the low commission rates. The market rate is getting worse, which reduces driver earnings from commissions.

**Interviewer** – Okay. Has your company experienced any critical losses due to the truck driver shortage?

**Informant 11** – Not really, because we manage by using subcontractors and vendors to support our orders.

**InformantInterviewer** – I see. Then in your view, which industry in Malaysia do you think is most affected by the truck driver shortage?

**Informant 11** – The logistics and F&B industries. These shortages can affect daily routines.

**Interviewer** – Is the truck driver shortage affected your company's supply chain operations like delivery schedules, customer satisfaction, or operating costs?

**Informant 11** – Yes, since we rely on subcontractors and vendors, we cannot monitor their trucks directly and must depend on their updates. Sometimes this causes delays, which in turn increase our overtime costs if collections or deliveries are late.

**Interviewer** – I see. Are you aware of any government initiatives aimed at addressing the truck driver shortage? Or any initiatives you hope government can implement in order to help in reducing truck drivers shortage?

**Informant 11** – I'm not sure about that.

**Interviewer** – No problem. Then we move on to the next question. Has your company implemented any strategies to attract or retain truck drivers?

**Informant 11** – Yes, we are planning to offer a basic salary, full EPF deductions each month, and a minimum RM4,000 salary plus bonuses for qualified drivers without any discipline issues. To attract more drivers, we also give our current drivers a bonus of RM500 for every new driver they successfully recruit who stays with our company for at least three months.

**Interviewer** – And what new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 11** – Being a driver is not an easy job. It carries big responsibilities because reckless driving can endanger lives and cause losses to the company. At our company, we can assist to provide training for newly licenced drivers, as long as they are willing to learn and obey all the rules. If they pass the training, then we can continue working with them.

**Interviewer** – Do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 11** – Automated vehicles would help, but they are too costly and not suitable for the current market. The technology is still not practical for us right now.

**Interviewer** – That’s all for this interview thank you for spending your time to attend this interview.

**Informant 11** – Hope this will help you. You’re welcome and good luck.

#### **Informant 12 – Company L**

**Interviewer** – Let’s start with the first question. Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 12** – At present, and in the foreseeable future, our company does not experience a driver shortage.

**Interviewer** – The next question. What challenges, if any, do you face in recruiting young and female drivers?

**Informant 12** – Younger drivers often lack the ability to operate manual transmission lorries, which means they require a longer training period. As for female drivers, since

our business primarily involves heavy or oversized cargo transportation, the work often requires irregular hours or day, night shifts to coordinate with construction sites. Many female drivers find it difficult to accept the high intensity and unpredictable schedules. In addition, during tasks such as securing cargo with straps, some have encountered physical limitations.

**Interviewer** – I see. Is the turnover rate for drivers high in your company? If so, what factors do you believe contribute to this?

**Informant 12** – Our driver turnover rate is among the lowest in the industry. In the past, we recognised that the root cause of high turnover elsewhere was low freight rates. When the transport fees for each trip are too low, drivers earn less and are naturally inclined to move to other companies offering higher pay.

**Interviewer** – Moving on, in your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 12** – In Malaysia, certain unhealthy industry practices contribute to the driver shortage. For example, the manufacturers drive down freight rates by pressuring one transport company against another. Some transport companies undercut prices just to secure more orders. This leads to a “race to the bottom” in freight rates, which indirectly contributes to driver shortages and encourages dangerous behaviours such as speeding.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 12** – We have not suffered any major losses due to driver shortages. However, there was a situation where we received a large order but did not have enough drivers, so we collaborated with other transport companies to fulfil the order together.

**Interviewer** – In your opinion, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 12** – In my opinion, container transport companies are more likely to face driver shortages compared to other sectors.

**Interviewer** – Next question, how has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 12** – Since we do not face driver shortages, the only notable impact is the increased cost of training new drivers.

**Interviewer** – I see. Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones?

**Informant 12** – I am not aware of any government initiatives aimed at addressing the truck driver shortage.

**Interviewer** – Then, has your company implemented any strategies to attract or retain truck drivers?

**Informant 12** – To retain drivers, we avoid accepting low-freight-rate orders during off-peak seasons unless necessary to maintain customer relationships. We guarantee drivers that higher freight rates will directly result in higher pay. We also provide full sets of professional personal protective equipment (PPE) to enhance our corporate image and encourage safety compliance, reducing accident risks.

**Interviewer** – Is there any new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 12** – I am unsure what new strategies might attract more people to the profession, but ultimately, it comes down to improving driver benefits and salaries.

**Interviewer** – Last question, how do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 12** – Automated vehicles or trucks can only partially address shortages for fixed-route and specific cargo types. Their application is limited, but where feasible, they can help solve wage-related issues and improve efficiency, allowing human drivers to focus on transport jobs that cannot be replaced by automation.

**Interviewer** – This is the end of the interview session, thank you for helping us.

**Informant 12** – You're welcome.

### **Informant 13 – Company M**

**Interviewer** – Does your company currently experience a driver shortage, or do you anticipate one in the near future?

**Informant 13** – Yes, we are planning to expand operations and buy new trucks, but we cannot recruit enough drivers.

**Interviewer** – What challenges, if any, do you face in recruiting young and female drivers?

**Informant 13** – No female is willing to join this industry, and they are not willing to go outstation due to the lack of proper rest stations.

**Interviewer** – Is the turnover rate for drivers high? If so, what factors do you believe contribute to this?

**Informant 13** – Yes, mainly due to less attractive wages.

**Interviewer** – In your view, what are the main factors contributing to the truck driver shortage in Malaysia?

**Informant 13** – Not enough wages to support family.

**Interviewer** – Has your company experienced any critical losses due to the truck driver shortage?

**Informant 13** – Yes, during periods of high volume, we need to outsource to meet customer demand.

**Interviewer** – In your view, which industry in Malaysia is most affected by the truck driver shortage?

**Informant 13** – Warehousing industry.

**Interviewer** – How has the truck driver shortage affected your company's supply chain operations, such as delivery schedules, customer satisfaction, or operating costs?

**Informant 13** – During peak volume periods, there are not enough trucks to meet demand.

**Interviewer** – Are you aware of any government initiatives aimed at addressing the truck driver shortage? If yes, which ones?

**Informant 13** – So far, no.

**Interviewer** – Has your company implemented any strategies to attract or retain truck drivers?

**Informant 13** – Yes, we make the drivers feel at home at the office by having monthly birthday celebrations. We also offer a large bonus pool when drivers meet customer satisfaction targets and maintain fewer than six accidents per year to encourage safe and committed performance.

**Interviewer** – What new strategies do you think would help attract more individuals to pursue a career in truck driving?

**Informant 13** – I agree with another logistics company that encourages youngsters to join by implementing a career advancement program.

**Interviewer** – How do you think technological advancements, such as automated vehicles, could help address the truck driver shortage?

**Informant 13** – So far, automated vehicles are still not considered due to the lack of infrastructure, and skilled drivers are still needed.

## Appendix D

### Turnitin Report

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