ANALYSING THE CONCEPTUAL MODEL OF FACTORS INFLUENCING PRICING PRACTICES IN PENINSULAR MALAYSIA'S HAULAGE INDUSTRY

CHIANG CHENG GUAN

MASTER OF SCIENCE (TRANSPORTATION AND LOGISTICS MANAGEMENT)
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CHIANG CHENG GUAN

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Tarikh: **29 Julai 2025**
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Nama Pelajar (Name of Student)	:	**Chiang Cheng Guan**
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Nama Penyelia/Penyelia-penyelia *(Name of Supervisor/Supervisors)*	:	**Dr. Nooraini Ismail**

Tandatangan

Nama Penyelia/Penyelia-penyelia *(Name of Supervisor/Supervisors)*	:	**-**

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ABSTRACT

The haulage sector is a vital component of Malaysia's logistics network, supporting trade flows between seaports and inland destinations. Despite its importance, the sector operates without a structured pricing mechanism, leading to inconsistent and non-transparent pricing practices. This issue has raised concerns over sustainability, particularly for small and medium-sized enterprises (SMEs) operating under cost pressure. The problem is further compounded by an absence of formal regulatory oversight, unlike sea and air transport, which are governed by established legal frameworks.

This study aims to examine stakeholders' perceptions of pricing fairness in the Malaysian haulage industry and to identify the operational cost factors that shape a fair pricing structure. The research objectives include identifying key cost components, evaluating their influence on pricing practices, and analysing a conceptual model that reflects fair pricing principles.

A qualitative approach was adopted, using semi-structured interviews with selected industry players, including haulage operators, association representatives, and regulatory stakeholders. The data were analysed thematically to uncover recurring views on pricing challenges and expectations. The analysis revealed that manpower costs, vehicle maintenance, and technology adoption are the most critical elements influencing perceptions of fair pricing. Additionally, issues such as client power imbalance, regulatory gaps, and absence of cost-reflective tools were raised.

The study recommends that Malaysia's future haulage pricing approach be aligned with the National Transport Policy (NTP) 2019–2030 by promoting stakeholder inclusivity, transparency, and sustainability. Analysing the proposed conceptual model provides practical insights for policymakers and industry leaders to strengthen cost-reflective and equitable pricing frameworks.

Keywords : Fair Pricing, Haulage Industry, Cost Structure, Stakeholder Perception, NTP 2019–2030

ABSTRAK

Sektor pengendalian kontena merupakan komponen penting dalam rangkaian logistik Malaysia, menyokong aliran perdagangan antara pelabuhan dan destinasi pedalaman. Meskipun peranannya yang strategik, sektor ini beroperasi tanpa mekanisme penetapan harga yang berstruktur, menyebabkan amalan harga yang tidak konsisten dan tidak telus. Isu ini telah menimbulkan kebimbangan terhadap kelestarian, khususnya bagi perusahaan kecil dan sederhana (PKS) yang beroperasi dalam tekanan kos. Ketiadaan kawal selia formal, berbeza dengan pengangkutan laut dan udara yang tertakluk kepada kerangka undang-undang yang mantap, turut memburukkan keadaan.

Kajian ini bertujuan untuk meneliti persepsi pihak berkepentingan terhadap keadilan harga dalam industri pengendalian kontena di Malaysia serta mengenal pasti faktor kos operasi yang membentuk struktur ”Harga Yang Adil” (Fair Pricing). Objektif kajian termasuk mengenal pasti komponen kos utama, menilai pengaruhnya terhadap amalan penetapan harga, dan menganalisis model konseptual yang mencerminkan prinsip keadilan harga.

Pendekatan kualitatif telah digunakan melalui temu bual separa berstruktur bersama pengendali kontena, wakil persatuan, dan pihak berkuasa kawal selia yang terpilih. Data dianalisis secara tematik bagi mengenal pasti pandangan berulang mengenai cabaran dan jangkaan berkaitan harga. Analisis mendapati bahawa kos tenaga kerja, penyelenggaraan kenderaan, dan penggunaan teknologi merupakan faktor paling kritikal yang mempengaruhi persepsi terhadap Harga Yang Adil. Selain itu, isu seperti ketidakseimbangan kuasa pelanggan, jurang pengawalseliaan, dan ketiadaan alat pengiraan kos berasaskan data turut diketengahkan.

Kajian ini mencadangkan agar pendekatan penetapan harga pengendalian kontena di Malaysia diselaraskan dengan Dasar Pengangkutan Negara (NTP) 2019–2030 melalui prinsip keterangkuman, ketelusan, dan kelestarian. Analisis terhadap model konseptual yang dicadangkan memberikan panduan praktikal kepada pembuat dasar dan pemain industri dalam memperkukuh kerangka penetapan harga yang adil dan berasaskan kos sebenar.

Kata Kunci: Harga Yang Adil (Fair Pricing), Pengendalian Kontena, Kos Operasi, Malaysia, Dasar Pengangkutan Negara (NTP) 2019-2030.

DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; and any editorial work, paid or unpaid, carried out by a third party is acknowledged.

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LIST OF ABBREVIATION

Abbreviation	Full Form / Description
ABC	Activity-Based Costing
AMH	Association of Malaysian Hauliers
ASEAN	Association of Southeast Asian Nations
B2B	Business-to-Business
B2G	Business-to-Government
BOMBA	Jabatan Bomba dan Penyelamat Malaysia
CAPEX	Capital Expenditure
CBEC	Cross-Border E-Commerce
CEO	Chief Executive Officer
e-commerce	Electronic Commerce
ERP	Enterprise Resource Planning
e.g.	Exempli gratia (for example)
FMFF	Federation of Malaysian Freight Forwarders
G2G	Government-to-Government
GDP	Gross Domestic Product
GLC	Government-Linked Company
i.e.	id est (that is) – similar to for example
IR	Interview Response
IR4.0	Fourth Industrial Revolution
IRB	Institutional Review Board
JIT	Just-In-Time

Abbreviation	Full Form / Description
JPJ	Jabatan Pengangkutan Jalan
KEJARA	Keselamatan Jalan Raya (Demerit Point System)
KPI	Key Performance Indicator
L1	Main Theme (top-level NVivo/Excel code)
L2	Parent Code (grouped sub-theme)
L3	Child Code (specific coding tag)
LPI	Logistics Performance Index
LPN	Logistics Productivity Nexus
LR	Literature Review
LSP	Logistics Service Provider
MCBEA	Malaysian Cross Border e-Commerce Association
MBL	Master Bill of Lading
MCO	Movement Control Order (For Malaysia)
MOT	Ministry of Transport Malaysia
MPC	Malaysia Productivity Corporation
MRFS	Malaysian Road Freight Sector
MyCC	Malaysia Competition Commission
NTP 2019-2030	National Transport Policy (NTP) 2019-2030
OECD	Organisation for Economic Co-operation and Development
OPEX	Operating Expenditure
P1–P4	Conceptual Propositions
PKS	Perusahaan Kecil dan Sederhana (Malay for SME)
PPT	PowerPoint

Abbreviation	Full Form / Description
Q1–Q22	Interview Question Numbers
RO	Research Objective
RQ	Research Question
RQF	Research Quality Framework
Ro-Ro	Roll-on/Roll-off
SDG	Sustainable Development Goals
SFFLA	Selangor Freight Forwarders and Logistics Association
SME	Small and Medium-sized Enterprises
TDABC	Time-Driven Activity-Based Costing
TEU	Twenty-foot Equivalent Unit (ISO Container)
TNB	Tenaga Nasional Berhad
TOC	Table of Contents
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UUM	Universiti Utara Malaysia

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Fair pricing has become a pivotal concern in sustaining logistics systems, particularly within competitive and cost-sensitive sectors such as road haulage. In this context, fair pricing refers to pricing structures that accurately reflect operational costs, prevent exploitative rate-setting, and promote equitable competition among logistics service providers, especially small and medium-sized enterprises (SMEs). While sea and air transport sectors in Malaysia benefit from more formalised pricing and regulatory mechanisms, road haulage remains deregulated and price-volatile, with limited oversight by authorities or industry associations (OECD, 2021). This regulatory vacuum fosters cost opacity, under-pricing pressures, and uneven market competition.

Rodrigue (2022) highlights that the efficiency of transport terminals is closely tied to hinterland connectivity, where the haulage sector plays a critical but often underexamined role. Haulage services, typically involving prime movers and trailers, link major seaports to inland destinations and underpin containerised cargo movement across Peninsular Malaysia (Melan and Zainuddin, 2021). With trade volumes projected to reach 15 million TEUs at Port Klang by 2025 (Bernama, 2025), the reliability and pricing transparency of haulage services are becoming central to Malaysia's national logistics competitiveness.

Malaysia's performance in the World Bank Logistics Performance Index (LPI) has improved, rising from 41st in 2018 to 26th in 2023 (Arvis et al., 2023),

supported by advances in infrastructure and customs facilitation. However, this macro-level progress has not translated into equitable pricing conditions for domestic haulage. Current pricing practices remain largely informal, variable, and non-transparent, particularly in their treatment of indirect and structural cost components such as waiting time, compliance, and technology integration (MPC, 2022).

From a governance and stakeholder perspective, fair pricing is increasingly framed as both a procedural and distributive justice issue. Drawing from fair trade governance, Raynolds and Bennett (2015) argue that equitable outcomes require inclusive pricing structures that involve all market actors, especially marginalised players, in the decision-making process. The OECD (2021) similarly stresses the need for transparent, cost-reflective pricing to protect SME resilience in deregulated logistics environments dominated by larger buyers.

These concerns also intersect with Malaysia's policy ambitions. The National Transport Policy (NTP) 2019–2030, issued by the Prime Minister's Office and the Ministry of Transport (Prime Minister's Office of Malaysia, 2019; Ministry of Transport Malaysia, n.d.), emphasises inclusive economic growth, safety, sustainability, and innovation as core strategic thrusts. However, the deregulated nature of haulage pricing contradicts these goals by enabling informal rate-setting, excluding marginal operators from pricing decisions, and weakening the industry's capacity to invest in safer and more sustainable practices.

Eliasson (2021) underscores that without cost-reflective pricing, transport systems risk congestion, safety failures, and underinvestment in long-term infrastructure. He points to Singapore as a successful example where pricing mechanisms are used to manage demand and maintain system-wide efficiency. By contrast, Malaysia's haulage sector lacks the structured pricing reforms needed to align practice with policy. This gap between aspiration and implementation forms a central motivation for this study.

This research aims to examine how haulage stakeholders in Peninsular Malaysia perceive fairness in current pricing practices, and to identify the key operational cost components that should inform more equitable and sustainable pricing models. The study adopts an empirical qualitative approach to bridge theoretical discourse on fairness with the lived realities of industry practitioners in a liberalised market.

1.2 Problem Statements

Unlike maritime and air logistics, which are governed by legal instruments such as the Merchant Shipping Ordinance 1952 (Marine Department Malaysia, n.d.) and the Malaysian Aviation Commission Act 2015 (Amin & Ghani, 2023), haulage pricing remains informal, unregulated, and disconnected from actual cost structures.

These instruments do more than govern safety. They also enforce standards like scheduled maintenance, compliance reporting, and operational safeguards. This contributes to greater cost predictability and supports structured rate-setting. No such institutional structure exists in the haulage sector. Furthermore, oversight

under the Competition Act 2010 by MyCC prohibits price collaboration without offering a structured replacement mechanism for transparent or cost-reflective pricing (OECD, 2021).

This disconnect violates a core economic principle. As Eliasson (2021) observes, "*that transport systems need pricing to be efficient is an old insight*." Yet in Malaysia's haulage market, this remains unrealised. Without regulatory guidance, operators price their services under market pressure rather than in line with actual operating costs.

(i) SME Impact: Fragmented Markets and Power Asymmetries

This regulatory vacuum disproportionately affects small and medium-sized enterprises (SMEs), which dominate the haulage sector but lack the market power to negotiate fair rates (Grab Haulier, 2023). As noted by Zainuddin (2018), Malaysian SMEs are often forced to absorb rising costs, such as maintenance, port delays, and idle time at depots, without the ability to pass them onto clients. These indirect and hidden costs, which undermine profitability, are rarely captured in contractual pricing discussions (MPC, 2022). Interviews with operators confirm that under current deregulated conditions, price undercutting has led to a more than 50% decline in benchmark rates since the industry's liberalisation (Zainuddin, 2018).

This erosion of pricing power stems partly from policy legacies. Shah Al-haj (2003) noted that liberalisation in the early 2000s encouraged oversaturation of market entry without parallel regulatory safeguards. As a result, Malaysia's

haulage sector developed into a fragmented, hypercompetitive landscape in which pricing became a survival tactic rather than a reflection of value or cost.

While Malaysia's position in the World Bank Logistics Performance Index improved from 41st (2018) to 26th (2023) (Arvis et al., 2023), these macro-level logistics improvements have not translated into fair or sustainable conditions for SMEs at the operational level. Most studies to date focus on digitalisation, driver welfare, or supply chain optimisation (Nasir et al., 2021; Prapinit et al., 2024), leaving a critical research gap on how pricing practices intersect with cost burdens and fairness in decision-making.

(ii) EU Parallels: Deregulation Without Worker or Price Protection

Malaysia's trajectory mirrors challenges faced in other deregulated logistics markets, particularly within the European Union. Gubbins and Hancox (1987) warned decades ago of the risks that come with liberalised cabotage, risks that have since materialised across the EU in the form of wage suppression, increased driver exploitation, and distortion of rate-setting practices.

As Tvedt (2024) and the European Parliament (2025) note, the EU is now facing backlash against its initial liberalisation agenda, particularly in cross-border freight and cabotage operations where worker rights, rate enforcement, and environmental obligations have been undermined. This has prompted stronger oversight, but only after prolonged industry pushback and widespread dissatisfaction from domestic transport operators (Keckarovska 2021).

The OECD (2021) has similarly flagged that Malaysia's logistics markets are plagued by weak price signalling, fragmented oversight, and a lack of institutional coordination, leaving SMEs exposed to competitive forces without the policy tools to negotiate fair value. Without reform, Malaysia may face a future in which haulage becomes increasingly unsustainable, driven by globalised pricing pressures but disconnected from domestic cost realities.

(iii) Escalating Safety Risks and the Urgency of Pricing Reform

Pricing inefficiencies in Malaysia's haulage sector not only threaten SME survival but also compromise safety. As noted by the OECD (2021), underpriced services have led to financial strain that forces operators to delay maintenance, overload trucks, and extend driver hours to remain competitive. These pressures are now directly linked to rising heavy-vehicle accident rates in Malaysia (Bernama, 2025; The Star, 2025).

Although the KEJARA demerit system aims to improve driver behaviour, it only penalises drivers after summonses are paid, limiting its impact (The Star, 2025). Reform proposals urge that KEJARA be decoupled from payment status and tied to proactive enforcement. Yet such changes address symptoms, not root causes.

As Eliasson (2021) highlights, when transport pricing fails to internalise accident risk, safety becomes a casualty of market competition. Malaysia's current pricing environment discourages investment in safety-critical areas

such as vehicle upkeep, training, and compliance, creating a feedback loop of declining service quality and escalating operational risk. This dynamic is illustrated in Figure 1.1, which outlines the vicious cycle of under-pricing and safety degradation in the Malaysian haulage sector, highlighting how suppressed rates indirectly compromise regulatory compliance and public safety.

Figure 1.1
Vicious Cycle of Reactive Maintenance in Resource-Constrained Environments
Source: Adapted from Turner, 2021

Reform must address both market fairness and safety imperatives. In sectors such as air and maritime transport, regulatory frameworks like MAVCOM and the MSO 1952 enforce structured compliance mechanisms that indirectly influence cost structures through mandated maintenance, safety, and operational standards. These mechanisms create a degree of market discipline and quality assurance. In contrast, the haulage industry remains largely deregulated in both pricing and enforcement, resulting in fragmented accountability.

One of the few behavioural tools introduced to improve safety, the KEJARA demerit system, has proven ineffective and unreliable for employment verification and driver quality control. Notably, KEJARA imposes penalties only after summonses are paid, which limits its deterrent value and allows repeat offenders to avoid timely consequences (The Star, 2025). This weakens its role in enhancing safety and creates a disconnect between cost recovery, operational risk, and driver accountability.

For haulage operators, KEJARA data is not systematically integrated or made accessible for driver screening or recruitment. This contrasts with aviation, where licensing and safety records are tied directly to employment eligibility. As a result, companies lack a reliable mechanism to filter or reward safer drivers. This contributes to inconsistent labour standards and complicates efforts to link wage structures or pricing strategies to driver performance. The absence of such quality-control mechanisms not only affects road safety outcomes but also distorts market fairness. Companies that invest in compliance and safety cannot meaningfully differentiate themselves from operators who cut costs by compromising standards.

Introducing cost-reflective pricing that accounts for maintenance, training, and manpower would help stabilise rates while encouraging better compliance. This approach aligns with Eliasson's (2021) view that efficient pricing must internalise externalities such as accident risk. It also supports Malaysia's commitments under the National Transport Policy 2019–2030 and the United Nations Sustainable Development Goals to create a safer and more sustainable logistics ecosystem.

This study addresses these regulatory and market gaps by examining stakeholder perceptions of fair pricing in Malaysia's haulage sector. It seeks to identify key cost elements, including manpower, maintenance, and waiting time, that should be reflected in a more transparent and equitable pricing model. The findings aim to inform the development and analysis of a conceptual framework that aligns with the National Transport Policy 2019–2030, the Sustainable Development Goals, and fair competition principles, ensuring both commercial viability and public safety in Malaysia's road logistics ecosystem (MOT, n.d.).

1.3 Research Questions

This study investigates how key cost-related factors influence pricing practices in Peninsular Malaysia's haulage industry, through the lens of stakeholder experiences and operational realities. In line with the revised title and research objectives, the following research questions are proposed.

(1) What are the key factors that shape stakeholders' perceptions of fair pricing in the container haulage sector, considering their operational challenges and cost-related experiences?

(2) How do these identified factors influence actual pricing practices and decision-making processes within the haulage industry?

(3) To what extent does the proposed conceptual model reflect the relationship between operational cost drivers and pricing behaviour in the Malaysian haulage context?

1.4 Research Objectives

The research objectives have been formulated to directly address the key issues outlined in the problem statement and to provide a structured pathway for answering the research questions. Specifically, this study aims:

(1) To identify the key factors that shape stakeholders' perceptions of fair pricing in the haulage sector, in relation to their operational challenges and cost-related experiences.

(2) To analyse how these identified factors influence pricing practices and decision-making within the container haulage industry.

(3) To assess the extent to which the proposed conceptual model reflects the relationship between operational cost drivers and pricing behaviour in the Peninsular Malaysia haulage context.

1.5 Significance of the Study

The haulage industry plays a vital role in supporting Malaysia's economic growth and supply chain efficiency. However, despite the liberalisation of haulage pricing in 2005, the industry continues to lack a structured and transparent framework for cost-reflective pricing, particularly for small and medium-sized enterprises (SMEs) operating within a fragmented and highly competitive market environment (Melan & Zainuddin, 2021; Organisation for Economic Co-operation and Development (OECD), 2021). This absence of pricing guidelines has contributed to widespread price undercutting, which not only threatens the financial viability of haulage operators but also poses significant risks to safety standards, service quality, and long-term sustainability investments, especially those aligned with the objectives of Malaysia's NTP 2019-2030 (MOT, n.d.).

The significance of this study lies in its potential to contribute meaningfully to both theoretical knowledge and practical application within the field of logistics and transportation management. From a theoretical perspective, the study aims to enhance the conceptual understanding of fair pricing perceptions in a deregulated market by identifying the key factors that influence pricing decisions in the haulage sector. By doing so, the research will advance academic discourse on transport economics, stakeholder theory, and pricing fairness (OECD, 2021.

From a practical standpoint, the study is expected to provide valuable insights for industry practitioners, particularly SMEs, by highlighting how operational realities and market dynamics shape pricing practices. The findings may assist haulage operators in developing more equitable, transparent, and sustainable pricing strategies that can improve competitiveness while maintaining service quality and safety standards. Additionally, the research holds strategic relevance for policymakers and regulatory bodies, offering evidence-based recommendations that can inform the development of fairer pricing frameworks and policies aimed at enhancing the overall resilience, compliance, and sustainability of the haulage industry.

Ultimately, by addressing a critical gap in both academic literature and industry practice, this study seeks to support the creation of a healthier, more stable, and forward-looking haulage sector that is better positioned to meet current economic demands and future transportation challenges.

1.6 Scope of the Study

This study focuses exclusively on fair pricing practices in the container haulage industry within Peninsular Malaysia, due to differences in governance structures between Peninsular Malaysia and East Malaysia. In Peninsular Malaysia, land transport is regulated by the Land Public Transport Agency (APAD) under the MOT. In contrast, Sabah and Sarawak fall under separate state-level licensing jurisdictions, Lembaga Pelesenan Kenderaan Perdagangan (LPKP) Sabah and LPKP Sarawak, with distinct regulatory frameworks and infrastructural conditions. These regions are therefore excluded to maintain analytical consistency.

The research emphasises operational cost factors, including manpower, maintenance, and waiting time, that influence pricing decisions and stakeholder perceptions of fairness in a deregulated environment.

Rather than prescribing tariff levels or conducting rate simulations, the study adopts a qualitative approach. It explores how key industry stakeholders interpret cost structures and assess pricing fairness. Targeted participants include haulage operators, industry association leaders (e.g., AMH), port-based logistics stakeholders, and relevant policymakers.

Although the study is not comparative or international in scope, it references selected global frameworks, such as OECD guidance, Fairtrade pricing principles, and MyCC market reviews, to strengthen conceptual framing. This ensures the analysis remains contextually grounded, policy-relevant, and aligned with the broader objectives of NTP 2019-2030.

Data is collected through semi-structured interviews and analysed thematically to extract key themes, patterns, and stakeholder narratives related to pricing fairness.

1.7 Definition of Key Terms

The following terms are operationalised within the qualitative framework of this study to ensure conceptual consistency and contextual relevance:

(1) Fair Pricing

Fair pricing, in the context of this study, refers to a negotiated pricing condition that reflects the lived operational burdens of service providers while supporting business viability. Rather than a fixed or regulated tariff, it is interpreted as a relational outcome shaped by pricing transparency, cost visibility, and mutual understanding among logistics actors in a deregulated environment (Eyster et al., 2021; Fairtrade International, n.d.).

(2) Perceived Fairness

Perceived fairness refers to stakeholders' interpretive judgments about whether pricing practices are reasonable, equitable, and aligned with informal industry norms. It includes both distributive aspects (fairness of pricing outcomes) and procedural aspects (fairness of the pricing process), particularly in relation to inclusivity and transparency. As Raynolds and Bennett (2015) argue, "*inclusive and transparent governance arrangements are essential for ensuring that trade rules and outcomes are perceived as legitimate and fair*".

(3) Haulage Industry

In this study, the haulage industry refers specifically to the containerised road freight transport sector in Peninsular Malaysia, particularly involving the movement of containers between major seaports, such as Port Klang and Port of Tanjung Pelepas (PTP), and inland depots or industrial zones. This operational domain typically involves the use of prime movers and skeletal trailers for first- and last-mile connectivity in the port logistics chain (Melan & Zainuddin, 2021).

(4) Stakeholders

In the context of this study, stakeholders refer to all actors involved in or affected by pricing practices within the Malaysian haulage sector. These include haulage operators (both SMEs and larger firms), industry association representatives (e.g., FMFF, AMH, SFFLA), port-related service providers, and regulatory authorities or advisors engaged in logistics governance and price-setting mechanisms (OECD, 2021; MPC, 2022).

(5) Manpower Cost

Manpower cost refers to labour-related expenditure incurred in haulage operations, including driver wages, overtime, training, medical coverage, and retention schemes. This study examines manpower cost as a key operational burden, particularly for small and medium-sized haulage firms, which are disproportionately impacted by rising wage obligations under national labour regulations such as the Minimum Wages Order 2022 (Yeoh & Khor, 2022).

(6) Labour, Driver, and Wage

This theme encompasses driver recruitment, wage policy enforcement, working conditions, and employee retention within haulage operations. Labour-related challenges are linked to rising operational costs, implementation of the Minimum Wages Order 2022, and the difficulty SMEs face in pricing-in human capital burdens amid client rate suppression (Grab Haulier, 2023; Yeoh & Khor, 2022; MPC, 2022).

(7) Maintenance Cost

Refers to the total expenditure required to maintain haulage fleets in operational condition, including routine servicing, major repairs, spare part replacements, unplanned breakdowns, and inspection-related vehicle downtime. In this study, maintenance cost is analysed as a frequently under-recovered component in haulage pricing structures, particularly affecting SMEs due to irregular payment cycles and overloaded operations (Berwick & Dooley, 1997; Sapry et al., 2016; MacArthur, 2022; MPC, 2022; Mujakachi & Tsvere, 2023).

(8) Technology Adoption Cost

Technology adoption cost refers to the financial, organisational, and compliance-related burdens associated with integrating digital systems into haulage operations. These may include ERP platforms, fleet telematics, emissions control tools, and software for regulatory documentation. In this study, such costs are treated as critical yet often unpriced components of SME operations. Adoption challenges are compounded by limited resources,

institutional gaps, and market size constraints, particularly in emerging economies like Malaysia (Shahadat et al., 2023; Qasim, 2023; Belanova, 2023).

(9) Thematic Analysis

Thematic Analysis (TA) is a widely used method for analysing qualitative data, particularly in psychology and social sciences. Unlike grounded theory or narrative analysis, TA functions more as a flexible tool than a rigid methodology, allowing researchers to identify, analyse, and interpret recurring themes in participant responses. In this study, TA is employed to uncover stakeholder perspectives on fair pricing in haulage, based on their lived experiences and operational challenges (Braun & Clarke, 2006, 2022).

(10) Economic Framework

In this study, economic framework refers to the underlying logic that informs how haulage firms structure cost recovery and pricing decisions. It draws from Porter's (1980) view that firms seek competitive advantage through strategic cost allocation, and Eliasson's (2021) assertion that efficient transport pricing should reflect actual operational and external costs to promote both system efficiency and long-term sustainability. Together, these perspectives frame the role of pricing as both a business imperative and a policy lever.

(11) Green/Sustainable Logistics

Green or sustainable logistics refers to the integration of environmental objectives into logistics operations, including fuel efficiency, emission

control, and the adoption of cleaner technologies. In this study, it is examined as a secondary theme linked to fair pricing readiness and long-term policy alignment. The concept is supported by Malaysia's NTP 2019–2030, which promotes environmentally sustainable and cost-effective freight systems (MOT, n.d).

(12) Policy and Regulation

Policy and regulation refer to the institutional and legal frameworks that shape the governance of land transport systems, including freight logistics, licensing, and market practices. In Malaysia, the Land Public Transport Agency (APAD) plays a central role in developing and enforcing land transport strategies. These efforts are guided by the NTP 2019–2030, which promotes a safe, efficient, and sustainable logistics ecosystem through structured planning, regulatory coordination, and market oversight (APAD, n.d.; MOT, (n.d.).

1.8 Organization of the Thesis

This thesis is structured into five chapters, each designed to address the research objectives and questions concerning fair pricing in Malaysia's haulage industry.

- **Chapter 1** introduces the study, outlining the background, problem statement, research objectives and questions. It also presents the significance, scope, limitations, and definitions of key terms used throughout the thesis.
- **Chapter 2** reviews relevant literature on haulage operations, deregulated pricing, cost structure challenges, and stakeholder perceptions of fairness. It also discusses national transport policies and global frameworks that inform sustainable and transparent logistics practices.

- **Chapter 3** details the research methodology, including the qualitative design, sampling strategy, data collection methods, and thematic analysis procedures used to examine stakeholder narratives.
- **Chapter 4** presents and discusses the research findings, focusing on the recurring themes that emerged from participant insights regarding pricing fairness, operational cost challenges, and structural pressures affecting the haulage sector.
- **Chapter 5** concludes the study by summarising key findings, offering practical and policy recommendations, acknowledging limitations, and proposing areas for future research relevant to Malaysia's logistics and transport industry.

1.9 Chapter One: Summary

This chapter introduced the study by outlining the background, problem statement, research questions, and objectives that guide the investigation into fair pricing practices in Malaysia's haulage industry. It highlighted the significance of pricing transparency, the operational burdens faced by SMEs, and the regulatory gaps that differentiate haulage from other transport modes. The scope of the study was clearly defined, and key terms relevant to the research were explained to ensure conceptual clarity. Finally, the organization of the thesis was presented to guide the reader through the subsequent chapters.

The next chapter provides a comprehensive review of theoretical and empirical literature on fair pricing, cost structures, and transport economics. This review will establish the conceptual grounding for the study and identify existing research gaps to support the development of the study's framework.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Understanding the dynamics of fair pricing in Malaysia's haulage sector requires both theoretical framing and empirical investigation. The sector faces increasing pressure from liberalisation, technology adoption, rising operational costs, and workforce shortages, all of which interact with pricing mechanisms and perceived fairness (Mazlan & Kashveen, 2019; Rahmat et al., 2021).

Malaysia's journey of haulage liberalisation began as early as the early 2000s. Shah Al-haj (2003) critically examined the liberalisation of the container haulage industry, raising early concerns about pricing instability, regulatory vacuum, and power imbalance. Two decades later, the challenges highlighted remain unresolved in many areas, particularly the dominance of large buyers, lack of price control mechanisms, and fragmented enforcement, as confirmed in recent industry-level studies (MPC, 2022; OECD, 2021).

A multidimensional view is therefore essential to unpack the complexity of fair pricing. This includes analysing not only operational cost drivers such as manpower, maintenance, and fuel, but also broader policy and institutional frameworks that shape pricing behaviour and market competitiveness. Regulatory compliance regimes, weak enforcement structures, and client-driven tender models have collectively contributed to widening fairness gaps, particularly among small and medium-sized haulage operators (OECD, 2021; Shah Al-haj, 2003).

As Ji-Hyland and Allen (2022) highlight, driver shortages and retention challenges are globally recognised as critical pressure points impacting both cost structures and service delivery, a concern widely echoed across Malaysian studies (Prapinit et al., 2024; Nasir et al., 2021). Similarly, technology remains a double-edged sword: while digitalisation and telematics offer cost-efficiency potential, many SMEs struggle with integration, capital requirements, and lack of cost recovery in existing pricing structures (Ammeran et al., 2023, Shahadat et al., 2023; Kek & Lai, 2023).

This chapter critically reviews both theoretical underpinnings and empirical findings to establish a robust foundation for understanding Malaysia's fair pricing challenges. The review reflects the updated thematic coding hierarchy, which revealed Policy and Regulation (LR7) as the most dominant literature theme, followed by Labour and Wage (LR2) and Economic Frameworks (LR3). These findings are visually summarised in Appendix C: Literature Review Tree Code Book, and they validate the chapter's dual emphasis on core cost domains, manpower, maintenance, and technology, and institutional factors such as pricing models, regulatory enforcement, and power asymmetry. Together, these dimensions provide the lens for analysing fairness in haulage pricing in the chapters that follow.

2.2 Theoretical Literature Review

The integration of theory in logistics and supply chain studies enhances the ability to contextualize complex industry dynamics, especially under evolving market pressures. Ji-Hyland and Allen (2022) argue that effective theoretical framing is

essential when examining structural issues such as driver shortages and operational costs in the freight industry.

Hossain's (2023) study on circular supply chains in the Bangladeshi cement industry demonstrates the relevance of qualitative inquiry in unpacking complex, context-dependent logistics challenges. Drawing on Gammelgaard and Flint (2012), Hossain adopts a theoretically informed case study approach, showing how supply chain collaboration and environmental constraints interact in dynamic, non-linear ways. Gammelgaard and Flint (2012) further emphasize that qualitative logistics research gains analytical value when grounded in theoretical constructs, as such frameworks enable researchers to systematically interpret nuanced empirical findings. In line with this perspective, the present study integrates thematic analysis with cost-based theories like Time-Driven Activity-Based Costing (TDABC) and Porter's Diamond Model to frame how stakeholders perceive fairness and cost attribution within Malaysia's deregulated haulage sector.

In this study, Porter's Diamond Theory is used to examine the competitive environment within Malaysia's haulage sector, particularly how external market forces and institutional conditions shape the sustainability of pricing practices (Porter, 1990). At the operational level, the study applies Time-Driven Activity-Based Costing (TDABC) as a complementary framework to explore cost transparency and allocation. As Pacheco et al. (2021) and Shahadat et al. (2023) suggest, TDABC enables firms to link process-based cost drivers such as

manpower, vehicle maintenance, and technology adoption directly to pricing decisions.

These theoretical choices reflect the study's emphasis on understanding how internal cost structures and external market conditions interact to influence stakeholder perceptions of fair pricing. While Porter's Diamond Theory (PDT) has often been applied to national-level industrial competitiveness, recent studies such as Burinskienė and Daškevič (2024) demonstrate its renewed relevance in evaluating logistics performance and digital transformation. Their application of PDT in logistics highlights how factor conditions, supporting industries, and institutional settings influence firms' ability to integrate technology and achieve cost competitiveness. In the Malaysian context, such framing allows this study to explore how deregulation, fragmented competition, and uneven digital adoption continue to shape fair pricing practices in the haulage industry. This integration fills a theoretical gap by repositioning PDT as a tool to evaluate sectoral readiness for cost transparency, service efficiency, and innovation diffusion within Malaysia's freight ecosystem.

2.2.1 Porter's Diamond Theory and Industry Competitiveness

Porter's Diamond Model (Porter, 1990) provides a foundational framework to assess the competitive advantage of nations and industries. In the context of the Malaysian haulage and logistics sector, the model helps unpack key systemic enablers and constraints that influence cost efficiency, service quality, and innovation capability.

The model consists of four primary determinants, Factor Conditions, Demand Conditions, Related and Supporting Industries, and Firm Strategy, Structure and Rivalry, supplemented by two auxiliary elements: Government and Chance. These six components collectively shape the environment in which firms operate and compete (Porter, 1990).

The following Figure 2.1, adapted from Zuk (2021), contextualizes Porter's model within a logistics cluster framework. It highlights how competitiveness is driven by strategic investments across talent, infrastructure, services, and supporting networks, making it particularly relevant for analysing Malaysia's freight transport sector.

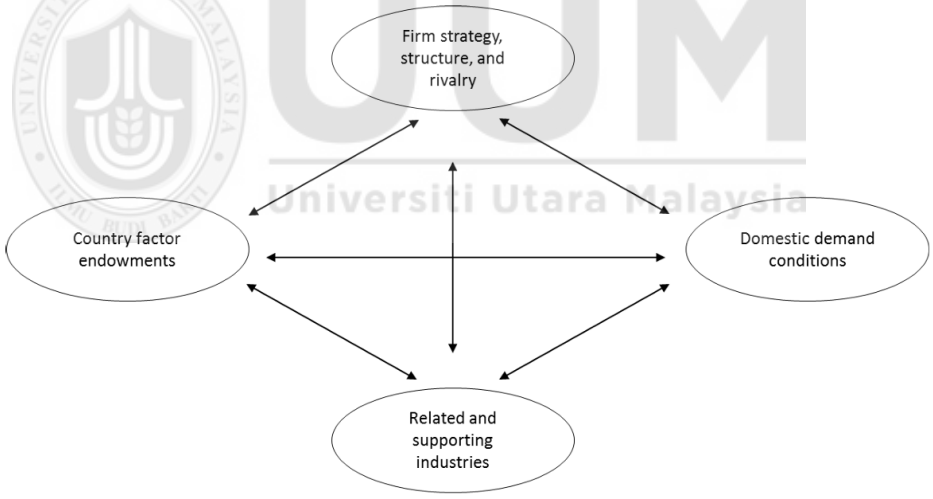

Figure 2.1
Adapted Porter's Diamond Model for Logistics Cluster Competitiveness
Source: Adapted from Porter (1990) and contextualized by Zuk (2021)

(1) Factor Conditions

Studies such as Ji-Hyland and Allen (2022) and Rahmat et al. (2021) point to long-standing constraints in skilled labour, particularly an aging driver workforce and low industry attractiveness among younger workers. These limitations weaken the sector's ability to sustain operations efficiently and respond to growth in trade volume. Inadequate training systems, poor working conditions, and limited technological exposure further erode factor quality within the logistics workforce.

(2) Demand Conditions

Regional integration efforts under ASEAN logistics frameworks have elevated expectations for service reliability, shipment visibility, and digital responsiveness across freight networks. Domestically, the rapid growth of e-commerce and just-in-time (JIT) delivery models has reshaped market demands toward faster, more predictable logistics. According to the World Bank, IRU, and SSATP (2025), the reform of road transport services must be anchored in digital integration, performance-based planning, and real-time data exchange to meet rising service expectations. Additionally, the ASEAN Regional Guidelines on Competition Policy (2010) emphasise the role of market competition and consumer welfare in shaping transport services, reinforcing the need for Malaysian haulage firms to adapt to increasingly sophisticated and service-oriented demand environments.

(3) Related and Supporting Industries

Malaysia's intermodal inefficiencies, particularly between seaports and inland terminals, continue to hinder logistics cluster development. Nasir et al. (2021) and Gammelgaard and Flint (2012) highlight that fragmented infrastructure planning and poor hinterland connectivity create bottlenecks, reducing overall haulage performance. Moreover, technological underinvestment among subcontracted service providers limits the synergy of supporting industries, affecting haulage operators' competitiveness.

(4) Firm Strategy, Structure, and Rivalry

The haulage industry remains highly fragmented, with intense price-based rivalry and minimal strategic collaboration. Eliasson (2021) argues that in such deregulated environments, unchecked price competition without productivity reforms may erode long-term industry resilience. These patterns, also observed by Shah Al-haj (2003), limit the sector's ability to scale innovations, invest in cost-saving technologies, or pursue joint efficiency programmes, further dampening competitive strength in both domestic and regional markets.

(5) Government and Institutional Support:

The role of government is pivotal in shaping logistics competitiveness. However, overlapping federal and state-level transport regulations, coupled with inconsistent enforcement, have created a disjointed policy environment. Taghvaee et al. (2023) and the Malaysia Productivity Corporation (MPC, 2022) observe that such institutional fragmentation weakens coordinated

responses to pricing, safety, and sustainability challenges. This misalignment affects both the creation of enabling factor conditions and the fair functioning of competitive mechanisms.

In summary, Porter's Diamond Model remains a robust framework for examining the interplay between firm-level capabilities and external policy conditions within Malaysia's haulage sector. Zuk's (2021) adaptation offers a logistics-specific lens to interpret strategic investment behaviour, while more recent perspectives, such as those by Burinskienė and Daškevič (2024), position digitalisation as a core pillar of competitive advantage. Their model combines PDT with the Resource-Based View (RBV) and Digital Transformation Theory to illustrate how multiple theoretical lenses may co-exist in understanding competitiveness. This study, however, selectively integrates Porter's Diamond Theory with Time-Driven Activity-Based Costing (TDABC), focusing on how systemic enablers and cost attribution mechanisms jointly shape stakeholder perceptions of fair pricing in Malaysia's deregulated and evolving haulage landscape. The following Figure 2.2, titled "Competitiveness theories and their application," reflects this broader theoretical landscape while justifying the dual-framework approach adopted in this study.

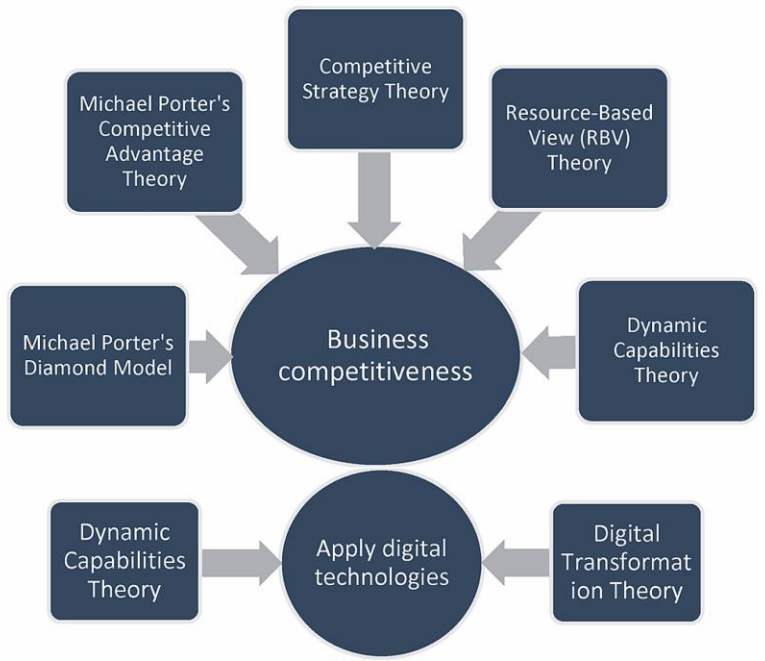

Figure 2.2
Competitiveness theories and their application
Source: Burinskienė & Daškevič (2024)

2.2.2 Time-Driven Activity-Based Costing (TDABC)

Time-Driven Activity-Based Costing (TDABC), developed by Kaplan and Anderson (2007), is a modern cost allocation methodology that measures the actual time resources are consumed in delivering services or executing operational tasks. Unlike traditional activity-based costing, which may rely on subjective cost drivers, TDABC uses time equations and resource capacity rates to assign costs with greater precision. This methodology is particularly useful in-service industries with high variability and fragmentation, such as the Malaysian haulage sector, where accurate cost tracing is crucial yet often underemphasized (Eliasson, 2021; Grab Haulier, 2023)

In the context of Malaysia's deregulated container haulage market, where most pricing is informally negotiated and lacks cost transparency, TDABC provides a structured tool to identify non-revenue-generating activities that erode

profitability. These include idle time at ports, queuing delays at depots, and administrative bottlenecks tied to compliance processes. As noted by Grab Haulier (2023), operators frequently face uncompensated wait times, which impose real cost burdens yet remain excluded from pricing discussions, ultimately threatening service viability for smaller logistics firms. This aligns with Lam et al. (2023), who demonstrated that applying structured goal programming and cost modelling in transport companies improves the visibility of operational inefficiencies and supports more data-driven decision-making, making TDABC not only analytically robust but also practically relevant for industry stakeholders.

The implementation of TDABC follows a structured five-step framework, summarised in Figure 2.3. These steps involve:

(1) Identifying operational activities (e.g., driving, waiting, checking documentation)
(2) Determine the time equations and resource drivers (e.g., labour hours, vehicle use)
(3) Calculating the capacity cost rate (e.g., cost per driver hour or truck utilisation)
(4) Assign costs to each activity based on time requirements.
(5) Aggregate the total activity costs to service categories, routes, or customer segments.

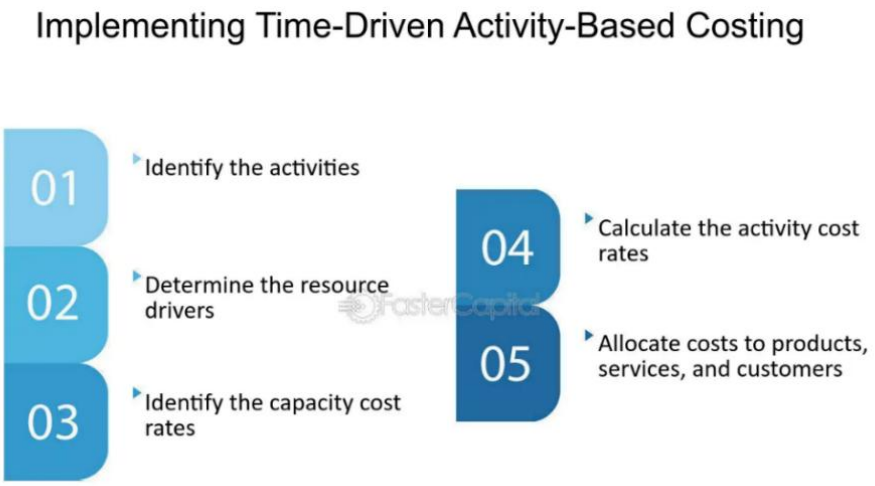

Figure 2.3
Steps in Implementing TDABC
Source: FasterCapital (2025b).

The strength of TDABC lies in its ability to reveal cost realities hidden within "standard" haulage pricing structures. For instance, operators frequently hesitate to invest in digital infrastructure such as GPS tracking and emissions monitoring, largely due to the absence of recovery mechanisms in existing tariff models (Prapinit et al., 2024). Jansen (2024) emphasised that time-related inefficiencies, though operationally significant, remain financially invisible unless firms adopt time-based costing. This is reinforced by Eliasson (2021), who argues that efficient transport pricing depends on aligning cost models with time consumption to prevent resource misallocation and under-pricing in logistics services.

TDABC also strengthens this study's conceptual framework by linking operational cost transparency to the broader issue of fair pricing. While Porter's Diamond Theory in Section 2.2.1 frames fairness as a macro-level competitiveness factor rooted in national market structure, TDABC offers a microeconomic diagnostic to assess whether price-setting mechanisms fairly

reflect actual resource consumption. In this way, TDABC supports the thesis goal of evaluating fairness not only as a perceptual concern, but also as an operational reform issue within Malaysia's logistics sector (Kaplan & Anderson, 2007; Eliasson, 2021).

2.2.3 Bridging Theory and Practice

Operationalizing TDABC in Haulage Cost Analysis, TDABC's structured approach to tracing time-based costs (Section 2.2.2) provides a diagnostic lens to dissect operational inefficiencies in logistics. By quantifying hidden burdens like driver idle time, compliance delays, and fleet underutilization, it challenges traditional pricing models that overlook these realities (Eliasson, 2021). However, the practical implications of these costs, and their impact on pricing fairness, remain contingent on sector-specific dynamics.

Malaysia's haulage sector exemplifies this disconnect. Studies such as Jansen (2024) and Mujakachi & Tsvere (2023) empirically validate TDABC's premise, revealing how unbilled delays (e.g., PUSPAKOM inspections) and fragmented costing systems distort price negotiations. Similarly, recent studies highlight manpower and maintenance costs that align with TDABC's emphasis on resource-driven activities (Prapinit et al., 2024; Amran et al., 2023). These findings underscore the need to contextualize TDABC's micro-level insights within broader industry practices. In Malaysia's deregulated haulage market, the cost drivers exposed by TDABC, such as wage pressures, compliance delays, and underutilised assets, raise fundamental questions about how fairly prices reflect operational burdens. These concerns shape the empirical focus that follows in Section 2.3.

2.3 Empirical Literature Review

The empirical literature provides critical insight into how cost dynamics and institutional structures interact to shape pricing outcomes in the Malaysian haulage industry. This section synthesises findings across three key cost domains, manpower, maintenance, and technology adoption, which emerged prominently in the literature as primary cost burdens affecting pricing practices and fairness perceptions. These themes were selected based on the thematic coding of 52 literature sources, where Labour and Wage (LR2), Technology and Digitalisation (LR5), and Operational and Compliance (LR4) were consistently represented across empirical studies.

While Policy and Regulation (LR7) recorded the highest frequency of codes in the literature review (Appendix C), its influence is understood as a structural condition that constrains or enables fair pricing, rather than a directly measurable cost factor. Its role is therefore treated as a moderating or contextual variable in the study's framework.

In contrast, Economic Frameworks (LR3) and Pricing & Competition (LR1) are tightly coupled with firm-level decision-making. LR3 reflects how businesses respond strategically to liberalisation, deregulation, and macroeconomic pricing pressures, while LR1 underscores how price competition and margin erosion directly impact operator sustainability. Together, these themes reinforce the empirical relevance of focusing on operational cost recovery as a central lens for exploring fair pricing in a deregulated logistics environment.

The following subsections examine the empirical literature related to:

(i) Manpower cost and human capital gaps (2.3.1),

(ii) Maintenance cost and compliance overhead (2.3.2),

(iii) Technology investment and SME readiness (2.3.3),

(iv) Fair pricing and structural imbalances (2.3.4).

2.3.1 Manpower Costs and Human Capital Gaps

Manpower cost remains a critical issue in the Malaysian haulage sector, particularly amid rising wage pressures and a growing shortage of qualified drivers (Malay Mail, 2024). This concern is strongly reflected in the literature, where the theme of Labour and Wage (LR2) recorded 44 coded references, making it the second most prominent theme in the review (see Appendix C). The volume of coverage reflects widespread attention to payroll burdens, talent retention, and structural labour market vulnerabilities.

In Malaysia, the Minimum Wages Order 2022 significantly increased payroll costs for small fleet operators, exacerbating pressures in an already price-sensitive environment (Yeoh & Khor, 2022). These financial constraints discourage investment in workforce development. Emmanuel et al. (2021) similarly note that a weak recruitment pipeline and poor working conditions have led to rising driver attrition, echoing global concerns.

Internationally, the driver shortage crisis is not unique to Malaysia. Keckarovska (2021) points to similar patterns in Europe, where driver scarcity has disrupted supply chains and forced operators to increase wages without matching revenue gains. In Australia, the problem is compounded by an aging workforce, Wang et

al., (2022) highlight that nearly half of the truck drivers are expected to be over 65 by 2026, creating severe transport capacity shortages and service reliability concerns. Their 2022 follow-up study reinforces that this has a cascading impact on industries reliant on road freight such as manufacturing and agriculture.

Ji-Hyland and Allen (2022) explain that such demographic trends, when combined with low sectoral appeal, contribute to long-term depletion of human capital. Mazlan and Kashveen (2019) observe that similar dynamics are emerging in Southeast Asia, where labour market competitiveness is intensified by the rapid rise of e-commerce and construction, further drawing talent away from the logistics sector.

These insights align with Phares and Balthrop (2022), who argue that competing wage opportunities in adjacent sectors continue to divert potential recruits. As noted by Che Hasan et al. (2022), this shortage raises not just financial concerns, but also safety and service-level risks due to driver fatigue and limited availability of experienced personnel.

Although several scholars, including Tarudin et al. (2023) and Prapinit et al. (2024), recommend incentive-based retention schemes and targeted skills training, firms are reluctant to invest without a viable cost recovery mechanism through pricing models, thus perpetuating a cycle of attrition and underinvestment.

2.3.2 Maintenance Cost and Compliance Overhead

Maintenance-related costs are exacerbated by regulatory compliance burdens, as reflected in Ribeiro-Duthie et al. (2021) and Mujakachi & Tsvere (2023). These studies found that wear-and-tear from congested roads, poor depot access, and aging fleet infrastructure raise direct repair and servicing expenses.

The theme of Operational and Compliance Costs (LR4) accounted for 23 coded references in the literature review (Appendix C), underscoring the extent to which maintenance burdens are deeply embedded in both regulatory and operational realities. This reflects how cost inefficiencies tied to compliance obligations form a persistent obstacle to fair pricing outcomes for haulage operators.

More notably, costs tied to regulatory inspections, such as PUSPAKOM checks, and compliance documentation introduce hidden inefficiencies. These non-productive hours, often unpaid by clients, contribute to what Grab Haulier (2023) described as unrecoverable idle costs due to delays from customs procedures, poor infrastructure, and staging burdens. This aligns with TDABC logic discussed in Section 2.2.2, where unbilled delays erode financial margins despite high asset utilization.

In the Malaysian context, Amram et al., (2023) observed that working capital tied up in spare parts inventory is particularly burdensome for SME hauliers, further impacting liquidity and maintenance budgeting. Fair pricing models that ignore such realities distort operator survivability and stifle fleet modernization.

2.3.3 Technology Investment and SME Readiness

While technology adoption holds promise for cost efficiency, numerous studies reveal persistent readiness gaps among SMEs, particularly in capital access and integration capability (Belanova, 2023). This concern is reinforced by the literature coding, where the theme of Technology and Digitalisation (LR5) recorded 26 coded references, underscoring its empirical relevance to pricing challenges and operational reform (see Appendix C).

According to Pacheco et al. (2021), time-driven cost tracing and digital platform integration are underutilized due to lack of ROI certainty in current haulage pricing structures. Nkesah (2023) reinforces this point, showing that without a clear value-based pricing framework, investments in telematics, emissions control, or automation tools remain slow. Zainuddin et al. (2023) also identified digital readiness gaps, especially among rural or second-tier operators.

Balaban et al. (2025) note that trade agreements and voluntary initiatives (e.g., sustainable supply chains) can provide the enabling ecosystem for tech-based cost efficiency, but only if national pricing models evolve to reflect total lifecycle costs. Until then, most SMEs avoid tech upgrades that do not guarantee revenue recovery.

2.3.4 Fair Pricing: Cost Transparency and Structural Imbalances

(1) Structural Inefficiencies in Pricing Models

Empirical studies consistently highlight a gap between real operating costs and the pricing frameworks used in the haulage sector. Zuk (2021), Boin et

al., (2020) and Raynolds and Bennett (2015) stress the need for transparent cost modelling to achieve fair pricing. However, in Malaysia, many haulage contracts still overlook key cost factors such as compliance delays, idle time, and asset depreciation (Jansen, 2024; Mujakachi & Tsvere, 2023). These so-called "unpriced risks" tend to fall on small and medium operators. Grab Haulier's (2023) study found that 62% of SME hauliers had to absorb costs like PUSPAKOM inspections without any reimbursement from clients. This underscores the need for continuous policy review and structural adaptation, as emphasised by Gluck et al. (2024) in their comparative analysis of transport systems.

These concerns are well reflected in the literature coding results, where Policy and Regulation (LR7) emerged as the most dominant theme (65 coded excerpts), followed by Pricing and Competition (LR1) with 24 references (see Appendix C). These findings underscore the structural challenges that prevent cost-based pricing from emerging in practice.

This issue becomes more visible when analysed through a Time-Driven Activity-Based Costing (TDABC) lens (see Section 2.2.2), where time equations reveal how excluded delays and inefficiencies chip away at profit margins. Taghvaee et al. (2023), for example, point out that standardised pricing rarely considers route-specific issues like port congestion, yet such delays can account for 15–20% of a trip's cost, often internalised by the operator (OECD, 2021).

(2) Power Asymmetry and Client-Led Pricing

These structural issues are further intensified by market power imbalances. In practice, large shippers hold the upper hand in negotiations and frequently set rates that fail to reflect actual cost structures (Zuk, 2021; Amuji et al., 2024). In the Malaysian context, Grab Haulier (2023) reported that 78% of SMEs accept below-cost contracts due to competitive pressure. Meanwhile, MyCC (2021) has identified limited enforcement of antitrust laws, which further exposes smaller players to buyer-driven pricing.

This dynamic reflects a key concern within Porter's Diamond Theory (see Section 2.2.1), where weak institutional support, labelled as "factor conditions," allows dominant buyers to suppress value redistribution across the chain. Gammelgaard and Flint's (2012) qualitative work reinforces this concern, describing a "strategic gap" in which SMEs are expected to invest in upgrades (like telematics systems) without these investments being factored into client pricing. Similarly, Marcuta et al. (2023) emphasise that fair trade principles are often undermined when sustainability and equity considerations are sidelined in real-world market dynamics, particularly in buyer-dominated value chains.

(3) Synthesis

Taken together, these patterns reveal a tension: while the literature increasingly supports cost-reflective pricing mechanisms (Barros et al., 2015), deregulated and highly competitive markets like Malaysia tend to favour short-term client savings over long-term operational sustainability.

This disconnect between cost structure and pricing reality is a recurring concern in both the Policy and Regulation (LR7) and Pricing & Competition (LR1) themes. Langen and Adenäuer (2013) further argue that when pricing mechanisms ignore supply chain realities, the fairness perceived by consumers or clients can be misaligned with what operators actually experience, widening the gap between expectation and sustainable practice. Similarly, Xin and Huang (2024), writing in the context of insurance pricing, propose that fairness does not imply equal treatment but rather the justifiability of differentiated pricing , provided it is based on transparent and relevant criteria. Their concept of "fair discrimination," although developed in another regulated sector, is useful in framing how pricing in haulage should also be based on identifiable and cost-driven characteristics, not opaque negotiations, or arbitrary rates. Modi (2023) stresses that firms must adopt unit-level economic visibility to optimize performance and support strategic pricing decisions, particularly in volatile or opaque market environments. See Table 2.1 for priced versus unpriced cost components in Malaysian Haulage Contracts.

Table 2.1
Priced vs. Unpriced Cost Components in Malaysian Haulage Contracts

Cost Component	Pricing Status	Impact of Being Unpriced
Fuel	Priced	Serves as a baseline in most tariff structures
Driver base wages	Partially Priced	Overtime, training, and retention costs absorbed by operators
Vehicle depreciation	Rarely Priced	Leads to accelerated fleet aging (Sapry et al., 2016)
Compliance delays	Unpriced	Results in 12–18% productivity loss (MPC, 2022)
Standby/idle time	Unpriced	Accounts for 20–30% of driver hours that go unpaid
Technology maintenance	Unpriced	Stalls digitalisation efforts, especially among SMEs
High-risk route premiums	Unpriced	East Malaysia routes can be up to 40% more costly

Note: This table reflects key cost components frequently identified in the literature as "unpriced" or undercompensated, particularly within the themes of Labour (LR2), Operational Compliance (LR4), and Technology (LR5). See Appendix C for thematic coding breakdown.

2.4 Research Gaps and Conceptual Framework

Despite a growing body of literature on logistics pricing and operational cost structures, significant research gaps remain, particularly in deregulated markets like Malaysia, where price competition and SME vulnerability converge. While existing studies highlight issues such as maintenance burdens (Amram et al., 2023), manpower shortages (Rahmat et al., 2021), and technology investment gaps (Shahadat et al., 2023), few offer an integrated framework connecting these cost dynamics to perceptions of pricing fairness.

Additionally, while macro-level studies address policy reform and liberalisation outcomes (OECD, 2021), they often overlook the behavioural and negotiation-based realities experienced by logistics operators. The resulting disconnect between operational burdens and pricing mechanisms leaves SMEs exposed to

unrecovered costs and reactive cost-cutting, threatening long-term service sustainability.

Three primary gaps emerge:

(i) Limited Exploration of Fairness in Deregulated Pricing Contexts

While studies like those by Eyster et al. (2021) and Côté et al. (2025) examine perceptions of fairness in pricing, they often focus on structured or regulated environments. Few delve into how SMEs interpret fairness in liberalised or informal pricing ecosystems, such as Malaysian road haulage.

(ii) Fragmentation Between Cost Drivers and Pricing Practices

Although cost elements like manpower, maintenance, and digitalisation are acknowledged (Berwick & Dooley, 1997; Barde & Klein, 2024), most studies stop short of connecting these systematically to actual pricing negotiations or perceptions of fairness. There is insufficient exploration of how such costs are absorbed, recovered, or contested.

(iii) Underutilisation of Qualitative Inquiry in Cost-Fairness Linkages

Many transport pricing studies are quantitative or policy-based. Exceptions like Gammelgaard & Flint (2012) and Sauer & Seuring (2023) show the value of qualitative methods in uncovering embedded market behaviours, but these remain rare in logistics literature for Southeast Asia.

2.4.1 Identified Research Gaps

In line with Maxwell's (2008, 2013, 2022) emphasis on conceptually rich qualitative inquiry, this study adopted a purposeful excerpt strategy for its literature review. Rather than seeking coding saturation through exhaustive

inclusion, the review focused on high-relevance excerpts that offered explanatory insights into cost structures and fairness perceptions in haulage pricing. Only conclusion and discussion sections were coded from academic sources, while industry and policy documents were selectively reviewed in full. This strategy aimed to balance empirical grounding with thematic clarity, allowing the research to inductively derive variables aligned with real-world challenges and strategic frameworks.

A review of the empirical and theoretical literature highlights three critical gaps in understanding how cost structures influence perceptions of pricing fairness within Malaysia's haulage industry. Notably, the theme of Policy and Regulation (LR7) emerged as the most frequently coded category in the literature review (65 codes), reinforcing the salience of institutional imbalances, regulatory inefficiencies, and negotiation asymmetries as persistent structural barriers to fair pricing (see Appendix C).

- Lack of Fairness Framing in Deregulated Pricing Studies

  Much of the logistics pricing literature in Malaysia remains focused on cost efficiency or competitiveness but does not frame fairness as a construct. For example, The Star (2024a) reports that small hauliers continue to absorb costs without a structured pricing floor, while Zuk (2021) emphasizes the strategic risks when pricing mechanisms ignore operational burdens. Despite deregulation, few studies explore how SMEs perceive price justice or cost recovery under liberalised conditions (OECD, 2021 Nkesah, 2023, Amram et al., 2023). The high prominence of LR7 in the literature confirms that fairness

remains under-theorised and insufficiently embedded in local pricing reform discourse.

- Fragmented Treatment of Cost Drivers in Pricing Models

  Although many studies recognise cost pressures from wages, maintenance, and digital investment, these elements are often treated in isolation rather than as part of an integrated pricing logic. For instance, The Star (2024b) details how driver wages remain stagnant despite workload increases, and Shahadat et al. (2023), Tarudin et al., (2023) show that SMEs are disadvantaged in absorbing digitalisation costs. However, these insights are rarely mapped to real-world pricing outcomes, creating a gap between operational input and tariff setting. This is evident in the misalignment across cost-related themes such as Labour (LR2), Technology (LR5), and Operational Compliance (LR4), all of which scored highly in the literature but lack cohesive integration in pricing frameworks. Additionally, Qasim (2023) argues that institutional conditions and market structure, often overlooked in pricing models, play a crucial role in shaping firms' ability to adopt and sustain technology investments, further compounding the disconnect between operational costs and strategic pricing alignment.

- Underuse of Qualitative Methods in Pricing Research

  Most transport studies favour macro-level policy reviews or numerical modelling, leaving stakeholder experience underexplored. Sauer & Seuring (2023) and Mwita (2022) argue for qualitative inquiry to capture embedded practices, institutional asymmetries, and cost negotiation behaviours that

remain invisible in quantitative datasets. This aligns with Maxwell's (2008, 2013, 2022) argument that qualitative research is essential for uncovering context-specific meanings and causal mechanisms that structured models often overlook. This is especially relevant in Malaysia's fragmented and relationship-driven market, where contracts are often bespoke and based on informal client dynamics. The dominance of LR7, when combined with the limited use of qualitative insights, further suggests a disconnect between policy discussions and the lived experiences of logistics operators.

2.4.2 Conceptual Framework

To address the empirical and theoretical gaps identified in Section 2.4.1, this study adopts a dual-framework approach that combines Porter's Diamond Theory and Time-Driven Activity-Based Costing (TDABC). This integrated lens allows for a holistic understanding of fair pricing as both a structural (macro) and operational (micro) issue in Malaysia's deregulated haulage sector.

Porter's Diamond Theory (Porter, 1980; 2015) explains how macro-level determinants, such as factor conditions, regulatory environments, market rivalry, and institutional support, affect national competitiveness. When applied to the haulage industry, it helps contextualise why SMEs lack bargaining power in pricing negotiations, particularly when dominant clients dictate rate structures (Zuk, 2021; OECD, 2021 Nkesah, 2023).

In contrast, TDABC (Kaplan & Anderson, 2007) offers a microeconomic lens to quantify operational inefficiencies that standard pricing models overlook. As previously discussed in Section 2.2.3, these include cost elements such as idle time

and fragmented compliance downtime, issues especially acute for SMEs with limited economies of scale (Shahadat et al., 2023; Tarudin et al., 2023).

The integration of these two frameworks allows the study to map both:

- The systemic factors that prevent fair pricing from emerging (macro-level)
- The unpriced or absorbed cost structures that weaken SME resilience (micro-level)

This approach is further validated by the literature coding results (see Appendix C), where Policy and Regulation (LR7) emerged as the most dominant theme. Its prevalence reinforces the decision to treat institutional and regulatory dynamics as structural enablers or barriers to fair pricing. Meanwhile, themes related to Labour (LR2), Technology (LR5), and Operational Compliance (LR4) provide the empirical basis for selecting manpower, maintenance, and digitalisation costs as key components of the study's conceptual model.

The alignment between these two perspectives is summarised in the following Table 2.2.

Table 2.2:
Comparative Alignment of Porter's Diamond Theory and TDABC

Framework	Focus Level	Key Dimensions	Relevance to Fair Pricing in Haulage
Porter's Diamond Theory	Macro (Industry)	Factor conditions, demand, rivalry, policy	Explains systemic competitiveness and why SMEs lack pricing power in deregulated markets
TDABC	Micro (Firm/Process)	Time-based cost allocation, activity tracing	Identifies hidden operational costs like waiting time and idle fleet that distort pricing

By bridging these two frameworks, this study positions fair pricing not just as a financial output, but as a product of both institutional structures and internal cost

visibility. This dual-lens model will serve as the foundation for thematic analysis in later chapters.

2.4.3 Literature Review Matrix and Cost Theme Selection

This section synthesises the thematic landscape derived from 233 coded excerpts across 52 empirical literature sources. Using a structured thematic framework, the excerpts were manually coded and grouped into eight Main Themes, as outlined in the Literature Review Tree Code Book (Appendix C). These eight themes were refined from the preliminary conceptual clusters developed during the early stages of this research, visualised in the mind mapping matrix (Appendix K), which captured key topic domains such as pricing opacity, operational risk, and digital adoption cost. The final thematic structure reflects a consolidation of insights through systematic and empirically grounded coding.

These themes include.

- LR1: Pricing & Competition
- LR2: Labour and Wage
- LR3: Economic Frameworks
- LR4: Operational and Compliance
- LR5: Technology and Digitalisation
- LR6: Sustainability and Reform
- LR7: Policy and Regulation
- LR8: Infrastructure and Network Studies

Based on the updated coding distribution, the three most prominent themes are:

- Policy and Regulation (LR7): 65 codes
- Labour and Wage (LR2): 44 codes
- Economic Frameworks (LR3): 29 codes

These results confirm that institutional constraints, labour-related cost burdens, and pricing logic are the most frequently cited challenges in the reviewed literature. Your updated thematic coding graph is presented in Figure 2.4 below.

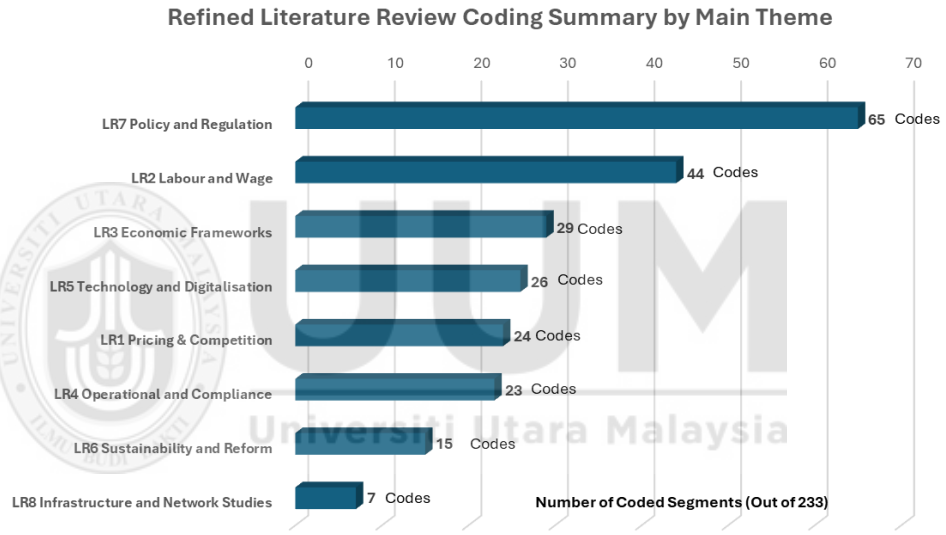

Figure 2.4
Literature Review Coding Distribution by Main Theme
Note: Based on 233 coded excerpts from 52 sources. For full coding structure, refer to Appendix C.

While some themes, such as Sustainability and Reform (LR6) and Infrastructure and Network Studies (LR8), are part of the broader context, their limited frequency does not justify their inclusion as primary focus areas in this study.

This matrix-based coding process enabled the selection of three key Independent Variables (IVs) for this research:

- Manpower Cost
- Maintenance Cost
- Technology Adoption Cost

Each of these cost domains is not only strongly represented in the literature (under LR2, LR4, and LR5) but also directly linked to issues of pricing behaviour, cost recovery limitations, and perceived fairness. Their collective significance supports their use as operational lenses for analysing fair pricing practices in Malaysia's haulage industry.

In parallel, the dominant presence of Policy and Regulation (LR7) strongly justifies the selection of "Perceived Fair Pricing" as the study's Dependent Variable (DV). The literature highlights structural issues such as power imbalance, tender-driven rate suppression, and regulatory gaps, which disproportionately affect smaller hauliers and distort cost-reflective pricing.

2.5 Chapter Two: Summary

Coding Methodology Summary: To maintain analytic focus and conceptual reliability, this study employed a purposeful excerpt strategy for literature coding. Following the guidance of Maxwell (2008, 2013, 2022), excerpts were selected based on conceptual richness and alignment with the study's objectives. In academic literature, only the conclusion and discussion sections were coded, reflecting Maxwell's emphasis on prioritizing meaning-rich data over volume-

based saturation. This approach minimized thematic noise from methodological and speculative content.

For industry reports, policy papers, and grey literature, selective full-document review was conducted, given their non-academic structure and potential to reveal operational nuances. This dual coding strategy balanced academic rigor with real-world contextual insight. The resulting thematic structure, drawn from 233 manually coded excerpts across 52 sources, supported the identification of empirically grounded Independent Variables (IVs) and the Dependent Variable (DV).

This chapter has reviewed both theoretical and empirical literature to build a foundation for analysing fair pricing in Malaysia's haulage industry. The theoretical component focused on Porter's Diamond Theory and Time-Driven Activity-Based Costing (TDABC), offering strategic and operational lenses through which cost structures and competitiveness can be understood. Section 2.2.3 bridged these theories with practice by highlighting how TDABC can uncover unbilled inefficiencies, such as idle time and compliance delays, that are often excluded from traditional pricing models.

The empirical review then zoomed in on three core cost themes derived from the literature coding: Manpower Cost, Maintenance Cost, and Technology Adoption. These were selected based on their high representation across the thematic structure, particularly in LR2 (Labour and Wage), LR4 (Operational and Compliance), and LR5 (Technology and Digitalisation). Their recurring presence

in the literature confirms their relevance to pricing behaviour and stakeholder perceptions of fairness.

Additionally, Policy and Regulation (LR7) emerged as the most coded theme, reinforcing its role not as a direct cost driver but as a structural influence. It was treated as a contextual determinant shaping pricing outcomes, especially through mechanisms such as regulatory ambiguity, rate suppression, and tender-based competition. This justified the selection of Perceived Fair Pricing as the study's Dependent Variable (DV).

The literature matrix further clarified that although themes such as Sustainability (LR6) and Infrastructure (LR8) are contextually relevant, they lack sufficient empirical density to serve as focal cost dimensions. The study's framework thus concentrates on the three dominant IVs while treating policy conditions as a moderating environment for pricing practices.

To complement this textual synthesis, a mind mapping exercise was conducted during the early literature scoping stage to visualise linkages between cost factors, pricing concerns, and theoretical anchors. This map (see Appendix L) helped clarify how constructs like Cost Recovery, Pricing Opacity, Deregulated Tendering, and Trust and Sustainability align with the adopted theories, Porter's Diamond Model and Time-Driven Activity-Based Costing (TDABC). Its themes were subsequently validated through structured manual coding and now underpin the empirical framework and conceptual alignment of this study.

With the literature foundation now established, the next chapter presents the methodological framework, including research design, data collection strategies, variable operationalisation, and sampling structure.

CHAPTER THREE

METHODOLOGY

3.1 Research Framework

Qualitative research design requires a deliberate alignment between research goals, literature, methods, and validity considerations. This study adopts Maxwell's interactive qualitative research design model (2008, 2013, 2022), which emphasizes the dynamic interrelationship among research purposes, conceptual framing, methodological strategies, and validity procedures. While the 2008 and 2013 works provide a foundational structure for applied social research and promote researcher reflexivity, the 2022 chapter further expands the model by addressing how design choices must remain adaptive in response to emerging fieldwork uncertainties, a particularly relevant consideration in the context of Malaysia's evolving logistics sector. In this research, the framework was developed through a systematic thematic synthesis based on 52 reviewed sources, comprising academic journals and industry reports, supported by manual coding of 233 literature excerpts.

Figure 2.4 illustrates the coding distribution that underpinned the formation of the framework. The three dominant empirical themes identified include:

- Policy and Regulatory Pressures (65 coded references),
- Labour and Wage Dimensions (44 coded references), and
- Economic Frameworks and Pricing Strategy (29 coded references).

These collectively informed the selection of the study's core independent variables:

- Manpower and Labour Cost,
- Maintenance and Spare Parts, and
- Technology Adoption (clustered under broader cost-related codes across LR2, LR4, and LR5).

Notably, the dominance of policy and institutional constraints, as evidenced by literature such as Zuk (2021), Grab Haulier (2023), and Taghvaee et al. (2023), reinforces how structural imbalances, shaped by opaque client-led pricing, subcontracting models, and weak enforcement, contribute to fairness concerns in haulage operations. These are especially consequential for SME hauliers who lack negotiation power in deregulated market.

Cost-related themes also feature prominently. Studies such as Che Hasan et al. (2022) and The Star (2024a) highlight wage inflation, fatigue risks, and workforce instability, while Amram et al. (2023) notes how maintenance cost fluctuations and liquidity constraints jeopardize fleet sustainability. In parallel, Pacheco et al. (2021) and Zainuddin et al. (2023) identify technology adoption as an unmet priority, citing ROI ambiguity, readiness gaps, and misaligned public incentives, especially among small and second-tier operators.

To theoretically ground this study two complementary lenses are adopted:

- Porter's Diamond Theory (1980) explains how institutional and competitive asymmetries allow dominant buyers to suppress pricing fairness, particularly under deregulation.
- Time-Driven Activity-Based Costing (TDABC) (Kaplan & Anderson, 2007) offers a granular view of unpriced cost components such as idle time, compliance delays, and underutilised capacity, which erode profit margins.

These are aligned in Table 3.1 to clarify how each theory underpins key propositions of the study.

Table 3.1
Theoretical Anchors for Fair Pricing Analysis

Theory	Applied to Theme	Proposition
Porter's Diamond Theory	Policy & Competition (see 2.3.4)	P4 – Power asymmetry in price control
TDABC	Operational & Maintenance Cost Inefficiencies (2.3.2)	P2 – Under-recovered operational cost

As shown below in Figure 3.1, the conceptual framework positions these cost dimensions as key influencers of perceived fair pricing. It reflects a hybrid understanding derived from both institutional-economic theory and micro-level cost behaviour, offering analytical depth across policy and operational dimensions. This approach aligns with the logistics-specific qualitative guidance emphasized by Gammelgaard (2017), who underscores the value of empirical storytelling and traceable themes in SCM research. The framework was constructed from prior literature and theoretical perspectives and serves as the analytical foundation for examining stakeholder insights in subsequent chapters.

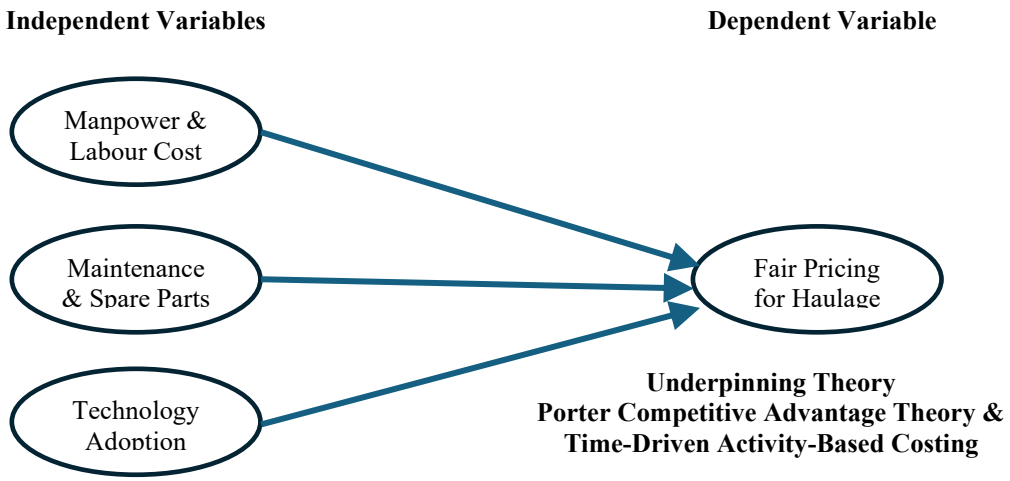

Figure 3.1
Conceptual Framework Linking Cost Drivers to Perceived Fair Pricing

3.2 Propositions Development

This research intentionally distances itself from conventional hypothesis-testing paradigms. The aim is not to statistically validate variable relationships, but to explore the subjective, real-world experiences of industry stakeholders within the Malaysian haulage sector. Such an approach aligns with the epistemological stance of qualitative research, which privileges depth over generalizability and interpretation over measurement.

Consistent with qualitative exploratory design, this study employs propositions (Maxwell, 2008, 2013, 2022) rather than hypotheses. These served as conceptual guideposts during data collection while remaining open to emergent patterns. As articulated by Creswell and Poth (2016), propositions in qualitative research function as 'analytic steppingstones', directing attention to theoretically significant phenomena without imposing predetermined outcomes. Mwita (2022) adds that, in practitioner-oriented research, propositions allow researchers to engage expert perspectives while remaining sensitive to contextual nuance.

Importantly, Gammelgaard (2017) advocates for using propositions as thematic "anchor points" that bridge theoretical constructs and field narratives. He argues that in logistics research, where multiple cost, institutional, and behavioural dimensions interact, such anchors ensure analytic focus without stifling discovery. This reinforces the justification for using propositions in this study as navigational tools throughout the interview and coding process.

The propositions below are derived from:

- The literature themes presented in Chapter 2,
- The conceptual framework illustrated in Figure 3.1,
- The thematic synthesis of 233 coded excerpts from 52 literature sources, as presented in Appendix C.

They inform both the structure of the interview instrument, and the interpretation strategy applied in thematic coding. See Table 3.2 for summarised "Propositions and Suggested Interview Coverage Areas"

Proposition 1 (P1)

Fair pricing in haulage operations is shaped by how clients perceive and value operational cost components, particularly in relation to manpower, maintenance, and technology.

(Related to findings in Zuk, 2021; Che Hasan et al., 2022; Pacheco et al., 2021, The Star, 2024a).

Proposition 2 (P2)

Maintenance and compliance costs often remain under-recovered due to non-transparent pricing practices and time losses during regulatory delays.

(Anchored in TDABC logic, Kaplan & Anderson, 2007; Amram et al., 2023; Ribeiro-Duthie et al., 2021).

Proposition 3 (P3)

SME readiness to adopt logistics technology is directly influenced by uncertainties in ROI and lack of cost-reflective incentives.

(Drawn from Zainuddin et al., 2023; Nkesah, 2023; Balaban et al., 2025, Shahadat et al., 2023.).

Proposition 4 (P4)

Policy enforcement gaps and power imbalances in contract negotiations contribute to unsustainable pricing structures, particularly for small hauliers.

(Informed by Grab Haulier, 2023; Tarudin et al., 2023, MyCC, 2021).

Table 3.2
Propositions and Suggested Interview Coverage Areas

Proposition	Suggested Interview Coverage Areas
P1: Fair pricing in haulage operations is shaped by how clients perceive and value operational cost components, particularly manpower, maintenance, and technology.	Explore perceptions of cost fairness related to wages, repair costs, and digitalisation burdens.
P2: Maintenance and compliance costs often remain under-recovered due to non-transparent pricing practices and time losses during regulatory delays.	Examine operator experiences with cost recovery, idle time, and regulatory burdens.
P3: SME readiness to adopt logistics technology is directly influenced by uncertainties in ROI and lack of cost-reflective incentives.	Investigate barriers to tech investment, capital readiness, and return-on-investment uncertainty.
P4: Policy enforcement gaps and power imbalances in contract negotiations contribute to unsustainable pricing structures.	Discuss negotiation dynamics, buyer influence, and regulatory limitations affecting pricing.

Note. These propositions serve as analytical anchors in the qualitative inquiry and guided the design of the interview protocol.

3.3 Research Design

3.3.1 Alignment with Research Objectives and Questions

This study adopts a qualitative exploratory design grounded in Maxwell's (2008, 2013, 2022) interactive design model, which emphasizes five interconnected components: goals, conceptual framework, research questions, methods, and validity. Rather than a rigid sequence, these elements interact fluidly to guide meaning-making from empirical data. As noted by Al-Majidi (2022), who applied Maxwell's structure to study transport-related cost and innovation, this approach ensures alignment between theoretical grounding and real-world operational conditions.

This study adopts a qualitative exploratory design to address three central research objectives:

1. To identify the key factors that influence stakeholders' perceptions of fair pricing in the haulage sector, in relation to their operational challenges and market experiences.
2. To analyse the influence of the identified factors on pricing practices in the haulage industry.
3. To develop a model that demonstrates the factors influencing pricing practices in the haulage industry.

These objectives guided the overall inquiry, from the literature review and conceptual model development to the construction of the interview protocol and thematic analysis. Following Maxwell's (2008, 2013, 2022) interactive design model of qualitative design, as referenced in Al-Majidi (2022), the research logic integrates conceptual framing, goals, and methodological choices to form a coherent structure grounded in stakeholder interpretation.

The research questions are:

1. What are the key factors that influence stakeholders' perceptions of fair pricing in the haulage sector, considering their operational challenges and market experiences?
2. How do the key factors identified influence the pricing practices and decision-making processes in the haulage industry?
3. How can a conceptual model be developed to explain the influence of various factors on pricing practices within the haulage industry?

This alignment ensures that sampling, data collection, thematic development, and analysis remain coherent throughout the research process (Maxwell, 2008, 2013, 2022; Al-Majidi, 2022).

3.3.2 Justification for Qualitative Exploratory Design

A qualitative exploratory approach was selected to capture the depth and complexity of stakeholder experiences in Malaysia's deregulated logistics sector. As emphasized by Gammelgaard and Flint (2012), such an approach is particularly effective for uncovering interdependent pricing behaviours and institutional dynamics that are often overlooked in quantitative analyses. This design enables a grounded understanding of real-world issues such as SME vulnerabilities, client-side pricing power, and compliance burdens, dimensions frequently underrepresented in traditional logistics pricing studies.

The study design draws from Maxwell's (2008, 2013, 2022) five-component model, goals, conceptual framework, research questions, methods, and validity, also echoed in Al-Majidi (2022), who applied Maxwell's logic in a logistics-focused thesis. The objective here is interpretive understanding rather than statistical generalisation, consistent with Creswell and Poth (2017) and Gammelgaard (2017).

Bille and Hendriksen (2023) also cite Gammelgaard's contributions to emphasize the methodological suitability of qualitative fieldwork in supply chain environments where strategy, power, and cost concerns intersect in subtle but impactful ways.

3.3.3 Participant Selection and Interview Design

(i) Participant Access and Interview Administration

Participants were engaged through the researcher's established professional networks, developed over years of involvement in the logistics sector. The outreach intentionally targeted a diverse mix of senior stakeholders across haulage operations, warehousing, depot management, cross-border trade, and policy facilitation, in line with industry sampling principles (Chakraborty, 2024). A total of ten participants contributed to the study through face-to-face interviews, virtual video calls, or written responses. This flexible approach ensured inclusivity and accommodated participant availability without compromising the depth and quality of the data collected.

(ii) Semi-Structured Interview Protocol

To allow both structure and flexibility, a semi-structured interview format was employed. Interview questions were informed by literature themes (Chapter 2) and propositions (Section 3.2), focusing on manpower cost, maintenance burdens, technology adoption, pricing fairness, transparency, and structural pricing imbalance, as distilled from the six key themes derived from literature (see Section 3.3.4 and Chapter 2). This format aligns with the qualitative principle of guided emergence (Maxwell, 2008, 2013, 2022; Gammelgaard, 2017), where core ideas guide inquiry, but participants lived realities shape the depth.

(iii) Coding Approach and Data Structuring

Interview transcripts and literature excerpts were manually coded using Microsoft Excel, replicating NVivo's structure without the software itself. The coding followed a three-tiered logic:

- Raw Quote → Child Code (L3)
- Child Code → Parent Code (L2)
- Parent Code → Main Theme (L1)

A total of 233 codes were generated from both interview data and conclusion-section content from 52 literature sources. This rigorous process ensured traceability and thematic coherence, reflecting Maxwell's (2008, 2013, 2022) call for logically connected research elements, and Gammelgaard's (2017) emphasis on transparency in logistics case studies.

(iv) Design Suitability and Research Integrity

This research design blends theoretical scaffolding with grounded operational insight. The framework reflects both academic reasoning and field relevance, addressing structural price asymmetries, cost recovery limitations, and institutional power dynamics within the Malaysian haulage sector. By integrating Maxwell's interpretive design model with Gammelgaard's logistics-focused guidance, the study ensures both conceptual depth and empirical robustness.

3.3.4 Literature-Driven Thematic Structuring of Interviews

Following the literature review (Chapter 2), six dominant themes emerged from coded academic and industry sources. These themes were used deductively to frame the semi-structured interview questions. They represent key pressure points in haulage pricing and are intended to test how well the academic narrative aligns with industry realities. This deductive logic reflects the principles outlined by Yin (2018), where theoretical propositions from existing studies are used to guide empirical inquiry and ensure conceptual traceability between research objectives and field responses.

The themes are:

- Theme 1: Fair Pricing as a Business Enabler
- Theme 2: Identification of Cost Components Beyond Fuel
- Theme 3: Influence of Manpower Costs on Pricing
- Theme 4: Maintenance-Related Financial Pressures
- Theme 5: Technology Investment and Pricing Recovery
- Theme 6: Recommendations for Sustainable and Transparent Pricing Mechanisms

While fuel costs were regularly cited in the literature as a significant operational cost, they were intentionally excluded from the interview protocol because they are already widely acknowledged and regulated and were not the primary focus of this study's investigation into overlooked and unrecouped cost structures. Instead, the interview questions were designed to surface stakeholder views on more under-discussed components, such as technology ROI, compliance-induced delays, and pricing fairness perception.

The interview structure included:

- Part A (Q1–Q3): Participant context, roles, and coverage
- Part B (Q4–Q21): Theme-based exploratory questions
- Q22: A closing reflection on the study topic and relevance

The full instrument is provided in Appendix A and Appendix F. It also validated the use of literature-based deductive coding as a foundation for interview design and thematic analysis, ensuring a logically connected inquiry process, consistent with Maxwell's (2008, 2013, 2022) and Gammelgaard's (2017) recommendations.

3.4 Operational Definition

This study adopts a conclusion-driven coding logic for defining key constructs, aligning closely with the themes derived from the literature review and the coding matrix (see Figure 2.4 and Appendix C). By focusing on how constructs were defined or implied in the conclusion sections of academic studies and full reviews of industry reports, this method strengthens the conceptual clarity between literature, interviews, and final analysis. This approach echoes Yin's (2018) emphasis on the importance of operationalising constructs in qualitative studies by grounding them in the real-world context and meanings attributed by participants.

As advocated by Mwita (2022) and Yin (2018), operational clarity in qualitative studies emerges not through variable measurement, but through contextual understanding of how constructs are experienced and interpreted. This is

particularly essential in logistics studies where definitions often evolve with regulatory and operational changes (Maxwell, 2008, 2013, 2022; Gammelgaard, 2017).

Additionally, this study recognises the influence of external environmental factors in shaping cost perceptions and pricing practices. During the coding and thematic analysis, references aligning with PESTLE dimensions, namely Political, Economic, Social, Technological, Legal, and Environmental factors, were inductively captured, especially under child codes such as policy compliance, fuel volatility, and technology pressure. While not applied as a formal deductive framework, PESTLE served as a categorical lens to contextualise participant responses and better map how macro-level forces intersect with operational realities in the Malaysian haulage sector (Torres-Nunez et al., 2024).

(1) Fair Pricing

Defined as the perceived balance between cost recovery, pricing transparency, and equitable margin distribution across the logistics value chain. Chapter 2.3.4 emphasized that "fair pricing is not just a perception issue, but an outcome of structural inefficiencies" (Zuk, 2021; Barros et al., 2015). In the Malaysian context, several reports highlight that pricing mechanisms often ignore operational cost realities (Taghvaee et al., 2023; Grab Haulier, 2023).

(2) Manpower Cost

Includes wages, overtime, training, and employee retention schemes. As noted in Chapter 2.3.1, the Minimum Wages Order 2022 triggered a sharp

increase in payroll obligations (Yeoh & Khor, 2022). Furthermore, “driver shortages and poor working conditions contribute to high turnover” (Tarudin et al., 2023; Emmanuel et al., 2021).

(3) Maintenance Cost

Covers routine servicing, inspections, repair downtime, and spare parts inventory. Chapter 2.3.2 highlighted the burden of working capital tied up in spare parts (Amram et al., 2023) and non-recoverable costs caused by inspection delays such as PUSPAKOM checks (Ribeiro-Duthie et al., 2021; Jansen, 2024).

(4) Technology Adoption

Referring to the readiness and implementation of systems like fleet telematics, ERP, TMS, and automated tracking. Chapter 2.3.3 revealed that while technology offers cost benefits, SMEs often face a readiness gap due to budget constraints and limited technical support (Pacheco et al., 2021; Zainuddin et al., 2023).

(5) Transparency Cost

The ability of operators to present breakdowns of cost structures during negotiations. Chapter 2.3.4 illustrated that cost breakdowns are often missing from contract discussions, causing “asymmetry in pricing power” (Taghvaee et al., 2023).

(6) Pricing Power Imbalance

A systemic issue where large clients dictate pricing, sidelining smaller operators' cost realities. This was especially evident in 2.3.4, where "collaborative pricing is difficult due to institutional and cultural barriers" (Amuji et al., 2024; Taghvaee et al., 2023).

Table 3.3
Summary of Operational Definitions

Construct	Key Definition Focus	Supporting Sources
Fair Pricing	Balance between cost recovery and equity in margin setting	Zuk (2021); Taghvaee et al. (2023); Grab Haulier (2023)
Manpower Cost	Wage, overtime, training, turnover pressures	Yeoh & Khor (2022); Tarudin et al. (2023); Emmanuel et al. (2021)
Maintenance Cost	Spare parts, downtime, inspection-related inefficiencies	Amram et al. (2023); Ribeiro-Duthie et al. (2021); Jansen (2024)
Technology Adoption	Telematics, ERP, readiness gap among SMEs	Pacheco et al. (2021); Zainuddin et al. (2023)
Cost Transparency	Lack of detailed cost-sharing in price setting	Taghvaee et al. (2023)
Pricing Power Imbalance	Dominance by large clients in price negotiation	Taghvaee et al. (2023); Amuji et al. (2024)

Note: This table defines key constructs used in the study to ensure clarity and consistency in analysis

A detailed list of the validated interview questions, grouped by six thematic areas derived from the literature review, is provided in Appendix A and Appendix F. These include:

- Q1–Q3 (Participant Context),
- Q4–Q21 (Thematic exploration based on LR themes), and
- Q22 (Closing reflection on perceived fairness and practical relevance).

The interview protocol deliberately excluded fuel/diesel-related costs, despite their appearance in literature sources, to focus on less represented operational cost

factors such as manpower, maintenance, and technology. This ensured alignment between operational definitions, LR findings, and data collection instruments.

3.5 Measurement of Instrument

Although this study adopts a qualitative methodology and does not utilize structured survey instruments or statistical scaling, rigorous attention was paid to how key constructs were captured, interpreted, and measured through interview responses and literature coding. Measurement in this context refers to the systematic transformation of narrative insights into coded constructs, enabling consistent thematic comparison across both empirical and secondary sources.

The primary instrument was a semi-structured interview guide, developed based on the six key themes from the literature review (Chapter 2), which also informed the coding structure (Appendix C). These themes structured Questions 4–21 in the interview, while Questions 1–3 established participant context and Question 22 provided reflective feedback. A full copy of the instrument is provided in Appendix A and Appendix F.

Each question in the guide was deliberately mapped to operational definitions detailed earlier (see Table 3.3, Summary of Operational Definitions in Section 3.4), allowing themes such as manpower cost, maintenance burden, and technology readiness to be traced across data sources. An additional open-ended question (Q22) provided holistic insight into stakeholder expectations and validation of the study's relevance.

Fuel and diesel cost, though commonly noted in literature, were intentionally excluded from the measurement construct to preserve focus on themes that are

less frequently quantified yet operationally significant, such as compliance inefficiencies, workforce dynamics, and technology gaps.

To ensure systematic interpretation, all responses were manually coded using a structured Excel matrix modelled on NVivo's logic. Raw quotes were tagged with Child Codes (L3) developed through conclusion-based literature coding and then grouped into Parent Codes (L2) and Main Themes (L1). The complete codebook, including mappings and frequency tallies, is provided in Appendix C: Literature Review Tree Codebook. This framework enabled consistent integration between interview responses and literature-derived constructs. This structured process mirrors Yin's (2018) recommendation for maintaining conceptual consistency between interview data and case-based constructs in qualitative research.

The measurement approach adhered to the following qualitative principles:

- Triangulation of Sources: Where relevant, participant responses were cross verified with findings from literature or industry reports (e.g., Amram et al., 2023; Taghvaee et al., 2023).
- Conclusion-Based Validation: For academic sources, only conclusion sections were used for code extraction to ensure the reliability of inferred constructs (as justified in 3.4).
- Code Saturation: Repetition across interviews was used to confirm thematic saturation and improve the construct validity of qualitative themes.
- Deductive Anchoring: The 233 raw codes used for framework construction were derived from 52 reviewed sources, following a deductive logic

consistent with Yin (2016), Maxwell (2008, 2013, 2022), and Creswell & Poth (2016).

This measurement approach ensured that both literature-derived insights and interview data were analysed within a shared coding structure, strengthening the thematic integrity and analytical reliability of the study.

Appendix A contains the sample interview questionnaire, while Appendix C presents the Literature Review Codebook, including Child–Parent–Theme mappings used to construct the conceptual framework.

3.6 Sampling

Ahmed (2024) outlines a range of sampling techniques suitable for various research contexts, including both probability and non-probability methods. For this study, a purposive sampling strategy was selected, as it effectively secured relevant and high-quality insights from experienced logistics professionals. Unlike probabilistic sampling used in quantitative research, purposive sampling is more appropriate for qualitative and exploratory designs, where conceptual depth and contextual relevance are prioritised over statistical generalisability (Creswell, 2013; Yin, 2016). As emphasised by Yin (2018), this approach is particularly relevant when exploring contemporary phenomena in real-world settings, where the boundaries between subject and context are fluid and interdependent.

A total of 13 invitations were issued to individuals occupying senior roles across haulage operations, logistics associations, and related policy or facilitation bodies.

Only ten participants provided informed consent and completed interviews, yielding a 77% response rate. This sample size falls within the thematic saturation range suggested by Hennink and Kaiser (2022), who note that saturation in focused and homogenous studies is typically achieved between 9 and 14 interviews.

Participant selection was based on the following criteria

- Active involvement in decision-making roles within logistics, haulage, depot, air cargo, or cross-border services.
- Willingness to engage in open-ended discussions on cost structures, pricing practices, and regulatory dynamics.
- Represented coverage across three stakeholder tiers:
  - SME operators (n = 4)
  - Corporate leaders (n = 3)
  - Policy/association actors (n = 3)

Participants were engaged through the researcher's existing business network, enabling direct access to diverse perspectives across the logistics ecosystem. Interviews were conducted using a semi-structured guide of 22 questions, starting with contextual queries (e.g., role, coverage, years of experience) and followed by thematic questions on manpower, maintenance, technology, and pricing.

To accommodate availability and preferences, interviews were conducted through in-person meetings, video calls, or structured written responses. Sessions followed a flexible, non-linear format depending on participant expertise.

To uphold ethical and confidentiality commitments (as outlined in Appendix A):

- No names or company identifiers were recorded.
- Each participant was assigned a pseudonym (Participant A to J).
- Non-responding invites (n = 3) were not contacted further in accordance with passive withdrawal protocols.

The final sample size of ten was methodologically justified based on qualitative saturation principles. Hennink and Kaiser (2022) observe that thematic saturation in homogenous, well-defined studies is commonly achieved within 9 to 14 interviews, particularly when the goal is thematic (not theoretical) saturation. Braun and Clarke (2022) similarly argue that qualitative richness arises not from large samples, but from the depth and clarity of thematic development. In this study, responses from ten senior stakeholders yielded recurring patterns across the core themes, indicating sufficient saturation for the study's interpretive goals.

This also aligns with Ahmed's (2024) position that in qualitative, exploratory research using purposive sampling, credibility is derived from methodological coherence rather than statistical power.

Appendix B presents anonymised participant profiles, detailing their roles and organisational domains to ensure transparency and traceability. Their collective input forms the empirical foundation for the analysis presented in Chapter 4.

3.7 Data Collection Procedure

3.7.1 Core Protocol

Data was collected through semi-structured interviews (n = 10) over a four-week period, following a three-phase protocol:

(i) Pre-Interview

Participants received the official invitation letter and questionnaire (Appendix A) at least 48 hours before their scheduled session. Verbal consent was obtained, with emphasis on voluntary participation and confidentiality assurances.

(ii) Interview Execution

Sessions lasted approximately 45–60 minutes, typically conducted face-to-face at venues preferred by participants. Thematic questions (Appendix A) were used to guide discussion, supplemented by probes (e.g., "Can you give an example?") to elicit deeper responses.

(iii) Post-Interview

Conversations were transcribed immediately through minute-style note-taking, often supported by participants' pre-drafted written responses. Each session concluded with a verbal reflection question (Q22):

- *"Do you find this research timely? Any suggestions?"*

This served to validate relevance and encourage participant reflection (see 3.8.3).

3.7.2 Themes Applied

Interview questions were structured around four core themes derived from the literature review (Chapter 2) and aligned with the study's research propositions. Each theme was operationalized through targeted questions to capture relevant insights, refer Table 3.4:

Table 3.4
Structure of Thematic Questionnaire

Theme	Sample Questions	Related Proposition
Fair Pricing	Q4 (definition), Q5 (sustainability)	P4 (Power asymmetry)
Manpower Costs	Q8–Q10 (wages, training)	P1 (Labour cost pressure)
Maintenance Costs	Q11–Q13 (servicing, breakdown)	P2 (Cost under-recovery)
Technology Adoption	Q14–Q16 (ROI, SME barriers)	P3 (Digital readiness gaps)

Note: This table maps each interview theme to its related questions and underlying proposition, ensuring consistency between the questionnaire design and research objectives.

Probing questions were used to ensure thematic saturation and openness to emergent insights, consistent with Braun and Clarke's (2006) flexible approach to theme development. While the interview guide was structured deductively based on the literature (see Table 3.4), the subsequent analysis in Chapter 4 followed an inductive approach, enabling themes to evolve based on participants' responses.

3.7.3 Ethical Safeguards

This study adhered to the ethical guidelines outlined in the UUM Code of Ethics for Student Research and Academic Writing, with the following safeguards implemented:

(i) Informed Consent

In line with qualitative fieldwork norms, no written consent was obtained; instead, verbal consent was secured before each session. This practice is

consistent with Adeoye-Olatunde & Olenik (2021), who note that "*verbal consent is often appropriate for qualitative research, particularly when the participant is uncomfortable with signing a formal document, or when the risk is minimal and the interview is conversational in nature*" (p. 5).

(ii) Anonymity and Confidentiality:

No personal identifiers were recorded. Participants were referred to using pseudonyms (e.g., *Participant A*), See Appendix B.

(iii) Right to Withdraw:

Participants were informed of their right to redact or revise any portion of their input within 14 days following the interview. While some chose not to exercise this right or did not respond further, no formal requests for data redaction were received.

(iv) Debriefing and Validation:

The final reflection question (Q22) served as a member-checking mechanism, allowing participants to comment on the study's framing and relevance (Creswell & Poth, 2016).

3.8 Data Collection

To capture grounded industry perspectives, this research employed a semi-structured interview format as its primary method of data collection. The interview design was informed by the conceptual themes developed in Section 3.1, where 52 literature sources were thematically coded to identify dominant cost-related and regulatory constructs.

The interview guide (see Appendix A) was structured around six thematic clusters:

(i) Fair Pricing as a Business Enabler

(ii) Cost Components Beyond Fuel (e.g., labour, asset upkeep, digitalisation)

(iii) Technology Readiness and Challenges

(iv) Regulatory Influence and Institutional Support

(v) Pricing Transparency and Bargaining Power

(vi) Policy Recommendations and Forward Outlook

Each question cluster aligned with the propositions outlined in Section 3.2 and was designed to elicit both structured insights and open reflections. Probing techniques (e.g., "Could you expand on that?") were used to encourage depth, while the final open-ended item (Q22) invited participants to reflect on the relevance and timeliness of the research topic. This concluding question served dual purposes: to validate alignment with real-world concerns and to foster stakeholder ownership of the narrative (as advocated by Mwita, 2022).

Participant access was facilitated through the researcher's professional networks in the Malaysian logistics sector. Although a broader outreach was conducted, ten qualified participants eventually completed the interviews. These individuals represented decision-makers from haulage firms, depot operators, air cargo specialists, and logistics association leaders. Interviews were conducted in English or Malay based on preference and took place either face-to-face, via video call, or in written form, a flexible protocol designed to accommodate the scheduling constraints of industry leaders.

Due to cultural preferences and confidentiality concerns common among Malaysian business leaders, no audio recordings were made during the interviews. Instead, the researcher took detailed written notes throughout each session, summarising key points in real time. Several participants also provided typed responses in advance, addressing selected questions based on their availability and interest. The conversational flow during interviews was non-linear, often skipping between themes based on participant priorities. Nevertheless, all core domains were covered, and the final reflection question (Q22) was consistently introduced before concluding each engagement to solicit participant views on the study's relevance.

The minutes of each interview were then transcribed and manually coded using Excel-based methods. Although NVivo was not utilised directly, its coding logic was mimicked via structured pivot tables, enabling traceability across participant responses and thematic clusters. This structure followed the established Child Code → Parent Code → Main Theme hierarchy outlined earlier. This structured and replicable coding logic aligns with Yin's (2018) guidance on maintaining analytical consistency in case-oriented qualitative research, ensuring each case unit is traceable to a core construct.

The data collection phase spanned approximately four weeks and adhered to ethical and methodological principles consistent with Creswell (2013), Yin (2018), and Maxwell (2013). Participants were briefed on confidentiality protocols, and consent was obtained prior to each session.

Reflections from the fieldwork revealed key lessons about research in practitioner settings. Flexibility in mode and timing was crucial when dealing with busy executives, and at times, theoretical terms such as TDABC required simplified explanations (e.g., as "time-based costing"). These adaptations not only improved engagement but also reinforced the value of researcher reflexivity in qualitative inquiry.

3.9 Techniques of Data Analysis

This study adopts a thematic analysis approach, which is well-suited to explore stakeholder perspectives and recurring patterns around fairness and cost challenges in Malaysia's haulage industry. This approach enables both deductive insights from literature and inductive responses from interviews to be examined within a unified thematic framework that accommodates both pre-defined themes and emergent participant insights.

Thematic analysis, as described by Braun and Clarke (2006), is valued for its flexibility and grounding in the interpretivist paradigm, where meaning is constructed through participants' narratives and contextual experiences (Braun & Clarke, 2006; Maxwell, 2013; Thomas, 2022). It is especially applicable in logistics research, where cost behaviours and fairness perceptions often emerge through informal or undocumented practices. This approach also accommodates inductive insights from interviews, aligning with the integrated logic proposed by Braun and Clarke (2006) and Maxwell (2013).

Following Maxwell's (2013) logic model, the study's goals, conceptual framework, and methods are closely integrated. Theories such as Time-Driven Activity-Based Costing (TDABC) and Porter's Diamond Model shaped the conceptualization of constructs (e.g., manpower pressure, technology gaps, competitive dynamics), while thematic analysis helped extract how these constructs are perceived and operationalized by stakeholders.

The analysis process followed these stages:

- Familiarisation: Repeated review of interview transcripts, notes, and literature-based codes was conducted to identify key patterns.
- Coding: Manual tagging of interview responses was done using a pre-validated codebook derived from literature (233 codes grouped into L3–L2–L1). New codes were added as inductive insights emerged (Braun & Clarke, 2006, 2022).
- Theme Refinement: Codes were grouped under the same Parent (L2) and Main Themes (L1) to identify overarching trends across both literature and stakeholder narratives.
- Interpretation and Integration: Literature-based expectations were compared with participant experiences to highlight agreements, contradictions, or gaps in practice.
- Traceability: All interview quotes were mapped by Participant ID and linked to a code hierarchy for cross-reference during results reporting.

Although NVivo software is commonly used, the coding was conducted manually via Excel, structured to mirror NVivo's node logic. This hands-on method

enhanced familiarity with the data and enabled clear traceability from raw quotes to final theme cluster.

3.10 Chapter Three: Summary

In summary, this chapter detailed the methodological approach adopted to investigate the factors influencing pricing practices in Malaysia's haulage industry. Rooted in the interpretivist paradigm, the study employed a qualitative exploratory design to capture the lived experiences, operational burdens, and pricing perceptions of key logistics stakeholders operating in a deregulated environment.

The research process was systematically guided by Maxwell's (2013) Qualitative Research Design logic, which integrates five interdependent components: research goals, conceptual framework, research questions, data collection, and validity. As illustrated in Figure 3.2, this logic was embedded across all methodological choices to ensure internal coherence from inquiry design to data interpretation.

To fulfil the three core research objectives, identifying influencing factors, analysing their impact, and developing a conceptual model, the study deployed a purposive sampling strategy supported by snowballing. This enabled access to ten senior participants from haulage operations, policy circles, and logistics associations. Semi-structured interviews served as the primary data collection method, enabling both thematic consistency and depth of participant expression

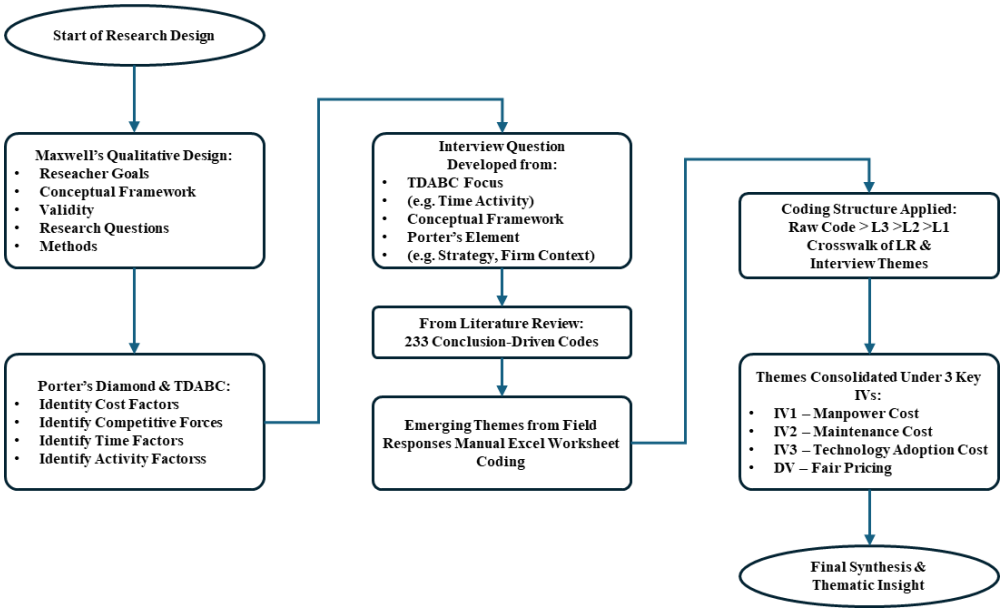

Figure 3.2
Integration Flow: Theory, Literature & Interviews
Source: Guided by Maxwell's (2008, 2013, 2022) Qualitative Logic and deductive thematic design

The study employed a deductive thematic approach, with the literature review playing a central role in shaping both the interview protocol and the coding structure. Six dominant themes were derived through systematic coding of 52 literature sources (as described in Chapter 2) and were used to structure Questions 4–21 in the semi-structured interview guide (see Appendix A and Appendix F). These themes addressed often-overlooked cost pressures and pricing fairness dimensions beyond commonly regulated fuel costs, which were deliberately excluded from the interview scope to focus on operationally critical, but less quantified, components.

Thematic analysis was the primary method for data interpretation, utilizing a dual-layered coding strategy: manual coding in Excel for traceability and hierarchical structuring aligned with NVivo logic for thematic refinement. This hybrid approach supported both deductive coding from the literature and inductive insights emerging

from the interviews, consistent with the integrated logic proposed by Braun and Clarke (2006, 2022) and Maxwell (2008, 2013, 2022).

By aligning the research questions with theory-informed propositions and literature-derived themes, the study ensured methodological rigor, contextual relevance, and analytical traceability. These design choices were intentionally made to produce findings that contribute not only to academic discourse but also to practical pricing reform within Malaysia's logistics sector.

CHAPTER FOUR

THE RESULTS AND FINDINGS

4.1 Overview of Findings

Stakeholders in Malaysia's haulage industry consistently described fair pricing as pricing that reflects actual operational burdens and enables long-term sustainability. Across the interviews, three cost pressures emerged most prominently: manpower, maintenance, and technology adoption. These factors were frequently cited as limiting operators' ability to quote competitively while remaining viable in a deregulated and buyer-dominated market.

The study involved 10 participants with diverse backgrounds, including representatives from haulage companies, logistics associations, service providers, and policy-related organisations. Their perspectives offered a comprehensive view of industry realities, capturing insights not only from management lens but also from operational experience.

A total of 1,170 raw codes were generated and manually analysed using structured Excel worksheets. These codes were grouped into 65 Child Codes (L3), then organised into 12 Parent Codes (L2), and finally synthesised into 8 Main Themes (L1). These eight themes were deductively developed from 52 academic and industry sources reviewed in Chapter 2 (see Appendix C) and subsequently used to structure the semi-structured interview guide (see Appendix A). During the interviews, one additional inductive theme, Risk, Trust, and Methodology, emerged from participant feedback and is discussed separately due to its methodological value.

The remainder of this chapter begins with a summary of participant profiles and an overview of code distribution. This is followed by a thematic presentation of findings, supported by selected quotes and contextual explanations. The structure is designed to clearly link stakeholder perspectives with the central concern of fair pricing in the Malaysian haulage sector.

4.2 Participant Profile Summary

Building on the earlier overview, the 10 participants interviewed in this study represent a diverse cross-section of the Malaysian logistics and haulage ecosystem. Their roles span business operations, industry advocacy, policymaking, and third-party service provision. Collectively, they bring insights from various transport modes, including road haulage, air cargo, warehousing, depot management, and cross-border logistics.

This diversity offers a balanced perspective on both day-to-day operational realities and broader strategic concerns. The participants come from local SMEs, multinational firms, industry associations, and government-linked facilitation bodies, enabling the study to explore how manpower, maintenance, and technology costs are perceived across different organisational and functional contexts.

One participant (Participant D) is included as a control view, offering a general logistics perspective rather than haulage-specific input. His responses helped surface distinctions between the two subsectors.

A summary table of participant profiles, core functions, and organisational affiliations is provided in Appendix B, Participant Profiles for reference.

4.3 Coding Summary Overview

This study employed a dual-stream coding approach to analyse qualitative data from both literature reviews and interviews. Each stream generated its own codebook, but both were aligned through a common structure of Main Themes (L1), Parent Codes (L2), and Child Codes (L3), allowing for coherent integration between secondary and primary data.

4.3.1 Literature Review Coding

From 52 academic and industry sources, 233 raw codes were extracted and classified deductively based on conclusion-derived insights. This process resulted in the development of 65 Child Codes (L3), which were grouped into 12 Parent Codes (L2), and finally synthesised into 7 Main Themes (L1). This deductive coding was performed manually using Excel and served as the foundation for both the conceptual framework (Chapter 3) and the development of the interview questionnaire (Appendix A & F). The full codebook is provided in Appendix C:

4.3.2 Interview Coding

Following the same structure, 1,170 raw codes were manually extracted from the ten interviews conducted. These were generated from recurring keywords, narrative patterns, and context-specific observations. The same three-level coding logic was applied:

- Child Codes (L3):65 Child Codes were created to capture specific operational or policy-related issues, such as “driver wage pressure”, “fleet maintenance burden”, and “technology investment cost”.

- Parent Codes (L2): 12 broader categories summarising the cost or policy dimensions behind each L3.
- Main Themes (L1): 7 overarching themes representing high-level domains of concern in the haulage industry.

The final themes are:

(i) Manpower Cost and Labour Market

(ii) Fleet Maintenance and Safety Compliance

(iii) Technology Adoption and Cost Recovery

(iv) Fair Pricing Practices

(v) Governance, Regulation and Market Dynamics

(vi) Sustainability and Green Transition

(vii) Risk, Trust and Research Methodology

The full interview codebook is presented in Appendix D, providing complete traceability and transparency in the development of thematic findings. Table 4.1 below offers an example of how interview responses were structured using a three-tier coding hierarchy, Child Codes (L3) nested under Parent Codes (L2), which are grouped within overarching Main Themes (L1). The complete set of codes and definitions is available in Appendix D.

Table 4.1
Example of Interview Coding Hierarchy Table

L1 Main Theme	L2 Parent Code	L3 Child Code
Manpower Cost and Labour Market	Manpower-Related Cost Components	Driver Incentive & Retention...
		Wage Pressure & Labour Shortage
	Payroll Cost Components	Minimum Wage & Payroll Cost
		Turnover & Retention

Note: This structured dual-code system allowed for triangulated interpretation between what is published and what is practiced, grounding the study's findings in both theory and real-world evidence. The consistency of themes across both streams validates the selection of interview questions and enhances the analytical depth of the research.

4.4 Mapping to Thematic Structure

The interview data was manually coded and organised into a three-level thematic hierarchy to support meaningful analysis of stakeholder perspectives on fair pricing. At the base layer are 65 L3 Child Codes, derived from specific comments or observations made by participants. These were grouped into 12 L2 Parent Codes, which in turn were synthesised into 7 Main Themes (IR1–IR7) to reflect broader industry concerns and cost categories.

While the interview guide was initially structured around a deductively designed set of thematic areas (see Appendix A and F), the final themes used in this chapter were inductively derived based on the actual content and emphasis of participant responses. Notably, some of the emergent themes, such as Sustainability and Green Transition (IR6) and Risk, Trust & Methodology (IR7), were not originally dominant in the interview framework but surfaced strongly through participant narratives. This divergence reflects how grounded qualitative inquiry can lead to new thematic structures beyond those anticipated during research design, in line with Maxwell (2013) and Gammelgaard (2017). This shift underscores the value

of allowing empirical data to guide theme emergence, particularly in complex, deregulated logistics environments where cost dynamics are evolving rapidly.

This thematic coding structure ensures that the next section, Section 4.5: Thematic Analysis, presents findings that are systematically organised and representative of the dominant narratives emerging from stakeholder interviews. Each theme discussed was derived through repeated coding iterations and cross-verified with the literature framework, while allowing for the flexibility of inductive discovery throughout the process.

4.5 Thematic Analysis

This section presents the core findings that emerged from thematic analysis of the 10 stakeholder interviews, which yielded 1,170 raw codes. Through a structured coding process, these were organised into 65 Child Codes (L3), then clustered into 12 Parent Codes (L2), and ultimately synthesised into 7 Main Themes (IR1–IR7). These themes reflect both the dominant narratives in participant responses and the broader operational and regulatory landscape influencing haulage pricing in Malaysia.

A summary of the final thematic distribution is visually presented in Figure 4.1 and Table 4.2, highlighting the relative prominence of each theme based on the total number of coded instances.

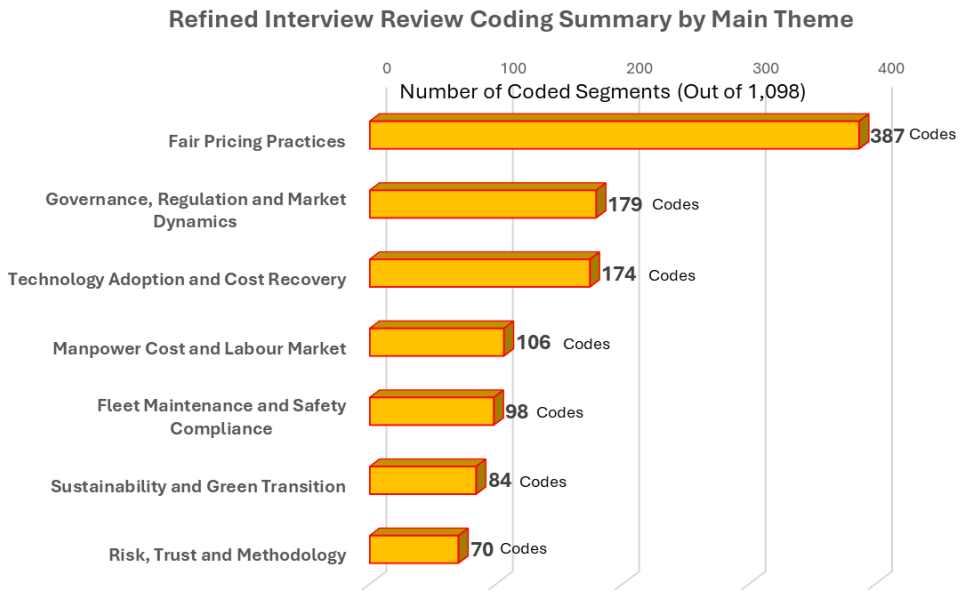

Figure 4.1
Refined Interview Review Coding Summary by Main Theme

Table 4.2
Distribution of Main Themes from Interview Data (IR1–IR7)

MT Code	Main Themes	Total Codes	%
IR4	Fair Pricing Practices	**387**	**33.1%**
IR5	Governance, Regulation and Market Dynamics	**179**	**15.3%**
IR3	Technology Adoption and Cost Recovery	**174**	**14.9%**
IR1	Manpower Cost and Labour Market	**106**	**9.1%**
IR2	Fleet Maintenance and Safety Compliance	**98**	**8.4%**
IR6	Sustainability and Green Transition	**84**	**7.2%**
IR7	Risk, Trust and Methodology	**70**	**6.0%**
N/A	Unrelated to Analysis	**72**	**6.2%**
	Total Used	**1170**	

Note: Table 4.2 and Figure 4.1 summarise the total coded references across the seven Main Themes. The chart visually reinforces the thematic priorities expressed by participants, with Fair Pricing Practices (IR4) emerging as the most dominant.

These codes and themes were not merely based on frequency, but were analysed contextually to identify recurring narratives, concerns, and perceptions shared across stakeholders. Direct participant quotations are used in the following

subsections to illustrate how each theme was experienced and articulated by industry actors.

This structured approach ensures that the findings are grounded in actual stakeholder experiences while remaining thematically consistent with the broader objective of understanding fair pricing dynamics in Malaysia's haulage sector. The next sections (4.5.1 to 4.5.7) present each theme in turn, showing how they relate to the research objectives and the conceptual framework developed earlier.

In addition to structured thematic coding, a keyword frequency analysis was performed to visualise the language most commonly used by participants across all interviews. The resulting word cloud (see Appendix L) illustrates the dominant terms such as "pricing," "cost," "maintenance," "clients," "technology," and "operators", reinforcing the centrality of cost-based pressures and value-chain relationships in stakeholder narratives. This visual representation complements the coded frequency distribution shown in Table 4.2 and supports the thematic validity of the findings discussed in the subsequent sections.

4.5.1 Manpower Cost and Labour Market (IR1)

Manpower-related concerns were frequently raised. Participants highlighted the rising cost of wages, persistent driver shortages, and challenges in retaining skilled personnel. Many felt that clients failed to understand the real burden of manpower cost beyond base salaries.

> You see, err, labour costs are not just a fixed figure anymore, with the Government-mandated minimum wages set a baseline for driver pay, directly increasing operational expenses that must be factored into pricing to maintain profitability. And then, additionally, companies must offer attractive incentives, such as bonuses or benefits, to retain skilled drivers

> and reduce high turnover rates, which can otherwise lead to increased recruitment and training costs. (Participant A – Q8).

> It's a major factor. Manpower issues profoundly influence pricing, being a large and dynamic cost. Driver Wages, Driver Availability, Training & Development & Retention Costs. Our pricing decisions are intrinsically linked to covering these costs for a competitive and sustainable workforce. (Participant F – Q8).

This theme directly supports the first Independent Variable (IV): Manpower Cost and underlines its influence on haulage pricing pressure.

4.5.2 Fleet Maintenance and Safety Compliance (IR2)

Fleet maintenance emerged as a core concern. Operators cited high costs of tyres, spare parts, and vehicle repairs, especially with ageing trucks. Several participants drew a direct link between poor maintenance and road safety risks, noting that pricing rarely reflects actual maintenance demands.

> Big impact. Maintenance costs are unpredictable. Parts replacement, breakdown repairs, inspections, all can happen suddenly. Like recently, actuator cylinder bent damage, small part je (only small part), but repair cost shots up. We have no pricing mechanism like fuel surcharge to pass these costs to customers, so we absorb everything." (Participant C – Q11).

> Lack of Value Recognition: Reliability, safety, compliance, or skilled labour value is often not compensated. (Participant F – Q20).

This theme supports the second IV: Maintenance Cost and overlaps with public safety considerations. Recent local reporting (e.g., Loh, 2024) has shown that poor fleet conditions contribute to accidents involving commercial vehicles.

4.5.3 Technology Adoption and Cost Recovery (IR3)

Technology investment was described as both necessary and burdensome. While some participants had adopted systems like ERP, TMS, or telematics, they cited

high implementation costs and poor integration outcomes. SMEs especially found digitalisation challenging without supportive pricing structures.

> Main thing is cost bro. For SMEs or small players like us, cost of implementation and ongoing maintenance really heavy. In trucking, GPS already compulsory. Now with the recent announcement by MOT, speed limiter also 'kena pasang'/have to install because too many heavy vehicle accidents. All this technology come with hardware cost upfront and monthly subscription every month. (Participant C – Q16).

> The main barrier to adopting technology, or carrying out digitalisation activities, is really a fundamental lack of understanding about why these solutions are needed in the first place. What often happens is that many operators rely heavily on their internal staff to implement the systems. And when that happens, you start to see a lot of irregularities… and in many cases, the result is wasted funds and failed implementations. It becomes a costly mistake, very bad. (Participant J – Q16).

This theme supports the third IV: Technology-Related Cost and reflects a broader challenge in aligning tech adoption with pricing models.

4.5.4 Fair Pricing Practices (IR4)

The definition of "fair pricing" varied across respondents. For some, it meant full cost recovery. Others emphasized relationship-based fairness and long-term sustainability. This variation reflects a blend of financial, ethical, and perceptual factors in pricing decisions.

> *"Simple bro, fair pricing means your rate must cover all key cost components, instalment payments, fuel, maintenance, wages, plus reasonable margin."* (Participant C – Q4).

This theme represents the Dependent Variable (DV): Stakeholder Perception of Fair Pricing and provides a basis for the model's outcome construct.

4.5.5 Governance, Regulation and Market Dynamics (IR5)

Participants expressed dissatisfaction with enforcement inconsistencies, undercutting by low-cost players, and a lack of mechanisms to uphold pricing standards. Many advocated for stronger institutional oversight rather than new regulations.

> Pricing should be left to the open market, but with firm and fair enforcement of all applicable rules and regulations. That is key to ensure a functioning marketplace.(Participant E – Q4)

> Fair pricing fosters a partnership approach, moving beyond 'lowest price wins' to mutual understanding of costs and value… If we keep chasing lowest price, eventually both sides lose. Stability comes from understanding real cost structures. (Participant F – Q4)

> Fair pricing in the haulage industry means ensuring that service providers can fully recover their actual operating costs, including fuel, labour, maintenance, and compliance, while maintaining a reasonable profit margin to sustain and grow the business. (Participant G – Q4)

This theme supports the moderating variable in the conceptual framework, particularly the role of institutional and regulatory context in shaping perceptions of pricing fairness and the operational viability of haulage businesses.

4.5.6 Sustainability and Green Transition (IR6)

Although sustainability was not a dominant focus, some participants commented on its feasibility. Most viewed green initiatives as aspirational but financially unrealistic under current pricing practices.

> Everything sounds very nice in theory, but the reality is, who's going to bear the cost? Green initiatives are good, but the investment cost is very high. Right now, many operators still buy reconditioned trucks because they are much cheaper. (Participant I – Q19)

> No, not really, current pricing practices do not adequately support long-term sustainability. (Participant F – Q5).

This theme reflects a disconnect between national green agendas and industry readiness, especially for resource-constrained operators.

4.5.7 Risk, Trust & Methodology (IR7)

This theme emerged from participant reflections on institutional engagement, data transparency, and expectations of follow-through. Several interviewees shared concerns about whether past feedback has translated into real change, and whether pricing discussions would meaningfully influence policy or client behaviour.

> This fair pricing issue has been there for a long time, but not many people want to seriously talk about it because it involves many parties and interests… To implement any proper framework will take time because the problem is quite complex. (Participant I – Q22).

> Yes, I think the topic is apt. But if I may suggest, perhaps you could consider adding the word 'Transparency' before 'Fair Pricing' in the title. I believe that would add a little more depth and better reflect the direction the industry should be heading. (Participant J – Q22).

These reflections illustrate a level of caution and scepticism toward institutional reform and research uptake, reinforcing the importance of methodological transparency and meaningful engagement with stakeholders in qualitative logistics research.

Some of the codes under this theme, such as Qualitative Interviews & Trustworthiness, Industry Advocacy, and Policy Engagement, highlight that trust extends beyond individual interviews and touches on broader concerns around long-term stakeholder involvement. While this theme does not directly align with any specific Independent Variable (IV) or Dependent Variable (DV), it contributes to the credibility and transparency of the research process.

This emergent theme reinforces the methodological integrity of the study and may serve as a reference point for future qualitative inquiries within the logistics and haulage sector. The full list of related codes is presented in Appendix D and Appendix E.

4.6 Participant Aspirations

As part of the interview process, Question 21 invited participants to share their suggestions, aspirations, or "wish list reforms" for improving fairness in the Malaysian haulage pricing system. This open-ended prompt allowed participants to move beyond their operational concerns and offer forward-looking proposals at both the industry and policy levels.

Consistent with the qualitative approach outlined in Section 3.8 and the thematic structure detailed in Appendix F, these responses were not linked to external citations but instead attributed directly to Participant IDs to preserve the authenticity of the primary data. A total of 47 distinct reform suggestions were extracted from the responses, covering areas such as pricing models, compliance mechanisms, digitalisation support, and sustainability incentives. Table 4.3 summarises the core reform proposals by participants, capturing their key focus areas and notable remarks.

Table 4.3: Participant Reform Proposals -Key Themes and Focus Areas
Participant Reform Proposals – Key Themes and Focus Areas

Participant	Key Reform Focus Areas (Summarised)	Remarks
A	Tiered pricing, cost transparency, client trust	Emphasised customer understanding and open negotiation
B	Route-based pricing, digitalisation incentives	Stressed rural-urban cost gaps and tech cost recovery
C	Cost mapping, compliance cost inclusion	Advocated for structured, NTP-aligned frameworks
D	Safety, service reliability	Highlighted non-haulier view; safety over cost
E	Market-based pricing, enforcement	Supported open pricing but demanded rule consistency
F	Structured cost breakdowns, incentive models	Called for dynamic pricing, dispute resolution
G	Tiered services, trust-building practices	Focused on cost clarity, ESG recognition
H	Indexed surcharges, long-term carbon pricing	Proposed AI pricing and emission-linked tariffs
I	Floor pricing, green fleet support	Advocated measurable standards and EV incentives
J	Standardised tariff model, value categories	Supported pricing structures with regulatory alignment

Note: A complete breakdown of all reform suggestions and participant justifications is provided in Appendix G.

4.7 Participant Perspectives on Key Themes

This section summarises what participants shared when asked about some key cost and policy-related issues. Six main interview questions (Q05, Q07, Q09, Q12, Q15, and Q22) gave us useful insights on how they feel about current pricing practices, rising operating costs, and whether the research topic is seen as relevant or not. The Table 4.4 provides a quick summary of their views, followed by a short discussion.

Table 4.4
Sample Summary of Participant Views on Selected Questions

Question No.	Topic Area	General Sentiment	Notable Comment
Q05	Sustainability of Pricing Practices	Mostly concerned – Many said the current pricing is unsustainable	"If we always reward the lowest price, we eventually sacrifice quality, reliability, and long-term stability in the industry." (Participant H)
Q07	Cost Factor Recognition in Pricing	Common frustration – ICT and hidden costs not properly reflected	"Often not fully reflected. In many cases, these cost factors, especially ICT adoption." (Participant G)
Q09	Minimum Wage Impact on Costing	Mixed reactions – Some felt the pinch, others said it's manageable	" Yes, quite significantly, recent minimum wage increases have had a significant negative impact on pricing strategies and business viability." (Participant F)
Q12	Maintenance Cost Recovery	Majority said 'difficult' – Full recovery rarely happens	"Current pricing structures do not allow for adequate cost recovery of maintenance expenses, especially for preventative maintenance and asset renewal." (Participant F)
Q15	Technology Investment in Pricing	Mostly absorbed – Tech costs often seen as overhead	"Clients don't pay more just because you have a better system. So, we eat the tech cost." (Participant I)
Q22	Relevance of Research Topic	Strong support – All said the topic is timely and helpful	"Fair pricing is key to sustainability… and it's overdue." (Participant H)

Note: This table highlights selected participant responses across key interview questions, summarising general sentiments and illustrating them with direct quotes.

4.8 Chapter Four: Summary

This chapter has presented the key findings derived from the voices of the participants, highlighting their challenges, perspectives on pricing practices, and aspirations for change within Malaysia's haulage industry. Through a thematic analysis process, the study identified and explored core themes emerging from the qualitative data, supported by participants' direct quotations and systematically coded insights.

The interview themes were initially guided by a deductively structured questionnaire, developed from the literature review and conceptual framework. However, the final coding structure followed an inductive trajectory, allowing emergent concerns, such as sustainability readiness and stakeholder trust, to reshape the thematic categories based on grounded feedback. This adaptive approach ensured that the coding reflected actual stakeholder narratives rather than being constrained by pre-set expectations.

The findings revealed a range of critical issues faced by haulage stakeholders, including difficulties in cost recovery, gaps in digitalisation, and concerns over the long-term sustainability of current industry practices. Despite participants coming from diverse organisational backgrounds and representing different modes of transport, there was a broad consensus that existing pricing practices are unsustainable, lack transparency, and fail to accurately reflect real operational costs. Recurring challenges such as poor cost visibility, rigid tendering processes, and insufficient investment in technology were also commonly raised.

The analysis of these themes provides a clearer understanding of the realities faced by industry players and offers valuable insights into the practical constraints that shape pricing decisions. These findings form a strong empirical foundation for the subsequent chapter, which will further analyse and interpret the results in relation to existing literature and theoretical frameworks. The next chapter will also consider the implications of these findings for the development of fairer, more transparent, and more sustainable pricing strategies within Malaysia's haulage sector.

CHAPTER FIVE

DISCUSSIONS AND CONCLUSION

5.1 Introduction

Fair pricing in the haulage sector is more than a business consideration, it is a critical enabler of Malaysia's NTP 2019–2030 and the broader goal of creating a resilient, inclusive, and sustainable logistics system. In a deregulated environment where cost visibility is low and buyer dominance is high, current pricing practices often fail to reflect actual operational burdens such as labour, maintenance, and technology investment. This misalignment threatens both industry sustainability and service quality, a risk commonly observed in under-regulated transport sectors (Eliasson, 2021; Jansen, 2024; Prapinit et al., 2024).

The relevance of fair pricing is strongly reflected across the five Strategic Thrusts of the NTP, each of which relates directly to the challenges explored in this study:

- Thrust 1: Governance. Highlights the need for regulatory frameworks to improve transparency and oversight in price-setting.
- Thrust 2: Integrated and Seamless Connectivity. Undervalued services can disrupt logistics flow, discourage reinvestment, and weaken supply chain efficiency.
- Thrust 3: Safety, Security, and Sustainability. Insufficient cost recovery limits investment in maintenance, clean technology, and compliance, undermining sustainability.
- Thrust 4: Smart and Innovative Technologies. Fair pricing supports digital adoption by enabling recovery of technology-related capital and operational costs.

- Thrust 5: Human Capital Readiness. Labour costs, especially driver wages and retention, must be embedded into pricing to sustain workforce stability.

Together, these thrusts illustrate that fair pricing is foundational to achieving the NTP's strategic vision, particularly in ensuring that logistics operators remain viable while meeting national performance targets.

These national policy priorities also align with the United Nations Sustainable Development Goals (UNSDGs). This research supports:

- SDG 8: Decent Work and Economic Growth, through its focus on fair labour compensation and business viability.
- SDG 9: Industry, Innovation and Infrastructure, by promoting efficient, cost-reflective logistics systems.
- SDG 10: Reduced Inequalities, by addressing SME disadvantages and imbalanced value distribution.
- SDG 12: Responsible Consumption and Production, by highlighting the need for pricing structures that reflect actual resource use and externalities.

By grounding fair pricing within both national and global policy frameworks, this study provides timely insights that can inform transport reform, pricing regulation, and sustainable logistics strategies in Malaysia.

5.2 Summary of Research

This study examined the issue of fair pricing within the Malaysian haulage industry, focusing on the disconnect between operational costs and unregulated pricing practices. The research adopted a qualitative design based on Maxwell's (2008, 2013, 2022) model, combining theoretical deduction with inductive thematic analysis.

To clarify the research sequence and findings validation process, Figure 5.1 presents a visual summary of the full research workflow. The flowchart outlines the key stages from conceptual design to empirical validation.

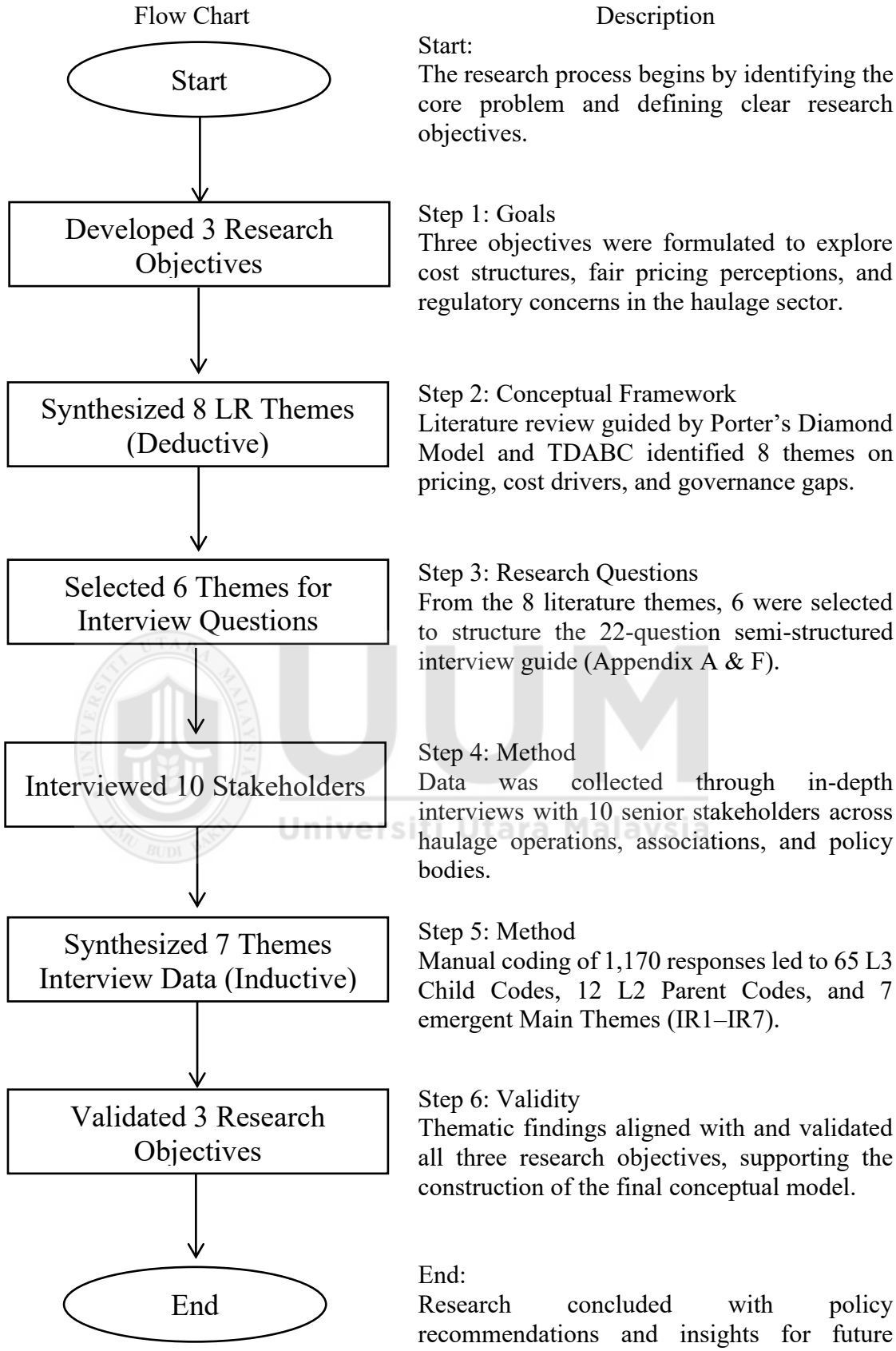

Figure 5.1
Research Summary Flow Chart
Source: Developed by author, with conceptual alignment to Maxwell's (2013) Interactive Model of Qualitative Research

5.3 Objective Achievement

This section evaluates the achievement of the study's three research objectives by linking qualitative findings to each research question. Through thematic analysis of stakeholder perspectives, the objectives are examined in comparison with relevant prior studies.

5.3.1 Research Objective 1 (RO1)

To identify the key factors that shape stakeholders' perceptions of fair pricing in the haulage sector, in relation to their operational challenges and cost-related experiences.

Research Question 1 (RQ1): What are the key factors that shape stakeholders' perceptions of fair pricing in the container haulage sector, considering their operational challenges and cost-related experiences?

(A) Discussion

The findings from the interview analysis in Chapter 4 reveal that stakeholders did not view fair pricing as a purely numerical outcome. Instead, it was interpreted through three interlinked dimensions: the ability to sustainably recover core operating costs, the transparency of pricing negotiations, and the quality of client relationships built on mutual respect. Fairness, therefore, was not just about covering expenses, but also about engaging in a process perceived as legitimate and equitable.

Three dominant themes emerged.

(i) Cost Recovery as a Foundation of Fairness

Nearly all participants linked fair pricing with their ability to recover fundamental costs, particularly labour (wages and retention), maintenance (parts and downtime), and technology (digital systems). These costs were seen as necessary to stay compliant and competitive yet difficult to integrate into final prices, especially in highly competitive tenders.

> *"Clients prioritize the lowest bid, making it hard to pass on higher labour costs."* (Participant F – Q10).

> *"Maintenance costs are investments in reliability, safety, compliance, and asset longevity, which must be reflected in sustainable pricing."* (Participant F – Q11).

These interview insights echo the conclusions of Boin et al. (2020), who argued that logistics pricing is often disconnected from actual cost realities, particularly in deregulated environments where competitive pressures override cost integrity. Similarly, Lam et al. (2023) highlighted the challenge of embedding digitalisation and maintenance investments into haulage quotations, resulting in under-recovery of essential expenditures.

In the Malaysian context, Nasir et al. (2021) identified that poor hinterland infrastructure and rising overheads make cost-based pricing difficult to justify to clients. These findings reinforce the notion that without a structure that supports cost recovery, pricing fairness remains elusive.

(ii) Pricing Transparency as a Structural Enabler

A recurring view was that transparent cost presentation is essential for building fair negotiations. Operators expressed a desire for costed quotation formats that could clearly communicate breakdowns, by lane, by trip, by cost driver, to reduce arbitrary undercutting by clients.

> *"Most customers just do tender and only focus on lowest bid. That's the problem. Lowest price wins but later cannot sustain."* (Participant C – Q17).

> *"If we always reward the lowest price, we eventually sacrifice quality, reliability, and long-term stability in the industry."* (Participant H – Q4).

> *"Customers also prefer cheaper services. As long as the delivery is done, they will go for whoever can give them the lowest price, regardless of whether the truck is new or old."* (Participant I – Q19).

This theme aligns with Jansen (2024), who emphasised the importance of true cost accounting in logistics decision-making. Jansen noted that organisations that neglect detailed cost visibility tend to engage in price wars, undermining sustainable pricing. Likewise, Eliasson (2021) argued that efficiency in transport pricing requires systems that internalise real costs and make them visible to all parties involved. Your study validates this by showing how opaque quotation practices lead to perceived unfairness.

(iii) Trust and Mutual Understanding as Relational Anchors

Finally, some participants pointed to relational fairness, especially the ability to explain their costs and be heard, as a core factor in pricing perceptions.

> *"Yes. Actual operating cost information is a key factor in determining pricing negotiations."* (Participant D – Q7).

This reinforces the findings of Eyster et al. (2021), who explored how fairness in pricing goes beyond numbers to include perceptions of process legitimacy, voice, and trust. In addition, Mujakachi and Tsvere (2023) highlighted how in African freight markets, the lack of trust and institutional mechanisms fosters distrust between clients and carriers, mirroring relational breakdowns described by Malaysian operators.

In summary, stakeholder perceptions of fair pricing are driven by the interplay of recoverable costs, transparency of pricing logic, and the trustworthiness of negotiations. These three themes not only emerged clearly from field interviews but also reflect broader concerns raised in global and regional literature, confirming both the universality and local specificity of the fair pricing challenge.

(B) Achievement of Research Objective 1

Research Objective 1 has been clearly achieved through the thematic analysis conducted in Chapter 4. The study successfully identified three interlinked factors that influence stakeholder perceptions of fair pricing in Malaysia's haulage sector:

- Recoverability of key cost components, especially manpower, maintenance, and technology adoption,

- Transparency in pricing structure, particularly the articulation of cost breakdowns during negotiations,
- Trust-based negotiation environments, where fair pricing is perceived through relational understanding and open dialogue.

These themes were consistently reflected across multiple stakeholder groups and supported by direct quotations. Importantly, the findings are not only internally validated but also corroborated by comparative insights from global literature.

(i) Boin et al. (2020) and Nasir et al. (2021) reinforced the operational difficulty of embedding cost recovery into haulage pricing under deregulated conditions. Their observations on misaligned price structures mirror interviewees' concerns over unsustainable margins and wage pressures.

(ii) Jansen (2024) and Eliasson (2021) provided theoretical support for the importance of transparent costing systems. Their frameworks justify the call from Malaysian operators for quotation formats that reveal cost logic, aligning well with this study's structural transparency theme.

(iii) Eyster et al. (2021) and Mujakachi & Tsvere (2023) added relational context by showing how fairness perceptions hinge on client-operator trust, a phenomenon echoed by participants who highlighted the ethical dimensions of pricing dialogue

The convergence between interview findings and established literature affirms that the study offers both original qualitative insight and scholarly resonance, fulfilling the objective's intent.

This evidence strengthens the empirical foundation for the model presented in Chapter 5 and justifies its focus on cost, transparency, and trust as core dimensions of fair pricing perceptions in the Malaysian haulage industry.

5.3.2 Research Objective 2 (RO2)

To analyse how these identified factors influence pricing practices and decision-making within the container haulage industry.

Research Question 2 (RQ2): How do these identified factors influence actual pricing practices and decision-making processes within the haulage industry?

(A) Discussion

The qualitative findings reveal a persistent misalignment between operators' cost realities and their pricing practices, largely shaped by external constraints rather than internal cost logic. Despite recognising key operational costs such as manpower, maintenance, and technology, stakeholders reported significant difficulty in incorporating these costs into pricing due to market pressures, power asymmetries, and client expectations.

(i) Manpower Costs: Unpriced but Operationally Critical

Rising wage commitments, driven by minimum wage policies, overtime needs, and retention incentives, were universally acknowledged as unavoidable. However, these costs were often excluded from final quotations due to client resistance, especially in competitive bidding environments.

> Low customer rates bro. Repair costs naik, maintenance naik, drivers demand better pay. But if customer refuse to revise rates, margin becomes too thin. Very hard to balance business survival and staff welfare. (Participant C – Q10).

This mismatch forces operators into cost absorption or under-pricing, leading to unsustainable staffing and low morale, yet with limited pricing recourse. These findings align with Kek and Lai (2023), who report that minimum wage policies significantly affect low-skilled employment sustainability in SMEs, particularly in the logistics sector. Similarly, Yeoh and Khor (2022) found that compliance with Malaysia's Minimum Wages Order 2022 placed strain on the financial capacity of logistics operators, especially those with thin operating margins. Complementing this, Emmanuel et al. (2021) argue that under-compensated manpower not only drives attrition but undermines long-term performance stability in haulage systems.

(ii) Maintenance Costs: Recurring Loss Drivers

Maintenance costs, encompassing wear and tear, spare part inflation, and unplanned vehicle downtime, were widely acknowledged by participants as persistent and unavoidable, yet often excluded from rate-setting discussions due to client resistance and pricing sensitivity.

> Unless pricing models evolve to properly factor in things like fleet age, actual repair histories, and ongoing cost increases, most operators are trapped in this cycle of under-recovering costs, delaying maintenance, and facing more breakdowns, which only leads to more financial pressure. (Participant H – Q12).

This finding reflects concerns raised in Berwick & Dooley (1997), who demonstrated how underpriced maintenance contributes to margin erosion, especially for small and mid-sized hauliers with aging fleets. More recently, Barde and Klein (2024) warned that such deferred or internally subsidised maintenance practices create long-term risks and degrade operational efficiency. In the Malaysian context, MPC (2022) confirmed that maintenance costs remain one of the top three financial pressures among road freight operators yet are rarely formalised within pricing mechanisms. These patterns underline a structural misalignment: although maintenance is fundamental to reliability and safety, it is not systematically reflected in client quotations or cost-based negotiations.

(iii) Technology Costs: Required but Unrewarded

Technology investments, such as GPS fleet tracking, electronic proof of delivery (ePOD), real-time system integration, and compliance-related digital tools, were widely adopted across the sector. However, participants noted that these technologies, while costly to acquire and maintain, were perceived by clients as standard operating expectations rather than value-added services. This misalignment between cost outlay and pricing recognition creates a systemic imbalance.

"*Not really. Most clients consider features like tracking, document sharing, and system access as standard, so we rarely get to charge more even if we've invested in the system."* (Participant A – Q15).

This challenge is well documented in the literature. Burinskienė and Daškevič (2024) assert that while digitalisation is indispensable for enhancing competitive excellence, logistics firms, especially in developing economies, face a paradox: significant investment is needed to maintain digital operations, yet market demand rarely translates this into pricing leverage. Tarudin et al. (2023) similarly found that although strategic transport planning and digital tools can reduce operational inefficiencies and environmental impact, companies struggle to justify returns on these technological investments without policy or customer support.

Prapinit et al. (2024) reinforce this by showing that technology adoption was accelerated during the COVID-19 period in Malaysian haulage, with digitised documents and remote fleet monitoring becoming baseline practices. However, the financial burden of adopting such tools disproportionately affects SMEs, who lack economies of scale.

Finally, as Eliasson (2021) highlights, transportation pricing mechanisms rarely account for "invisible" investments such as digital compliance and visibility systems, despite their growing importance in safety and efficiency. This leads to a widening gap between operational expectations and cost recovery models, further complicating pricing negotiations in a deregulated environment.

(iv) Strategic Responses to Pricing Constraints

In the face of mounting cost pressures and limited pricing flexibility, operators have adopted several tactical responses to remain commercially viable. These strategies, while adaptive in the short term, reflect a fragmented and reactive pricing culture that prioritises client retention over cost recovery. Among the most commonly cited mechanisms were:

- Cross-subsidisation: Operators used profitable, high-volume clients to absorb the losses from underpriced or ad-hoc jobs.
- Tiered pricing: More favourable rates were quietly extended to preferred or long-term clients, while others faced steeper mark-ups or bare-minimum service.
- Cost masking: Operators intentionally avoided itemised cost disclosures to prevent client objections or downward pricing pressure.

These behaviours illustrate how pricing decisions are less anchored in structured cost logic and more influenced by relational risk, contract competitiveness, and client power asymmetry. Rather than operating within a transparent, cost-reflective framework, operators described a climate of "price tactfulness", where survival takes precedence over system sustainability.

This phenomenon is not unique to Malaysia. Eliasson (2021) warns that when transport systems fail to price key operational risks, such as labour, safety, or digital compliance, industry players are forced into trade-offs that undermine long-term stability. Locally, Zainuddin (2018) captured similar sentiments in an interview with the President of AMH, who acknowledged that haulage rates in

Malaysia often undercut sustainability, especially for SMEs. Likewise, the Grab Haulier blog (2023), written by an active industry practitioner, described how operators routinely adjust prices based on "gut feeling" and competitive pressure, rather than grounded cost models.

These reactive strategies echo the concerns raised by OECD (2021) and Tvedt (2024) regarding deregulated markets, where the absence of price floors and structured negotiation channels results in volatile pricing, eroded margins, and compromised service quality. Ultimately, the findings suggest that without policy intervention or collective industry reform, cost-based pricing in the haulage sector will remain elusive.

(B) Achievement of Research Objective 2

Research Objective 2 was achieved by systematically linking stakeholder narratives to observable pricing behaviours in the haulage industry. Through thematic analysis, the study confirmed that although manpower, maintenance, and technology costs are widely recognised by operators, they are seldom reflected transparently in pricing mechanisms.

The evidence shows that economic realism is compromised by client dominance and rate competition, with stakeholders often sacrificing cost recovery for market access. For instance, while wage increments are mandated under national policies (Kek & Lai, 2023; Yeoh & Khor, 2022), these adjustments rarely translate into pricing revisions due to buyer resistance. Similarly, maintenance costs are deferred or subsidised (Berwick & Dooley, 1997; MPC, 2022), and digital tools,

though essential, are treated as non-negotiable service expectations (Burinskienė & Daškevič, 2024).

Furthermore, the emergence of fragmented coping strategies, such as cross-subsidisation and tiered pricing, reinforces the finding that pricing in the haulage sector is relational, defensive, and survival-driven. These insights align with previous observations by Zainuddin (2018) and Grab Haulier (2023), validating the argument that cost-based pricing is currently impractical in Malaysia's deregulated haulage environment.

In sum, RO2 was met by demonstrating how the identified cost dimensions, manpower, maintenance, and technology, are not just operational burdens but also structural influencers of pricing behaviour, filtered through power dynamics, competitive pressures, and risk aversion.

5.3.3 Research Objective 3 (RO3)

To assess the extent to which the proposed conceptual model reflects the relationship between operational cost drivers and pricing behaviour in the Peninsular Malaysia haulage context.

Research Question 3 (RQ3): To what extent does the proposed conceptual model reflect the relationship between operational cost drivers and pricing behaviour in the Malaysian haulage context?

(A) Discussion

Assessing the Conceptual Model's Alignment with Industry Realities.

This section evaluates the extent1 to which the proposed conceptual model accurately reflects the real-world relationship between operational cost drivers and pricing behaviour in Peninsular Malaysia's container haulage sector. The model, initially developed through a combination of deductive theoretical frameworks (e.g., Porter's Diamond, TDABC) and supported by empirical literature, was later assessed through grounded insights from stakeholder interviews.

Findings from Chapter 4 confirmed that the three primary cost drivers, manpower, maintenance, and technology, not only represent operational burdens, but also face systemic challenges in being reflected in client-driven pricing negotiations. Additionally, external forces such as weak institutional enforcement, client power asymmetry, and absence of regulatory floor pricing emerged as key moderating variables, shaping how these costs translate (or fail to translate) into pricing decisions.

These insights suggest that the model's core assumptions were not only validated but also required nuanced extension to accommodate relational and policy-driven dynamics. As such, the model effectively captures both the cost-based logic and the negotiation environment that shape perceptions of fair pricing within the Malaysian haulage context.

> Low customer rates bro. Repair costs 'naik'/up, maintenance naik, drivers demand better pay. But if customer refuse to revise rates, margin becomes too thin. Very hard to balance business survival and staff welfare. (Participant C– Q10)

> Clients prioritize the lowest bid, making it hard to pass on higher labour costs. (Participant F – Q10).

> Unless pricing models evolve to properly factor in things like fleet age, actual repair histories, and ongoing cost increases, most operators are trapped in this cycle of under-recovering costs, delaying maintenance, and facing more breakdowns, which only leads to more financial pressure. (Participant H – Q12).

> Not really. Most clients consider features like tracking, document sharing, and system access as standard, so we rarely get to charge more even if we've invested in the system. (Participant A – Q15).

> It's a cycle. Every time we think things stabilize, new pressures appear, whether fuel, wages, or technology. That's why fair pricing framework is long overdue for our industry. (Participant F – Q3).

Beyond the direct cost factors, stakeholders repeatedly highlighted external constraints that shape their pricing behaviour:

- Client-dictated contract terms
- Tender-based undercutting
- Lack of regulatory enforcement or pricing benchmarks
- Market opacity and information asymmetry

These were formally integrated into the model as moderating variables, reflecting the institutional and structural barriers that distort rational pricing. For example:

> *"Third, labour cost like minimum wage and incentives should be treated as fixed cost. Customer cannot argue on that because every year wages keep naik."* (Participant C – Q21)

Moreover, emergent themes such as trust deficits, unequal risk distribution, and sustainability pressures revealed that fair pricing is not just a cost recovery issue, it is also a function of relational dynamics and policy ambiguity. These insights expanded the definition of the Dependent Variable (DV): Fair Pricing Perception to include both operational feasibility and negotiation fairness.

Furthermore, the field data revealed emergent relational and systemic factors not originally positioned as primary constructs, but which deeply shape perceptions of pricing fairness.

The following Table 5.1 is a comparative analysis confirms that the final model aligns closely with, and expands upon, several key prior studies:

Table 5.1
Comparison with Prior Studies

Study	Key Insight	Alignment with Current Model
Eliasson (2021)	Transport pricing systems often fail to reflect "invisible" costs like safety, digital compliance, and long-term reliability.	Strongly aligns: Your model highlights how manpower, maintenance, and tech costs are omitted due to market-driven pressures and tender culture. Reflects a system where *short-termism* overrides cost recovery.
Prapinit et al. (2024)	SMEs face difficulty justifying tech adoption post-COVID; costs rise but pricing remains stagnant.	Confirms Technology IV and the model's client-driven constraints.
Tarudin et al. (2023)	Digitalisation and sustainability in logistics are hindered by weak regulatory alignment.	Matches the model's inclusion of institutional and policy variables.
Burinskienė & Daškevič (2024)	Digital investments don't translate into pricing power in deregulated logistics markets.	Validates technology-related pricing disconnection.
Berwick & Dooley (1997)	Under-pricing maintenance in small hauliers leads to long-term performance risks.	Mirrors model's recognition of maintenance as a deferred cost and risk factor.
Zainuddin (2018)	Malaysian hauliers lack floor pricing; survival tactics override structured cost recovery.	Supports inclusion of reactive pricing strategies and external structural barriers.
Grab Haulier (2023)	Local operator perspectives affirm that pricing is client-controlled; value-added services are unrecognised.	Supports the relational and negotiation-based constraints captured in the DV construct.

(B) Achievement of Research Objective 3

RO3 was achieved by successfully translating complex field realities into a validated conceptual model that captures the interplay between operational costs and pricing outcomes in Peninsular Malaysia's haulage industry. This involved:

- Deductive Foundation: Initial model informed by Porter's Theory and TDABC, identifying cost structure as a core driver of pricing fairness.

- Inductive Validation: Thematic coding of 10 stakeholder interviews confirmed the relevance of manpower, maintenance, and technology as pricing constraints.
- Model Refinement: Inclusion of moderating variables (e.g., institutional enforcement, client power) and emergent themes (e.g., relational trust, sustainability burden).
- Empirical-Conceptual Synergy: Model bridges theoretical insights (e.g., Eliasson, OECD) with grounded Malaysian realities (e.g., Zainuddin, Grab Haulier), reinforcing its practical utility.

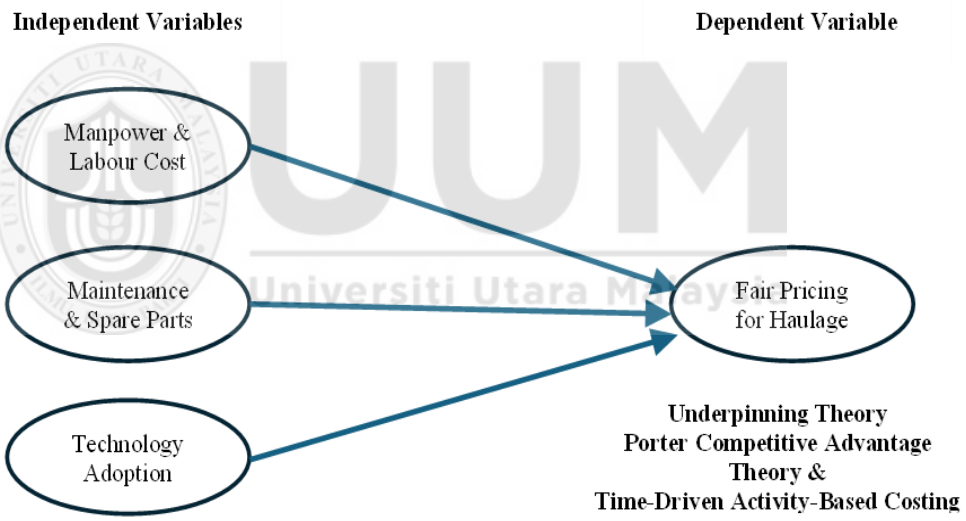

Figure 5.2

Final Conceptual Model of Factors Influencing Fair Pricing Practices in Peninsular Malaysia's Haulage Industry

Summary

This conceptual model goes beyond theory, it captures the lived challenges of Malaysian hauliers operating in a deregulated, client-dominated market. It reflects not just what influences pricing, but why those influences remain unaddressed. As such, it serves as a diagnostic and strategic tool for:

- Policy reform (e.g., floor pricing, cost benchmarking)
- Contracting frameworks (e.g., cost-plus models)
- Industry empowerment (e.g., collective bargaining, tech funding support)

The model, therefore, represents a hallmark achievement of this study, blending cost-based logic, structural constraints, and empirical insight into one coherent framework for change.

5.3.4 Contributions and Industry Implications

This research contributes meaningfully to both academic scholarship and industry-level discourse on fair pricing in Malaysia's haulage sector. It extends understanding beyond theoretical ideals by anchoring the discussion in real-world cost structures and lived industry experiences.

(i) Academic Contributions

- Proposes and empirically validates a conceptual model that links cost drivers (manpower, maintenance, and technology), stakeholder perceptions of fair pricing, and regulatory or contractual limitations. Grounded in thematic findings from Chapter 4, particularly the sections on cost-pricing misalignments, coping mechanisms, and institutional constraints, and illustrated in Figure 5.2, this model contributes to scholarship in transport economics, deregulation, and pricing policy reform.
- Expands the qualitative research base on pricing practices in logistics by incorporating firsthand narratives from business operators, association leaders, and institutional facilitators.

- Applies Porter's Diamond Theory and Time-Driven Activity-Based Costing (TDABC) to the Malaysian haulage sector, contextualising how structural competitiveness and operational cost pressures shape pricing strategies. These theoretical lenses offer transferable value to national policy design, particularly in addressing sectoral inefficiencies and promoting cost transparency across logistics value chains.

(ii) Industry Contributions

- Gives voice to SMEs and logistics operators who argue that current pricing practices fail to account for true service costs, especially under rigid client-dominated tendering systems.
- Highlights the need for pricing reform to go beyond simple cost listings, to address negotiation power imbalances, cost visibility, and sustainability incentives. As noted by Büchs, Ivanova, and Schnepf (2021), fair compensation mechanisms in policy design must account not only for economic redistribution but also for access to green services and structural inequalities, a principle equally relevant in transport pricing where SMEs face systemic disadvantages in cost recovery.
- Verification through interviews with key industry stakeholders, including AMH, MCBEA, and MPC, confirmed the cost challenges identified in this study, thereby validating the conceptual model's reflection of on-the-ground realities and reinforcing its practical relevance.

(iii) Practical Guidance for Stakeholders

- Operators Can leverage the research to better articulate cost structures in pricing negotiations, supported by tools like TDABC.
- Policymakers Can draw on findings to review enforcement gaps, promote fair contracting practices, and support SME digitalisation.
- Industry Associations May use this study as an evidence base for proposing structured pricing models or advocating for reform in national logistics policy.
- Future logisticians and researchers can use the conceptual model and thematic findings as a reference point for understanding pricing dynamics, stakeholder power imbalances, and regulatory shortcomings in Malaysia's logistics ecosystem, thereby informing more equitable and sustainable industry practices.

5.3.5 Reform Suggestions Based on Field Evidence

In addition to expressing their challenges, many participants shared concrete suggestions for improving the pricing landscape in Malaysia's haulage sector. These reform ideas reflect a desire to transition from "survival-mode pricing" to a more transparent, structured, and equitable system. Insights are grouped into three actionable levels: operator, industry, and policy.

(i) Operator-Level Reform Suggestions

Operators emphasised the need for internal capacity-building to better engage with clients on pricing matters. See Table 5.2.

Some clients are aware of these cost elements and accept them, but others expect them to be included. Sometimes we have to absorb certain costs just to close the deal, especially when they compare us to lower-cost competitors. (Participant A – Q7).

Table 5.2
Operator-Level Reform Suggestions

Reform Idea	Description
Internal Costing Awareness	Operators need better visibility of their actual cost breakdowns (e.g., per trip, per lane) to negotiate with confidence.
Digital Recordkeeping	Use of basic ERP, route tracking, and maintenance logs to support pricing justifications and contract discussions.
Cost-Based Quotation Templates	Presenting breakdowns (e.g., labour, fuel, compliance) during negotiation to show transparency and avoid underquoting.

Note: These reform ideas were distilled from direct interview feedback and reflect practical measures that small and mid-sized haulage operators can adopt to strengthen pricing transparency, negotiation leverage, and internal cost awareness.

(ii) Industry-Level Reform Suggestions

Participants saw associations as key players in pushing for standardisation and collective strength. See Table 5.3.

"They can come up with standard cost reporting templates that everyone can use. That way, when operators talk to clients, everyone's looking at costs the same way." (Participant H – Q18).

"If we have a proper pricing review system similar to how port authorities regulate port charges, it can help prevent unhealthy undercutting and maintain service standards." (Participant I – Q18).

Table 5.3
Industry-Level Reform Suggestions

Reform Idea	Description
Standardised Pricing Guidelines	Industry associations to develop a pricing reference based on operational costs to support fair negotiation.
Collective Advocacy	Stronger association voice (e.g., AMH) to push back on unrealistic tender structures and raise awareness among clients.
Digital Costing Tools	Development of shared tools (costing calculator, template builder) by industry bodies to support SMEs.

Note: These suggestions highlight the strategic role of industry associations in promoting fairer pricing practices through standardisation, collective representation, and the development of digital tools that empower SMEs to engage more effectively in price negotiations.

(iii) Policy-Level Reform Suggestions.

Stakeholders called for stronger enforcement and government support to level the playing field. See Table 5.4.

"Third, labour cost like minimum wage and incentives should be treated as fixed cost. Customer cannot argue on that because every year wages keep naik." (Participant C – Q21).

"It's a cycle. Every time we think things stabilize, new pressures appear, whether fuel, wages, or technology. That's why fair pricing framework is long overdue for our industry." (Participant F – Q3).

Table 5.4
Policy-Level Reform Suggestions

Reform Idea	Description
Standardised Pricing Guidelines	Industry associations to develop a pricing reference based on operational costs to support fair negotiation.
Collective Advocacy	Stronger association voice (e.g., AMH, FMFF) to push back on unrealistic tender structures and raise awareness among clients.
Digital Costing Tools	Development of shared tools (costing calculator, template builder) by industry bodies to support SMEs.

Note: Policy-level reforms call for stronger institutional support and regulatory alignment to ensure cost-reflective pricing, enhance transparency, and protect smaller operators from exploitative market practices.

These multi-level reform suggestions bridge the qualitative findings of this study with actionable steps for industry and government. Participants were not resistant to change; rather, they were eager for systems that are:

- Fair: Recognising actual cost burdens.
- Practical: Aligned with the realities of small and mid-sized operators.
- Inclusive: Built on shared responsibility among clients, regulators, and service providers.

These proposals represent a grounded roadmap for enhancing transparency, negotiation equity, and financial resilience in Malaysia's haulage sector.

Importantly, similar reform trajectories have been observed internationally, particularly in the European Union, where Poliak et al. (2021) proposed recalibrating pricing models to reflect variable cost factors like directional imbalance and route-specific inefficiencies. This shift from static to dynamic costing mirrors the concerns raised by Malaysian operators regarding unpriced risk components such as idle time, compliance delays, and under-recovered tech

investments. Notably, these modern recommendations echo long-standing concerns raised by Gubbins and Hancox (1987) on the distortionary effects of unfair freight rate competition and are reaffirmed in Tvedt's (2024) contemporary review of liberalised market impacts on small hauliers. Together, these international insights underscore the need for pricing reforms that are not only locally responsive but also globally aligned in fairness and cost reflectiveness.

5.4 Conclusion

This study has offered in-depth insights into how fair pricing is perceived, experienced, and contested by stakeholders within Malaysia's haulage industry. Through a qualitative exploration anchored in operational cost realities, specifically manpower, maintenance, and technology, the research revealed systemic gaps between actual cost structures and prevailing pricing practices. These findings contribute not only to academic understanding but also serve as a timely reflection of the economic pressures and strategic misalignments faced by industry players.

Key themes such as pricing opacity, rigid tendering systems, and the internalisation of rising costs emerged consistently across the data. Haulage operators, especially SMEs, find themselves navigating a deregulated environment with limited bargaining power. The voices of participants made it clear that current pricing models do not accurately reflect service complexity, regulatory compliance burdens, or the increasing expectations for digitalisation and environmental responsibility.

This research has also addressed three core research objectives: understanding stakeholder perceptions of fair pricing, identifying key unpriced cost components, and proposing structural factors influencing reform readiness. These objectives were achieved through a combination of deductive design and inductive analysis, culminating in a validated conceptual framework that links cost drivers to perceptions of pricing fairness. The inclusion of emergent themes, such as Sustainability Transition and Trust in Industry Engagement, further enhanced the framework's relevance.

The study's findings were validated through in-depth interviews with ten senior stakeholders representing various sectors of the logistics industry, including haulage operations, cross-border e-commerce, and institutional facilitation. Participants included representatives from the Association of Malaysian Hauliers (AMH), the Malaysia Cross-Border E-Commerce Association (MCBEA), and the Malaysia Productivity Corporation (MPC) under its Logistics Productivity Nexus (LPN). Their responses closely aligned with the core themes identified in Chapter 4, reinforcing the model's relevance to actual industry conditions. The validation process is further supported by the detailed participant profiles and coded transcripts presented in Appendices A–F, providing a clear basis for the study's empirical credibility and the practical applicability of its proposed reforms.

Nevertheless, while the study has laid important groundwork, it also uncovers several unresolved issues, chief among them being the absence of standardised cost-based pricing models, regulatory protection for smaller operators, and limited insights from the demand-side of logistics services. These represent not only gaps

in the literature but also opportunities for future policy innovation and scholarly inquiry.

Ultimately, this study does not merely describe an industry under pressure, it constructs a platform for meaningful dialogue and reform. By illuminating the disconnection between cost burdens and pricing frameworks, it invites policymakers, logistics stakeholders, and researchers to co-create solutions that are equitable, cost-reflective, and forward-looking. In doing so, it contributes toward a more resilient and sustainable future for Malaysia's haulage industry.

5.5 Limitations of the Study

This study adopts an exploratory, qualitative approach to examine stakeholder perceptions of fair pricing in Malaysia's container haulage sector. While it provides valuable insights, several limitations are acknowledged.

First, the use of semi-structured interviews means that findings are drawn from subjective stakeholder perspectives rather than empirical generalisations. The aim is not to quantify pricing structures or prescribe rate benchmarks, but to understand how fairness is interpreted and operationalised in a deregulated environment.

Second, the study is geographically limited to Peninsular Malaysia, where transport regulation is standardised under APAD. It excludes Sabah and Sarawak, which operate under separate licensing authorities and may exhibit different cost and pricing dynamics.

Third, the study does not involve financial modelling or pricing simulations. Its objective is exploratory rather than prescriptive, and it focuses on identifying stakeholder views rather than generating formulaic pricing models.

Fourth, the research excludes certain externalised cost elements, such as fuel and toll surcharges, that are typically treated as separate from internal pricing decisions. Similarly, while indirect operational costs (e.g., waiting time or congestion delays) are recognised as relevant, they were not the primary focus of this inquiry.

Finally, due to the commercial sensitivity surrounding pricing and contract terms, some participants may have limited the disclosure of financial data. While this may restrict numerical detail, it does not compromise the thematic richness or interpretive depth of the findings.

Despite these limitations, the study contributes novel and context-specific insights into how pricing fairness is understood in practice. It also lays the foundation for future research adopting quantitative, policy-driven, or comparative approaches.

5.6 Future Work

This research has surfaced several critical areas that warrant further academic exploration and policy attention. While the current study focused on qualitative insights from key industry stakeholders, future research could build upon these findings through broader sampling, policy benchmarking, and empirical validation.

Firstly, there is a persistent absence of standardised, cost-reflective pricing frameworks in Malaysia's haulage industry. These frameworks must account for actual operating costs, particularly manpower, maintenance, and technology adoption. Quantitative studies could support the development of pricing benchmarks and simulate cost pass-through models, especially to assist SMEs in setting sustainable rates.

Secondly, the client-side perception of pricing fairness remains underexplored. A better understanding of how freight buyers define, evaluate, and negotiate "fair pricing" would enrich bilateral negotiation frameworks and balance expectations between service providers and clients.

Thirdly, policy enforcement and regulatory support were consistently flagged as weak during interviews. Comparative studies examining how other logistics markets implement enforceable, transparent pricing mechanisms, especially in countries with mature freight regulation, may offer useful models for Malaysian policymakers and associations.

Lastly, although this study acknowledged the rising technology transition costs, further research is needed to assess how operators, especially smaller firms, can operationalise tools such as Time-Driven Activity-Based Costing (TDABC) to justify digital investments and reflect those costs in their rate structures. The Table 5.5 below summarises these gaps and suggests directions for future inquiry.

Table 5.5
Summary of Research Gaps

Point	Summary
Main Result	Operators view current pricing practices as unfair and disconnected from real operating costs.
Core Cost Pressures	Manpower, maintenance, and technology costs are often absorbed, not passed to clients.
Fairness Gap	Power imbalance and lack of regulatory structure create pricing disadvantages for smaller players.
Validated Relevance	Strong support from industry stakeholders confirms this study is timely and important.
Future Focus	Reform must target cost transparency, structured pricing frameworks, and inclusion of client perspectives.

Note: This table highlights both the study's key findings and unresolved issues that offer opportunities for future research and policy development. These insights should inform more inclusive, transparent, and cost-aligned pricing models that improve resilience and equity within the Peninsular Malaysia haulage industry.

Recommendations

Based on the study's findings, the following recommendations are proposed to address the challenges surrounding fair pricing and guide strategic responses from policymakers, industry associations, and operators:

(i) Establish Transparent and Cost-Reflective Pricing Guidelines

Develop an industry-wide pricing guideline that reflects actual operational costs, manpower, maintenance, fuel, and technology, through collaboration between regulators, associations, and SMEs. This initiative should standardise quotations, reduce price undercutting, and support long-term financial viability.

(ii) Strengthen Regulatory Enforcement and Policy Support

Enhance the enforcement of pricing-related regulations to ensure a fairer operating environment. Authorities such as the MOT should introduce stronger mechanisms

to prevent exploitative practices and protect smaller operators during tender evaluations and client negotiations.

(iii) Improve Cost Visibility and Data Transparency

Promote the adoption of structured cost accounting systems such as TDABC to improve internal awareness of cost structures and support pricing negotiations. Associations and public agencies should develop and offer digital tools, training modules, or templates to help SMEs adopt such systems affordably.

(iv) Foster Inclusive Dialogue with Clients and Customers

Establish forums and collaborative platforms that enable regular interaction between haulage providers and their clients. These engagements should promote mutual understanding of cost pressures, expectations, and what constitutes fair pricing in a dynamic logistics landscape.

(v) Expand Research to Under-Explored Markets

While this study focused on Peninsular Malaysia, future research should consider cross-border haulage operations or markets operating under unique regulations or cost structures. These segments can reveal alternative pricing mechanisms and regulatory adaptations valuable for national strategy.

Ultimately, this study aspires to serve not only as a reflection of current challenges in Malaysia's haulage pricing landscape but also as a foundation for future reforms, empowering policymakers, industry leaders, and emerging logisticians to advance a more equitable, transparent, and sustainable transport ecosystem.

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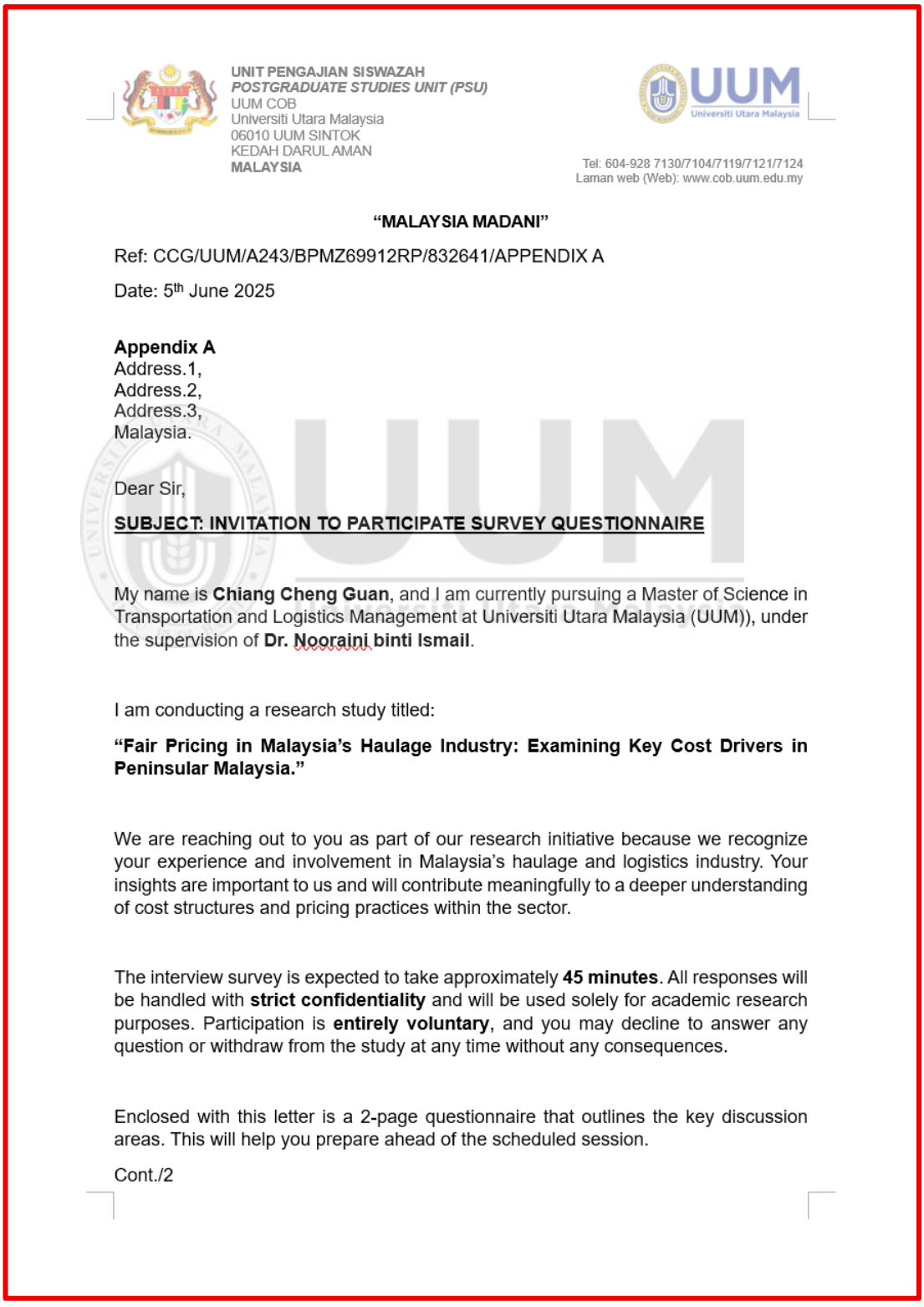
Appendix A: Participant Invitation Letter and Interview Protocol

Part 1: Official letter (ethics approval, consent, research purpose).

Part 2: Questionnaire (grouped by themes, no explanations, just questions). Sample Letter Page 1 of 2



UNIT PENGAJIAN SISWAZAH
POSTGRADUATE STUDIES UNIT (PSU)
UUM COB
Universiti Utara Malaysia
06010 UUM SINTOK
KEDAH DARUL AMAN
MALAYSIA

Tel: 604-928 7130/7104/7119/7121/7124
Laman web (Web): www.cob.uum.edu.my

"MALAYSIA MADANI"

Ref: CCG/UUM/A243/BPMZ69912RP/832641/APPENDIX A

Date: 5th June 2025

Appendix A
Address.1,
Address.2,
Address.3,
Malaysia.

Dear Sir,

SUBJECT: INVITATION TO PARTICIPATE SURVEY QUESTIONNAIRE

My name is **Chiang Cheng Guan**, and I am currently pursuing a Master of Science in Transportation and Logistics Management at Universiti Utara Malaysia (UUM)), under the supervision of **Dr. Nooraini binti Ismail**.

I am conducting a research study titled:

"Fair Pricing in Malaysia's Haulage Industry: Examining Key Cost Drivers in Peninsular Malaysia."

We are reaching out to you as part of our research initiative because we recognize your experience and involvement in Malaysia's haulage and logistics industry. Your insights are important to us and will contribute meaningfully to a deeper understanding of cost structures and pricing practices within the sector.

The interview survey is expected to take approximately **45 minutes**. All responses will be handled with **strict confidentiality** and will be used solely for academic research purposes. Participation is **entirely voluntary**, and you may decline to answer any question or withdraw from the study at any time without any consequences.

Enclosed with this letter is a 2-page questionnaire that outlines the key discussion areas. This will help you prepare ahead of the scheduled session.

Cont./2

Appendix A
Sample Letter Page 2 of 2

UNIT PENGAJIAN SISWAZAH
POSTGRADUATE STUDIES UNIT (PSU)
UUM COB
Universiti Utara Malaysia
06010 UUM SINTOK
KEDAH DARUL AMAN
MALAYSIA

Tel: 604-928 7130/7104/7119/7121/7124
Laman web (Web): www.cob.uum.edu.my

We would be grateful if you could suggest a convenient date and time for the interview session. Alternatively, we can propose a few time slots based on your availability.

If you have any questions or require further clarification regarding this research, please do not hesitate to contact me.

Your time, cooperation, and perspectives are greatly appreciated. Thank you for considering this invitation to support academic research and contribute to the advancement of fair pricing strategies in Malaysia's logistics industry.

Warm regards,

Chiang Cheng Guan
School of Technology Management and Logistics (STML)
University Utara Malaysia
Sintok, Kedah.
Tel: 016 219 5886
E-mail: chiang_cheng_guan@cob.uum.edu.my & chiangcg@gmail.com

Supervised by,

DR. NOORAINI BINTI ISMAIL
Pensyarah
Pusat Pengajian Pengurusan Teknologi dan Logistik
Universiti Utara Malaysia

Dr. Nooraini binti Ismal
School of Technology Management and Logistics (STML)
University Utara Malaysia
Sintok, Kedah.
E-mail: nooraini.ismail@uum.edu.my
UUM Experts Profile: https://experts.uum.edu.my/researcher_print.aspx?nopkj=6415

Appendix A
Questionnaire Page 1 of 2

SURVEY QUESTIONAIRE

Title: Fair Pricing in the Malaysian Haulage Industry: An Analysis of Operating Cost Structures in Peninsular Malaysia

21 Questions.

Part A: Participant Context.

Q1) Could you briefly describe your current role and the primary objectives of your organisation or association in relation to the haulage/logistics industry?

Q2-A) [For associations]: How does your organisation engage with issues related to pricing, cost challenges, or sustainability in the industry?

Q2-B) [For all participants]: From your position, what are the main concerns your members or peers express about cost structures or pricing practices in the haulage sector?

Q3) Could you share any specific experiences or past involvement that have shaped your understanding of cost structures or pricing practices in the haulage industry?

Part B: Core Research Themes.

Theme 1: Fair Pricing as a Business Enabler

Q4) In your view, what does "fair pricing" mean in the context of the haulage industry, particularly from a business perspective where both operators and clients benefit?

Q5) Do you feel current pricing practices support long-term sustainability for both hauliers and clients? Why or why not?

Theme 2: Identification of Cost Components Beyond Fuel

Q6) From your operational or strategic perspective, what are the key cost components , apart from diesel fuel , that significantly affect haulage pricing?

Q7) Do you think these cost factors are well reflected in current pricing negotiations? e.g. ICT Adoption? Why or why not?

Appendix A
Questionnaire Page 2 of 2

SURVEY QUESTIONAIRE

Theme 3: Influence of Manpower Costs on Pricing

Q8) How do manpower-related issues (e.g., driver wages, availability, training) influence your pricing decisions?

Q9) Has the recent increase in minimum wage (e.g., to RM1,500 or RM1,700) impacted pricing strategies or business viability?

Q10) What are the barriers to manpower compensation under the current pricing model?

Theme 4: Maintenance-Related Financial Pressures

Q11) In your experience, how do maintenance-related costs (parts, breakdowns, inspections) influence your pricing decisions?

Q12) Do current pricing structures allow for adequate cost recovery of these expenses?

Q13) How do financial constraints or working capital challenges affect your maintenance or asset renewal cycle?

Theme 5: Technology Investment and Pricing Recovery

Q14) What types of technologies (e.g., fleet tracking, digital compliance tools) are being adopted in your operations?

Q15) Can you reflect tech investment costs in your pricing strategy?

Q16) What are the key barriers to adopting or sustaining such technology , particularly for your company or SMEs or smaller operators?

Theme 6: Recommendations for Sustainable and Transparent Pricing Mechanisms

Q17) What reforms or industry actions would help ensure pricing reflects actual cost structures?

Q18) What role should industry associations, government bodies, or port authorities play in regulating or guiding fair pricing?

Q19) How can pricing structures be aligned with sustainability goals (e.g., SDG compliance, green incentives)?

Q20) From your experience, what do you consider the most significant cost challenge in pricing negotiations?

Q21) If a transparent pricing framework were introduced, what features would you prioritise (e.g., tiered costing, cost mapping, compliance incentives)

Appendix B: Participant Profiles

Participant Profiles

Field	**Participant A**
Organisation	**International airline & freight forwarder**
Role	**Logistics Sales & Customer Service**
Modal Coverage	**Air Freight & Sea Freight**
Key Functions	**Shipment management, balancing service and cost**
Objective	**Transparent, efficient logistics aligned with customer needs**
Perspective	**Business-facing, focused on customer value and sustainability**

Field	**Participant B**
Organisation	**Courier firm turned commodity trader**
Role	**Ex-GM, now Trader**
Modal Coverage	**Express, Air Cargo, Cross-Border**
Key Functions	**Client service, delivery speed, cargo accuracy**
Objective	**Enhance logistics and trading reliability**
Perspective	**Dual view from logistics and trading leadership**

Field	**Participant C**
Organisation	**Local SME (Tipper Truck – construction/bulk)**
Role	**Director**
Modal Coverage	**Road Haulage**
Key Functions	**Pricing, fleet ops, customer relations**
Objective	**Ensure sustainability via cost control and service reliability**
Perspective	**Operator-focused, cost recovery driven**

Field	**Participant D**
Organisation	**Ground handler for global airlines**
Role	**Owner & Managing Director**
Modal Coverage	**Air Cargo**
Key Functions	**Sales, cargo ops, coordination**
Objective	**Represent global air cargo firms**
Perspective	**Aviation-focused, commercial-operational balance**

Field	**Participant E**
Organisation	**Diversified logistics conglomerate**
Role	**Chief Executive Officer**
Modal Coverage	**Logistics (incl. Haulage)**
Key Functions	**P&L, compliance, sustainability strategy**
Objective	**Sustainable and compliant logistics transformation**
Perspective	**Advocates open pricing with strong enforcement**

Appendix B
Participant Profiles

Field	**Participant F**
Organisation	**Association of Malaysian Hauliers (AMH)**
Role	**President**
Modal Coverage	**Land Transport – Haulage**
Key Functions	**Policy, advocacy, member engagement**
Objective	**Improve industry standards, enable policy reform**
Perspective	**Fair pricing = transparency + multi-stakeholder support**

Field	**Participant G**
Organisation	**Multinational 3PL (container-focused)**
Role	**Head of Northern Commercial**
Modal Coverage	**Container Haulage, Warehousing, Supply Chain**
Key Functions	**Tech use, client engagement, capacity optimization**
Objective	**Support flexible and cost-effective supply chains**
Perspective	**Supports tech-based pricing tied to real costs**

Field	**Participant H**
Organisation	**ASEAN logistics trade association**
Role	**Vice President**
Modal Coverage	**Cross-border (Air & Sea)**
Key Functions	**Advocacy, compliance support, platform dev**
Objective	**Facilitate export growth and digital compliance**
Perspective	**Fair pricing = real cost + sustainability reflection**

Field	**Participant I**
Organisation	**Local full-service logistics company**
Role	**General Manager**
Modal Coverage	**Container, Tanker, Intermodal**
Key Functions	**Ops, finance, depot compliance**
Objective	**Build reliable partnerships, maintain service trust**
Perspective	**Reliability-based pricing; sustainability emphasis**

Field	**Participant J**
Organisation	**Malaysia Productivity Corporation (LPN)**
Role	**Facilitator, Logistics Productivity Nexus**
Modal Coverage	**All Modes (focus: Road Haulage)**
Key Functions	**Stakeholder dialogue, issue synthesis, reform coordination**
Objective	**Enable structured industry reform via RMK12**
Perspective	**Neutral actor, driving digitisation & pricing reform**

Appendix C: Literature Review Tree Code Book

LITERATURE REVIEW TREE CODE

Description of Main Theme	Total Code	Percentage %
LR7 Policy and Regulation	65	27.9%
LR2 Labour and Wage	44	18.9%
LR3 Economic Frameworks	29	12.4%
LR5 Technology and Digitalisation	26	11.2%
LR1 Pricing & Competition	24	10.3%
LR4 Operational and Compliance	23	9.9%
LR6 Sustainability and Reform	15	6.4%
LR8 Infrastructure and Network Studies	7	3.0%
Total	233	

Main Theme (L1)	Total Code	Parent Code (L2)	Child Code (L3)	No of Code
LR1 Pricing & Competition	24	Fair Pricing & Economic Models	Client Power Imbalance & Pricing Pressure	2
			Contract Instability & Margin Erosion	4
			Cost Transparency & Benchmarking	3
			Customer Price Sensitivity	2
			Predatory / Deceptive Pricing	1
			Transparency & Data Governance	1
			Value-Based & Dynamic Pricing	1
		Fairness & Inclusive Development	Fairness & Inclusive Development	3
		Policy, Regulation & Competition	Predatory / Deceptive Pricing	1
		Pricing Regulation & Compliance	Pricing Regulation & Compliance	5
		Service Quality & Customer Satisfaction	Customer Satisfaction & Pricing Sensitivity	1

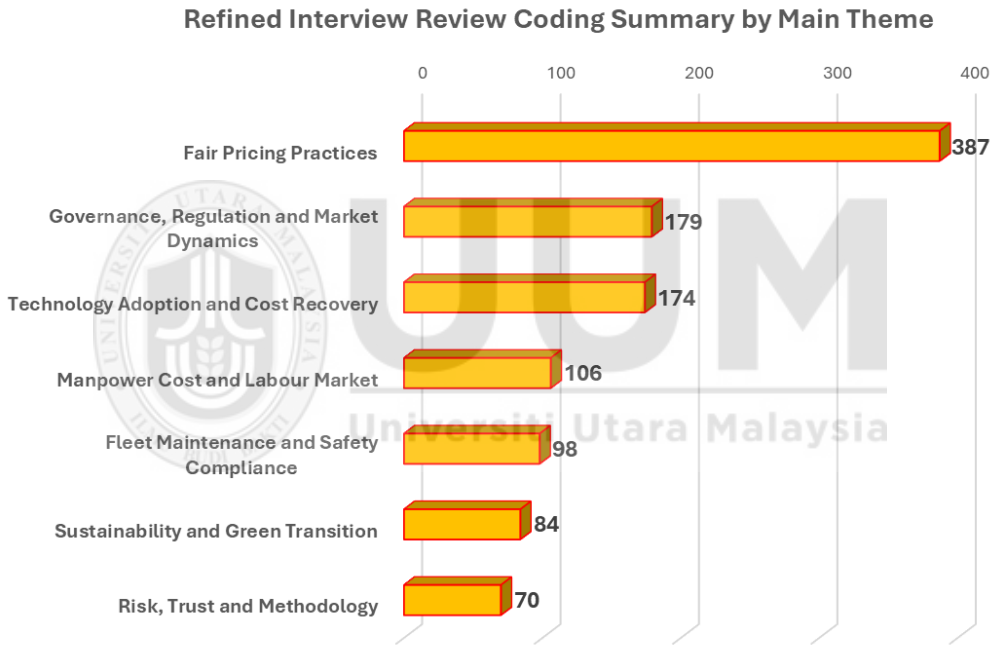
Main Theme (L1)	Total Code	Parent Code (L2)	Child Code (L3)	No of Code
LR2 Labour and Wage	44	Driver Incentive & Retention Schemes	Driver Incentive & Retention Schemes	3
			Turnover & Retention	4
		Human Capital & Labour Market	Collective Representation	1
			Fairness & Inclusive Development	1
			Human Capital & Labour Market	6
			Labour Conditions & Legal Obligations	6
			Strategic Collaboration & Co-Investment	2
		Manpower Cost	Driver Shortage & Workforce Modernization	3
			Labour Retention Challenges	3
			Manpower Cost	3
			Minimum Wage & Payroll Cost	8
			Turnover & Retention	1
		Manpower Costs	Driver Shortage & Workforce Modernization	2
			Labour Retention Challenges	1
LR3 Economic Frameworks	29	Cost Management & Unit Economics	Cost Efficiency Measures	3
			Cost Transparency & Benchmarking	4
			Financial Capital Allocation	7
			System Dynamics & KPI Monitoring	1
			Trucking Cost Structures (Fixed/Variable)	2
		Cost Modeling & Unit Economics	Cost Allocation Models (TDABC, ABC)	9
			Cost Modeling & Unit Economics	1
			Cost Transparency & Benchmarking	1
			Value-Based & Dynamic Pricing	1

Main Theme (L1)	Total Code	Parent Code (L2)	Child Code (L3)	No of Code
LR4 Operational and Compliance	23	Container Haulage Operations	Backhaul & Load Optimization Issues	1
			Cross-Border Trade Disruption	1
			Strategic Collaboration & Co-Investment	1
		Maintenance & Operating Cost	Compliance Cost & Overregulation	7
			Fuel Cost Volatility	4
			Insurance & Risk Classification	3
			Safety Compliance & Risk Factors	3
		Maintenance Cost	Maintenance Cost	3
LR5 Technology and Digitalisation	26	Technology Adoption & Innovation	Autonomous Vehicles & Logistics 4.0	1
			Digital Transformation & Barriers	3
			Electrification & Efficiency	2
			Fleet Telematics & Route Optimisation	2
			IR4.0 & SME Readiness	3
			Risk Assessment Methodology	3
			SME Vulnerability & Digital Gaps	4
			Technology Cost	3
			Technology Partnering & Integration Models	5
LR6 Sustainability and Reform	15	Fairness & Inclusive Development	Fairness & Inclusive Development	10
		Sustainability & SDGs Strategy	SDG Alignment in Transport	2
			Sustainability & SDGs Strategy	3

Main Theme (L1)	Total Code	Parent Code (L2)	Child Code (L3)	No of Code
LR7 Policy and Regulation	65	Governance & Institutional Ethics	Collective Representation	3
			Global Practice Benchmarking	2
			Governance & Institutional Ethics	7
			Qualitative Interviews & Trustworthiness	4
			Strategic Collaboration & Co-Investment	5
			System Dynamics & KPI Monitoring	1
			Transparency & Data Governance	4
		Policy, Regulation & Competition	Cabotage & Transport Law	3
			Labour Conditions & Legal Obligations	1
			Liberalisation Effect	3
			Policy & Market Structure	3
			Policy, Regulation & Competition	4
			Standardization & Regulation	4
		Political Ideology & Policy Support	Political Ideology & Policy Support	4
		Strategic Regulation & Policy Tools	PESTLE & Policy Design Tools	2
			Political Ideology & Policy Support	1
			Risk Assessment Methodology	1
			Strategic Regulation & Policy Tools	10
			System Dynamics & KPI Monitoring	3
LR8 Infrastructure and Network Studies	7	Infrastructure & Logistics Ecosystem	Port & Hinterland Access	1
		Intermodal Connectivity	Modal Imbalance	2
		Transport Infrastructure & Connectivity	Road Infrastructure Gaps	3
			Transport Infrastructure & Connectivity	1

Appendix D: Interview Review Tree Code Book

MT Code	Main Themes	Total Codes	%
IR4	Fair Pricing Practices	**387**	**33.1%**
IR5	Governance, Regulation and Market Dynamics	**179**	**15.3%**
IR3	Technology Adoption and Cost Recovery	**174**	**14.9%**
IR1	Manpower Cost and Labour Market	**106**	**9.1%**
IR2	Fleet Maintenance and Safety Compliance	**98**	**8.4%**
IR6	Sustainability and Green Transition	**84**	**7.2%**
IR7	Risk, Trust and Methodology	**70**	**6.0%**
N/A	Unrelated to Analysis	**72**	**6.2%**
	Total Used	**1170**	



Note: This visual representation highlights the relative frequency of each main theme derived from the coding of 1,170 raw responses across 10 participants. The frequency of appearance reflects the extent to which each theme dominated participant discussions, indicating areas most strongly associated with fair pricing, cost structure challenges, and systemic reform priorities. The seven themes were developed inductively during analysis and are grounded in real stakeholder narratives captured during interviews.

INTERVIEW REVIEW TREE CODE

Main Theme	Total Codes	L1 Parent Code	L2 Child Code	No of Code
Manpower Cost and Labour Market IR1	106	Manpower Costs & Labour Dynamics	Driver Incentive & Retention Schemes	10
			Human Capital & Labour Market	9
			Minimum Wage & Payroll Cost	30
			Turnover & Retention	1
			Wage Pressure & Labour Shortage	34
			Workforce Development Support	22
Fleet Maintenance and Safety Compliance IR2	98	Maintenance & Operating Cost Factors	Cost Efficiency Measures	8
			Fuel Cost Volatility	8
			Infrastructure Cost Impact	11
			Maintenance Cost Pressure	50
			Safety Compliance & Risk Factors	21
Technology Adoption and Cost Recovery IR3	174	Systems, Tools & Integration Models	Cost Allocation Models (TDABC, ABC)	11
			IR4.0 & SME Readiness	12
			Strategic Collaboration & Co-Investment	15
			System Dynamics & KPI Monitoring	5
			Technology Partnering & Integration Models	16
		Technology Investment & Readiness	Digital Transformation & Barriers	28
			Fleet Telematics & Route Optimisation	15
			ROI Justification for Tech Investment	5
			System Interoperability (ERP/TMS)	10
			Technology Adoption Cost	57

Main Theme	Total Codes	L1 Parent Code	L2 Child Code	No of Code
Fair Pricing Practices IR4	387	Cost Components & Pricing Pressure	Client Power Imbalance & Pricing Pressure	37
			Contract Instability & Margin Erosion	22
			Customer Price Sensitivity	11
			Low-Cost Preference Culture	4
			Operating Cost Inflation	30
			Payment Term Risk & Cashflow Pressure	7
			Systemic Consequences of Price Pressure	4
			Technology-Driven Rate Pressure	3
			Unsustainable Operating Margins	37
		Pricing Structure & Transparency	Cost Modeling & Unit Economics	39
			Cost Transparency & Benchmarking	32
			Pricing Regulation & Compliance	49
			Strategic Pricing Framework	61
			Transparency & Structured Pricing Framework	44
			Trucking Cost Structures (Fixed/Variable)	5
			Value-Based & Dynamic Pricing	2

Main Theme	Total Codes	L1 Parent Code	L2 Child Code	No of Code
Governance, Regulation and Market Dynamics IR5	179	Advocacy & Industry Support	Collective Representation	13
			Industry Advocacy	3
			Industry Knowledge Services	5
			Policy Engagement	3
			SME Vulnerability & Digital Gaps	15
		Regulatory & Institutional Environment	Cabotage & Transport Law	2
			Governance & Institutional Ethics	36
			PESTLE & Policy Design Tools	6
			Political Ideology & Policy Support	14
			Regulatory Navigation Support	11
		Strategic Positioning & Market Resilience	Changing Market Expectations	4
			Global Practice Benchmarking	4
			Investment Justification Barriers	16
			Price Undercutting in Subcontracting	1
			Strategic Financial Resilience	27
		Transport Infrastructure & Connectivity	Autonomous Vehicles & Logistics 4.0	3
			Backhaul & Load Optimization Issues	7
			Infrastructure Gaps & Investment Needs	3
			Intermodal Connectivity	6
Sustainability and Green Transition IR6	84	Sustainability & SDG Strategy	Electrification & Efficiency	3
			Fairness & Inclusive Development	20
			Green Policy Advocacy	33
			Green Standards & Certification	12
			SDG Alignment in Transport	16

Main Theme	Total Codes	L1 Parent Code	L2 Child Code	No of Code
Risk, Trust and Methodology IR7	70	Risk, Trust & Methodology	Predatory / Deceptive Pricing	28
			Qualitative Interviews & Trustworthiness	13
			Service Quality & Customer Satisfaction	29
No Theme	72	Unrelated to Analysis	Unrelated Subject - Introduction	72

Appendix E: Thematic Interview Codebook

Interview Codebook – L3 Thematic Codes from Stakeholder Interviews

This appendix presents the child-level (L3) codes generated through manual thematic coding of semi-structured interviews conducted with stakeholders in the Malaysian haulage and logistics sector. A total of 65 distinct codes were developed to reflect emergent concepts around cost structures, fairness perceptions, pricing behaviour, and regulatory dynamics.

Interview Codebook – Page 1 of 4

Code ID	Child Code (L3)	Memo Description
L3CC01	Autonomous Vehicles & Logistics 4.0	Refers to technological advancement in transport, including the adoption of AVs, automation, and smart logistics.
L3CC02	Backhaul & Load Optimization Issues	Challenges in reducing empty return trips and improving utilization of vehicle capacity.
L3CC03	Cabotage & Transport Law	Legal and policy constraints related to domestic haulage, including cabotage restrictions.
L3CC04	Changing Market Expectations	Reflects industry shifts in service demand, customer expectations, and pricing tolerances.
L3CC05	Client Power Imbalance & Pricing Pressure	Situations where dominant clients dictate terms, eroding margins for smaller operators.
L3CC06	Collective Representation	Importance of industry associations and group advocacy to protect SME voices and policy engagement.
L3CC07	Contract Instability & Margin Erosion	Frequent changes or cancellation of contracts that lead to financial instability and reduced profitability.
L3CC08	Cost Allocation Models (TDABC, ABC)	Use of structured costing models like Time-Driven or Activity-Based Costing to allocate costs accurately.
L3CC09	Cost Efficiency Measures	Strategies aimed at reducing waste, optimizing resources, and improving cost-effectiveness.
L3CC10	Cost Modeling & Unit Economics	Breakdown of cost components at the per-unit or per-trip level to guide pricing and profitability.
L3CC11	Cost Transparency & Benchmarking	The need for clear, standardized cost comparisons to promote fairer pricing across the sector.
L3CC12	Customer Price Sensitivity	How client demand is shaped by price fluctuations, including pressure to lower rates.
L3CC13	Digital Transformation & Barriers	Adoption challenges faced by firms trying to implement digital systems or platforms.
L3CC14	Driver Incentive & Retention Schemes	Incentives, training, or salary structures designed to retain and motivate truck drivers.

Appendix E: Interview Codebook – Page 2 of 4

Code ID	Child Code (L3)	Memo Description
L3CC15	Electrification & Efficiency	Impact of electric vehicles or energy-saving measures on cost and performance.
L3CC16	Fairness & Inclusive Development	Perception of equity in pricing, access, and participation within the logistics industry.
L3CC17	Fleet Telematics & Route Optimisation	Use of digital tracking, GPS, and optimization tools to reduce mileage and improve delivery time.
L3CC18	Fuel Cost Volatility	Risk and unpredictability of fuel price fluctuates impacting cost structure.
L3CC19	Global Practice Benchmarking	Comparison with international standards or pricing models to gauge Malaysian industry performance.
L3CC20	Governance & Institutional Ethics	Concerns about integrity, accountability, and institutional behaviour affecting fair practices.
L3CC21	Green Policy Advocacy	Support or pressure for policies that promote environmental sustainability in logistics.
L3CC22	Green Standards & Certification	Formal compliance with green logistics practices, such as emissions reduction or carbon labelling.
L3CC23	Human Capital & Labour Market	Availability, skill levels, and challenges in sourcing and developing manpower in logistics.
L3CC24	Industry Advocacy	Representation of sectoral interests in policymaking, pricing regulation, and public discourse.
L3CC25	Industry Knowledge Services	Support tools, data platforms, or consultancy that improve knowledge-sharing and decision-making in logistics.
L3CC26	Infrastructure Cost Impact	How tolls, poor roads, or inadequate facilities increase operating and delivery costs.
L3CC27	Infrastructure Gaps & Investment Needs	Need for improved connectivity, terminals, or public investment to support logistics efficiency.
L3CC28	Intermodal Connectivity	Integration between road, rail, air, and sea transport to create seamless logistics flow.
L3CC29	Investment Justification Barriers	Difficulty in getting ROI approval for new technologies or fleet upgrades due to cost ambiguity.
L3CC30	IR4.0 & SME Readiness	Readiness of SMEs to adopt IR4.0 technologies such as IoT, AI, and automation in logistics.
L3CC31	Low-Cost Preference Culture	Market expectation to minimize cost regardless of quality, often undermining fair pricing models.
L3CC32	Maintenance Cost Pressure	Increasing financial burden from vehicle repair, servicing, and parts replacement.
L3CC33	Minimum Wage & Payroll Cost	Effects of wage laws and labour market trends on haulage payroll expenses.
L3CC34	Operating Cost Inflation	General rise in operational expenses over time, including compliance, wages, and supplies.
L3CC35	Payment Term Risk & Cashflow Pressure	Challenges caused by delayed client payments affecting working capital and liquidity.

Appendix E: Interview Codebook – Page 3 of 4

Code ID	Child Code (L3)	Memo Description
L3CC36	PESTLE & Policy Design Tools	Use of policy analysis frameworks like PESTLE to evaluate logistics sector regulations and trends.
L3CC37	Policy Engagement	Active participation of companies or associations in shaping transport or pricing policy.
L3CC38	Political Ideology & Policy Support	Influence of political views or affiliations on policy directions affecting logistics.
L3CC39	Predatory / Deceptive Pricing	Use of unsustainable or misleading pricing practices to undercut competitors.
L3CC40	Price Undercutting in Subcontracting	When subcontractors offer prices below cost, destabilizing the market and harming industry norms.
L3CC41	Pricing Regulation & Compliance	Observations on adherence to or gaps in legal and regulatory frameworks governing pricing practices.
L3CC42	Qualitative Interviews & Trustworthiness	Concerns about bias, transparency, and data credibility in qualitative data collection and interpretation.
L3CC43	Regulatory Navigation Support	Support mechanisms or challenges in interpreting and complying with complex logistics regulations.
L3CC44	ROI Justification for Tech Investment	Challenges in demonstrating returns from technology adoption, often deterring capital investment.
L3CC45	Safety Compliance & Risk Factors	Compliance with safety standards, including driver behaviour, fleet conditions, and enforcement issues.
L3CC46	SDG Alignment in Transport	How logistics initiatives align with Sustainable Development Goals (SDGs), especially for climate and equity.
L3CC47	Service Quality & Customer Satisfaction	Insights on service delivery standards, customer expectations, and competitive positioning through quality.
L3CC48	SME Vulnerability & Digital Gaps	Digitalization challenges among small and medium enterprises (SMEs) including lack of skills, tools, or funding.
L3CC49	Strategic Collaboration & Co-Investment	Joint ventures, partnerships, or shared investments aimed at improving logistics efficiency or competitiveness.
L3CC50	Strategic Financial Resilience	Ability of logistics firms to withstand market shocks, cost hikes, or unstable pricing through sound financial planning.
L3CC51	Strategic Pricing Framework	Structured and long-term pricing models are designed to ensure profitability and cost recovery.
L3CC52	System Dynamics & KPI Monitoring	Tracking performance through operational KPIs, logistics dashboards, or systemic modelling.
L3CC53	System Interoperability (ERP/TMS)	Ability to integrate different logistics systems such as ERP, TMS, WMS for operational coherence.
L3CC54	Systemic Consequences of Price Pressure	Long-term impacts of price suppression on labour quality, fleet condition, and industry reputation.
L3CC55	Technology Adoption Cost	Direct and indirect costs (hardware, training, downtime) are incurred when adopting new logistics tech.
L3CC56	Technology Partnering & Integration Models	Strategic collaboration with tech providers to implement or scale logistics solutions.

Appendix E: Interview Codebook – Page 4 of 4

Code ID	Child Code (L3)	Memo Description
L3CC57	Technology-Driven Rate Pressure	Influence of digital platforms or AI-based models that push prices down via automation or oversupply.
L3CC58	Transparency & Structured Pricing Framework	Need for open, standardized pricing mechanisms to reduce disputes and enhance trust.
L3CC59	Trucking Cost Structures (Fixed/Variable)	Discussion of cost components (fuel, tolls, insurance) and their role in pricing and financial modelling.
L3CC60	Turnover & Retention	Problems in retaining skilled drivers or staff due to wages, conditions, or competition from other sectors.
L3CC61	Unrelated Subject - Introduction	Codes that refer to background or general statements are not directly tied to haulage pricing or cost topics.
L3CC62	Unsustainable Operating Margins	Situations where pricing fails to cover operational costs, leading to losses or long-term instability.
L3CC63	Value-Based & Dynamic Pricing	Strategies where pricing is based on value delivered, route demand, or real-time logistics market changes.
L3CC64	Wage Pressure & Labour Shortage	Labour cost escalations and shortage of skilled drivers impacting service reliability and cost structures.
L3CC65	Workforce Development Support	Capacity-building efforts such as training, certification, and upskills to support logistics workforce sustainability.

Appendix F: Detailed Questionnaire

SURVEY QUESTIONAIRE

Title: Fair Pricing in the Malaysian Haulage Industry: An Analysis of Operating Cost Structures in Peninsular Malaysia

Part A: Participant Context.

Part B: Core Research Themes. (6 Themes).

Theme 1: Fair Pricing as a Business Enabler

Theme 2: Identification of Cost Components Beyond Fuel

Theme 3: Influence of Manpower Costs on Pricing

Theme 4: Maintenance-Related Financial Pressures

Theme 5: Technology Investment and Pricing Recovery

Theme 6: Recommendations for Sustainable and Transparent Pricing Mechanisms

Part A: Participant Context.

Q1) Could you briefly describe your current role and the primary objectives of your organisation or association in relation to the haulage/logistics industry?

- *Explanation: Establishes the respondent's authority and relevance to the topic.*
- *Expected Insight: Understanding the participant's background and alignment with strategic or operational role, sector expertise.*

Q2-A) [For associations]: How does your organisation engage with issues related to pricing, cost challenges, or sustainability in the industry?

- *Explanation: Identifies the advocacy or regulatory involvement of the association in pricing fairness.*
- *Expected Insight: Policies, lobbying efforts, or data collection roles that influence pricing discussions.*

Q2-B) [For all participants]: From your position, what are the main concerns your members or peers express about cost structures or pricing practices in the haulage sector?

- *Explanation: Gathers broader community views on cost and fairness issues. Captures ground-level and industry-wide perspectives.*
- *Expected Insight: Real-world pricing grievances, cost blind spots, or mismatch between cost and price.* e.g., unjust tariffs, thin margins, unrecognized costs.

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Q3) Could you share any specific experiences or past involvement that have shaped your understanding of cost structures or pricing practices in the haulage industry?

- *Explanation: Anchors responses in real-world exposure.* Connects real events to opinion development.
- *Expected Insight: Personal experiences with pricing decisions, negotiations, cost pressure incidents, lost contracts, or margin erosion..*

Part B: Core Research Themes.

Questions

Theme 1: Fair Pricing as a Business Enabler

Q4) In your view, what does "fair pricing" mean in the context of the haulage industry, particularly from a business perspective where both operators and clients benefit?

Explanation: Opens up the subjective understanding of fairness.

Expected Insight: Stakeholder interpretations of fairness , profit margins, cost recovery, client satisfaction.

Q5) Do you feel current pricing practices support long-term sustainability for both hauliers and clients? Why or why not?

Explanation: Tests business model durability. Evaluates alignment between pricing and sustainable business.

Expected Insight: Gaps in viability, Cash flow challenges, imbalance in rate structures, evidence of price suppression, or inequitable models.

Theme 2: Identification of Cost Components Beyond Fuel

Q6) From your operational or strategic perspective, what are the key cost components , apart from diesel fuel , that significantly affect haulage pricing?

Explanation: Surfaces less obvious cost drivers.

Expected Insight: Manpower, maintenance, ICT, port charges, waiting time.

Q7) Do you think these cost factors are well reflected in current pricing negotiations? e.g. ICT Adoption? Why or why not?

Explanation: Assesses cost-recovery adequacy.

Expected Insight: Gaps in compensation for real expenses. How hidden costs (e.g., idle time) are neglected or undervalued.

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Theme 3: Influence of Manpower Costs on Pricing

Q8) How do manpower-related issues (e.g., driver wages, availability, training) influence your pricing decisions?

Explanation: Targets the labour-cost–pricing linkage. Labour is a key cost driver

Expected Insight: How wage hikes or driver shortages create cost pressure. Turnover, retention cost, training demands.

Q9) Has the recent increase in minimum wage (e.g., to RM1,500 or RM1,700) impacted pricing strategies or business viability?

Explanation: Measures and to tests wage-policy or regulatory effects.

Expected Insight: Difficulty passing costs to clients, cash flow strain and profitability impact.

Q10) What are the barriers to manpower compensation under the current pricing model?

Explanation: Connects pricing models to social sustainability and links wage fairness to pricing structure

Expected Insight: Contract rigidity, poor margins, delayed reviews.

Theme 4: Maintenance-Related Financial Pressures

Q11) In your experience, how do maintenance-related costs (parts, breakdowns, inspections) influence your pricing decisions?

Explanation: Links operational efficiency to cost realism, also Connects safety and cost management.

Expected Insight: Whether operators factor in real costs or defer maintenance, unpriced repairs.

Q12) Do current pricing structures allow for adequate cost recovery of these expenses?

Explanation: Assesses pricing adequacy and to tests sustainability of quality operations.

Expected Insight: Margins too thin to sustain quality maintenance.

Q13) How do financial constraints or working capital challenges affect your maintenance or asset renewal cycle?

Explanation: Probes financial constraints as root causes and liquidity's effect on long-term cost control.

Expected Insight: Deferred replacements and/or upgrades, safety trade-offs, ageing fleets.

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Theme 5: Technology Investment and Pricing Recovery

Q14) What types of technologies (e.g., fleet tracking, digital compliance tools) are being adopted in your operations?

Explanation: Establishes current technology landscape, tech maturity and usage trends.

Expected Insight: Types of tech investments by firm size/type, GPS, ERP, e-permits, telematics.

Q15) Can you reflect tech investment costs in your pricing strategy?

Explanation: Evaluates return-on-investment and pricing flexibility.

Expected Insight: Tech often self-funded, Client pushback as value-added services, cost absorption by operator.

Q16) What are the key barriers to adopting or sustaining such technology , particularly for your company or SMEs or smaller operators?

Explanation: Highlights digitalisation equity issues.

Expected Insight: Capital, knowledge, skills gap, fragmented systems and integration issues.

Theme 6: Recommendations for Sustainable and Transparent Pricing Mechanisms

Q17) What reforms or industry actions would help ensure pricing reflects actual cost structures?

Explanation: Encourages constructive stakeholder solutions and invites stakeholder policy advocacy.

Expected Insight: Benchmarking, cost indexation, transparency rules.

Q18) What role should industry associations, government bodies, or port authorities play in regulating or guiding fair pricing?

Explanation: Explores institutional responsibility. Tests views on governance and enforcement.

Expected Insight: Collaboration, licensing, compliance enforcement. Supportive vs. restrictive roles of regulators and associations.

Q19) How can pricing structures be aligned with sustainability goals (e.g., SDG compliance, green incentives)?

Explanation: Bridges sustainability targets with practical pricing and connects pricing to national and ESG agendas.

Expected Insight: Green incentives, tech rebates, SDG-led policy design, emission costs.

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Q20) From your experience, what do you consider the most significant cost challenge in pricing negotiations?

Explanation: A wrap-up diagnostic to surface core constraint. Summarises core constraint areas.

Expected Insight: Most urgent issue , manpower, price dumping, maintenance cost, no fixed tariffs.

Q21) If a transparent pricing framework were introduced, what features would you prioritise (e.g., tiered costing, cost mapping, compliance incentives)?

Explanation: Explores ideal model of fair, encourages forward-looking views on how fair pricing could be structured.

Expected Insight: Identifies preferred mechanisms that balance transparency, compliance, and sustainability. Desired tools for balancing cost recovery and client trust.

Closing – End of Interview

Q22. Before we end, may I ask: What are your overall thoughts on the research title:

"Fair Pricing in the Malaysian Haulage Industry: An Analysis of Operating Cost Structures in Peninsular Malaysia"?

Do you think this topic is timely and important for today's haulage sector? Would you suggest any adjustments to better reflect industry concerns?

Explanation: Final reflection, post-discussion. Gauges resonance and practical relevance.

Expected Insight: Title validation, relevance, suggestions for refinement.

Appendix G: Participant Reform Aspirations

Appendix G: Participant Reform Aspirations

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Q05	Yes: 0 No: 7 Else/Maybe: 3	Q5) Do you feel current pricing practices support long-term sustainability for both hauliers and clients? Why or why not?
Participant	**Response**	**Interviewee's Comment**
Participant B	**Else**	High-volume urban routes are more sustainable due to scale. But rural/low-volume routes often underpriced, hurting small players.
Participant D	**Else**	"The market situation will determine the haulage sector's sustainability."
Participant E	**Else**	There's always a risk that a few very dominant players form an oligopoly… Pro-competition enforcement may be necessary.
Participant A	**No**	"Honestly, not really… pricing can become highly competitive and layered..."
Participant C	**No**	"Honestly no. Customers keep tendering every year to pressure prices lower and lower... Eventually, everyone cannot survive, all will die off."
Participant F	**No**	"Current pricing practices do not adequately support long-term sustainability... short-term savings lead to long-term systemic weaknesses."
Participant G	**No**	"Pricing practices often struggle to fully support long-term sustainability... leaves thin margins... limits reinvestment... hauliers may compromise service quality..."
Participant H	**No**	"Honestly, I would say no... current pricing practices are not really supporting long-term sustainability..."
Participant I	**No**	"The pricing now is not sustainable... Everyone keeps cutting prices... in the long run this becomes a lose-win situation."
Participant J	**No**	"They enter into business competition simply by adopting this idea of 'follow' or just 'dropping slightly'... without much thought about the sustainability factor."

Appendix G: Participant Reform Aspirations

Q07	Yes: 3 No: 5 Else/Maybe: 2	Q7) Do you think these cost factors are well reflected in current pricing negotiations? e.g. ICT Adoption? Why or why not?
Participant .Code	**Response**	
Participant A	**Else**	"Some clients are aware… but others expect them to be included."
Participant B	**Else**	Clients focus mainly on delivery cost; last-mile inefficiencies and tech investments are often ignored in pricing.
Participant C	**No**	"Tak sangat… Not really lah. No, these cost factors, such as ICT adoption, they are not well reflected in current pricing negotiations... They say that is your own problem, it our cost to take."
Participant G	**No**	"These cost factors... especially ICT adoption and hidden costs... are not fully reflected in current pricing negotiations... clients focus on headline rates..."
Participant H	**No**	"To be very honest, mostly no... many of these cost components are either partially reflected or rejected..."
Participant I	**No**	"Most of the time these cost factors are not reflected properly in pricing... we usually have to absorb the cost ourselves."
Participant J	**No**	"They're not well captured. Mainly because there's no proper digital platform in place... it's hard to reflect the real costs in any pricing negotiation."
Participant D	**Yes**	"Actual operating cost information is a key factor in determining pricing negotiations."
Participant E	**Yes**	I have no reason to believe they are not reflected.
Participant F	**Yes**	"Compliance costs like APAD, PUSPAKOM, and future e-Invoicing are burdensome and affect the bottom line."

Appendix G: Participant Reform Aspirations

Q09	Yes: 5 No: 3 Else/Maybe: 2	Q9) Has the recent increase in minimum wage (e.g., to RM1,500 or RM1,700) impacted pricing strategies or business viability?
Participant .Code	**Response**	**Interviewee's Comment**
Participant D	**Else**	"The sector must adjust pricing to align with key operating cost factors."
Participant E	**Else**	Not significantly for drivers… more relevant for warehouse workers.
Participant H	**No**	"Cost pressure hits operators almost immediately... but whether they can pass on these increases is the tricky part."
Participant I	**No**	"Minimum wage goes up, our margin gets eroded... we cannot simply pass it to customers... we have to absorb it..."
Participant J	**No**	"With well-implemented strategies... this kind of issue shouldn't have much effect on the overall pricing structure or business viability."
Participant A	**Yes**	"Definitely and yes, the increase has made it harder to maintain margins."
Participant B	**Yes**	Minimum wage hikes raised base costs for entry-level staff and increased overall salary expenditure.
Participant C	**Yes**	"Yes, the recent increase in minimum wage... impacted our pricing strategies and business viability... Without rate revisions... business is at risk."
Participant F	**Yes**	"Minimum wage increases have had a significant negative impact... compressed margins, cash flow strain, and reduced competitiveness."
Participant G	**Yes**	"The recent minimum wage increases have put additional pressure on pricing strategies and business viability... difficult to pass these increases fully to clients..."

Appendix G: Participant Reform Aspirations

Q12	Yes: 2 No: 5 Else/Maybe: 3	Q12) Do current pricing structures allow for adequate cost recovery of these expenses?
Participant .Code	**Response**	**Interviewee's Comment**
Participant A	**Else**	"There's usually no space in pricing to factor in maintenance-related delays…"
Participant D	**Else**	"A fair pricing mechanism is necessary to maintain business profitability and customer growth."
Participant I	**Partial**	"Current pricing structures allow us to recover part of the costs, but not fully... cash flow helps but full cost recovery remains challenging."
Participant B	**No**	Small or ad hoc routes often fail to generate enough margin for long-term maintenance funding.
Participant C	**No**	"Very rigid. Unless lah got special clause... Other costs like maintenance or manpower hard to include."
Participant F	**No**	"Most pricing structures do not allow for adequate cost recovery... especially preventative maintenance and asset renewal."
Participant G	**No**	"Current pricing structures often don't allow for full recovery of maintenance costs... making it challenging to sustain high-quality maintenance..."
Participant H	**No**	"Honestly, most of the time, no... full cost recovery for maintenance is very difficult."
Participant J	**No**	"They don't really have full visibility... end up using what I call a 'blind approach'... most of them only achieve very 'thin' margins."
Participant E	**Yes**	…these costs must be recovered through pricing if operators wish to remain profitable.

Appendix G: Participant Reform Aspirations

Q15	Yes: 2 No: 6 Else/Maybe: 2	Q15) Can you reflect tech investment costs in your pricing strategy?
Participant .Code	**Response**	**Interviewee's Comment**
Participant A	**Else**	"Clients consider features… as standard, so we rarely get to charge more…"
Participant E	**Else**	Generally, it's treated as an overhead charged to relevant business units.
Participant B	**No**	Most clients expect tech features as standard; only security-sensitive jobs allow cost inclusion.
Participant C	**No**	"Very difficult bro... They only care about the lowest price... tech costs under overhead... customer still don't want to pay more."
Participant F	**No**	"Technology costs are mostly absorbed... clients expect it as standard, but it's hard to justify in pricing."
Participant G	**No**	"Costs are primarily absorbed internally... limited willingness to pay extra... puts pressure on pricing flexibility."
Participant H	**No**	"Recovering technology costs is still a real challenge... rarely fully recovered through pricing."
Participant I	**No**	"Customers... will not agree... technology is seen as value-added... most of the tech investment cost is absorbed by us..."
Participant D	**Yes**	"Technology investments must have clear justification in terms of efficiency."
Participant J	**Yes**	"Certain digital or compliance-related costs can be structured and transparently built into the pricing."

Q22	Yes: 10 No: 0 Else/Maybe: 0	Q22) Do you think this topic is timely and important for today's haulage sector? Would you suggest any adjustments to better reflect industry concerns?
Participant .Code	**Response**	**Interviewee's Comment**
Participant A	**Yes**	"The topic is very relevant… Fair pricing is key to sustainability…"
Participant B	**Yes**	Topic is very relevant; could improve understanding between clients and operators, though culture shift takes time.
Participant C	**Yes**	"Very timely bro... proper framework... make pricing more fair... encourage proper compliance... too many big brothers playing politics inside the industry."
Participant D	**Yes**	"The data collected from your research will be useful for government agencies..."
Participant E	**Yes**	It's a relevant topic… enforcement… is absolutely critical… Without enforcement, any pricing system will break down.
Participant F	**Yes**	"It's very relevant and much needed. If done right, it can help push for more balanced and transparent pricing discussions."
Participant H	**Yes**	"I think this is an important area that deserves more attention... it can really help the industry..."
Participant I	**Yes**	"Your research topic is very timely and relevant... the industry will continue to face unhealthy competition, safety risks... unless cost structure is addressed."
Participant G	**Yes (with suggestion)**	"This research topic is both timely and highly relevant... focus on operating cost structures is very important... Suggest refinement: include 'sustainability and digitalization challenges.'"
Participant J	**Yes + Suggestion**	"Yes, I think the topic is apt... Perhaps you could consider adding the word 'Transparency' before 'Fair Pricing' in the title."

Appendix H: Literature Review Coding Memo

Literature Review Coding Memo for Main Themes and Parent Codes

This appendix documents the rationale and structure used in developing the thematic coding framework for the literature review chapter. The coding process involved systematically organizing qualitative insights from 52 reviewed sources into hierarchical categories consisting of Main Themes (Level 1) and Parent Codes (Level 2), aligned with the study's conceptual focus on fair pricing in Malaysia's haulage industry.

Each Main Theme was selected to reflect core dimensions relevant to the research objectives, such as pricing dynamics, policy frameworks, labour market conditions, and technological transformation. These were further broken down into Parent Codes that captured specific operational, institutional, and economic constructs recurring across the literature.

This structured coding approach served as the analytical foundation for thematic synthesis and ensured consistent linkage between theoretical frameworks, literature evidence, and empirical findings discussed in Chapter 2. The memo descriptions in this appendix provide clarity on how each Main Theme and Parent Code was conceptualized, including its relevance to the research scope and the types of issues it covers.

1. Pricing & Competition

- **Memo:** This theme captures all literature discussing **fairness, pricing mechanisms, client power asymmetries**, margin erosion, and anti-competitive practices. It includes both cost modelling tools (like TDABC) and market practices like predatory pricing. It is central to your research objective to examine **how pricing structures are formed, negotiated, and perceived as fair or unfair.**
- **Derived from:**
    - Fair Pricing & Economic Models
    - Pricing Regulation & Compliance
    - Predatory/Deceptive Pricing
    - Client Power Imbalance & Margin Pressures

2. Labour and Wage

- **Memo:**

  This focuses on manpower cost, minimum wage, labour shortages, retention strategies, and HR compliance. It supports your cost-driver angle by unpacking the real operating burdens tied to hiring, training, and retaining drivers and logistics personnel.
- Derived from:
    - Manpower Cost(s)
    - Driver Incentive & Retention Schemes
    - Minimum Wage & Payroll Policy
    - Human Capital & Labour Market

3. Economic Frameworks

- **Memo:**

  This theme includes literature that frames haulage pricing and competitiveness within **economic theories and strategic national perspectives**, especially Porter's Diamond and cost-benefit modelling. It justifies **why fair pricing matters to long-term industry viability.**

- **Derived from:**
  - Cost Management & Unit Economics
  - Cost Transparency
  - Cost Efficiency
  - Porter's Theory, Strategic Positioning
  - Value-Based Pricing

4. Operational and Compliance

- **Memo:**

  Literature under this theme discusses **hidden operational costs**, such as idle time, fuel volatility, compliance delays, and congestion. It supports your TDABC discussion by showing where inefficiencies lead to unrecovered costs, thus framing fairness as an **operational cost alignment issue**.

- **Derived from:**
  - Maintenance & Operating Cost
  - Compliance Costs
  - Fuel Volatility
  - Safety & Regulatory Compliance
  - Trucking Structures (Fixed vs Variable Cost)

5. Technology and Digitalisation

- **Memo:**

  This theme tracks how **digital tools**, fleet telematics, and logistics automation affect pricing, transparency, and SME participation. It aligns with your third cost driver (Technology Adoption Cost) and discusses both **barriers and strategic opportunities.**

- **Derived from:**
  - Technology Adoption & Innovation
  - Technology Cost
  - SME Vulnerability to Digital Gaps
  - Telematics, Route Optimization, System KPIs

6. Sustainability and Reform

Memo:

This groups papers that discuss **fairness in broader ESG terms**, such as SDG-aligned logistics, ethical pricing, and green logistics pressures. It connects fair pricing to **long-term industry reform and equitable development.**

Derived from:

- Fairness & Inclusive Development
- Sustainability & SDGs Strategy
- Insurance & Risk Classifications
- Strategic Reform Programs

7. Policy and Regulation

Memo:

Covers literature on how **laws, policies, institutional fragmentation**, and governance structures (e.g., cabotage, competition law) influence pricing practices. This theme is important for understanding how fairness is shaped by **top-down mechanisms**, not just operator actions.

Derived from:

- Governance & Institutional Ethics
- Policy, Regulation & Competition
- Cabotage & Transport Law
- Political Ideology & Policy Support

8. Infrastructure and Network Studies

Memo:

Focuses on physical and logistical **network limitations** that affect pricing: port access, hinterland connectivity, intermodal options, and road infrastructure. While not a direct cost component, poor infrastructure leads to **inefficiencies and cost pass-throughs** in pricing decisions.

Derived from:

- Intermodal Connectivity
- Transport Infrastructure & Connectivity
- Infrastructure & Logistics Ecosystem
- Container Haulage Operational Gaps

Appendix I: Interview Review Coding Memo

MT Code ID	L1 Main Theme	Memo
IR1	Manpower Cost and Labour Market	This theme explores the role of human capital in shaping pricing dynamics within the Malaysian haulage sector. It captures how driver availability, wage structures, incentive systems, and employment conditions directly influence cost structures and operational stability. Labour shortages, retention issues, and wage regulations were key concerns voiced by participants, revealing the labour-intensive nature of the industry and its impact on fair pricing feasibility.
IR2	Fleet Maintenance and Safety Compliance	This theme reflects the operational and regulatory burdens associated with vehicle upkeep, safety standards, and compliance mechanisms. Participants described these as necessary but costly aspects of sustaining service quality and avoiding legal or reputational risks.
IR3	Technology Adoption and Cost Recovery	This theme addresses the industry's evolving relationship with digitalisation, automation, and system integration. Although stakeholders acknowledged the long-term value of innovation, concerns over upfront costs, inconsistent client support, and poor ROI hinder widespread adoption.
IR4	Fair Pricing Practices	This theme encapsulates the heart of the study, how fairness is conceptualized, negotiated, and challenged in Malaysia's haulage pricing landscape. It includes cost transparency, negotiation dynamics, and client-operator power imbalance.
IR5	Governance, Regulation and Market Dynamics	This theme captures structural and institutional influences on haulage operations. It considers how public policy, regulatory enforcement, and association-level support shape business behaviour and competition in the logistics market.
IR6	Sustainability and Green Transition	This theme investigates how environmental concerns and sustainability agendas are influencing operational strategies. While awareness is growing, financial and technical challenges slow the adoption of greener practices.
IR7	Risk, Trust and Methodology	This theme supports research design rather than industry content. It justifies the interpretivist stance, highlighting how trust, role-based perceptions, and contextual awareness influence the narratives gathered. It is not coded for result analysis but ensures validity and reflexivity.

Parent Code & Memo

L2 Code ID	L2 Parent Code	Memo
L2C01	Cost Components & Pricing Pressure	Highlights discrepancies between actual operating costs and market prices, revealing pressures from clients to suppress rates below sustainable levels.
L2C02	Manpower Costs & Labour Dynamics	Focuses on wage levels, foreign labour policies, minimum wage compliance, training, and driver incentive systems. These factors were often cited as primary cost burdens and linked to service reliability and workforce sustainability.
L2C03	Maintenance & Operating Cost Factors	Includes vehicle aging, spare part prices, downtime from regulatory inspections, and unexpected repairs. Compliance with road safety regulations further exacerbates maintenance costs, which are often under-represented in pricing discussions.
L2C04	Technology Investment & Readiness	Captures the readiness of firms, especially SMEs, to adopt digital tools like fleet management systems, TMS, or telematics. It also considers barriers such as lack of funding and unclear cost-benefit returns.
L2C05	Pricing Structure & Transparency	Addresses contract opacity, bundling of costs, delayed payments, and lack of standardised cost-sharing frameworks, all contributing to unfair pricing mechanisms.
L2C06	Regulatory & Institutional Environment	Examines the clarity, enforcement, and adequacy of regulations governing pricing, safety, licensing, and operating rights.
L2C07	Strategic Positioning & Market Resilience	Explores how firms respond to deregulation, market liberalisation, and geopolitical trends, including how larger players exert influence.
L2C08	Advocacy & Industry Support	Focuses on the role of trade associations, NGOs, and government-linked initiatives in protecting smaller operators, fostering dialogue, and supporting pricing reforms.
L2C09	Sustainability & SDG Strategy	Encompasses participant views on ESG expectations, fuel efficiency targets, electrification, and alignment with national or global SDG commitments. The tension between cost recovery and green mandates emerged as a key sub-theme.
L2C10	Transport Infrastructure & Connectivity	Includes discussions on road conditions, port congestion, and last-mile constraints, which often add hidden costs that are not reflected in pricing models.
L2C11	Risk, Trust & Methodology (Q1, Excluded)	Used solely to contextualise participant background, role, and level of engagement with the topic. It enables reflexive evaluation of interview dynamics and positionality.
L2C12	Systems, Tools & Integration Models	Covers integration gaps, platform interoperability, and partner coordination issues. These systemic limitations slow down industry-wide transformation and affect the scalability of tech-based efficiency strategies.

Appendix J: Interview Transcripts

QUOTED SURVEY QUESTIONAIRE.

No	Respondent	Transcript
1	Participant A	Q7) Do you think these cost- factors are well reflected in current pricing negotiations? e.g. ICT Adoption? Why or why not? Participant A: Not always. Some clients are aware of these cost elements and accept them, but others expect them to be included. Sometimes we have to absorb certain costs just to close the deal, especially when they compare us to lower-cost competitors.
2	Participant A	Q8) How do manpower-related issues (e.g., driver wages, availability, training) influence your pricing decisions? Participant A: Hmm... honestly, truck drivers really play a crucial role in shaping how we price our services. You see, err, labour costs are not just a fixed figure anymore, with the Government-mandated minimum wages set a baseline for driver pay, directly increasing operational expenses that must be factored into pricing to maintain profitability. And then, additionally, companies must offer attractive incentives, such as bonuses or benefits, to retain skilled drivers and reduce high turnover rates, which can otherwise lead to increased recruitment and training costs. So, ...
3	Participant A	Q15) Can you reflect tech investment costs in your pricing strategy? Participant A: Not really. Most clients consider features like tracking, document sharing, and system access as standard, so we rarely get to charge more even if we've invested in the system. Our Company system helps us deliver faster and clearer service, but the cost of maintaining or improving it is usually absorbed by us without direct recovery from customers.
7	Participant C	Q4) Part B: Core Research Themes. In your view, what does "fair pricing" mean in the context of the haulage industry, particularly from a business perspective where both operators and clients benefit? Participant C: Simple bro, fair pricing means your rate must cover all key cost components, instalment payments, fuel, maintenance, wages, plus reasonable margin. We ...
6	Participant C	Q10) What are the barriers to manpower compensation under the current pricing model? Participant C: Low customer rates bro. Repair costs naik, maintenance naik, drivers demand better pay. But if customer refuse to revise rates, margin becomes too thin. Very hard to balance business survival and staff welfare.

No	Respondent	Transcript
8	Participant C	Q11) In your experience, how do maintenance-related costs (parts, breakdowns, inspections) influence your pricing decisions? Participant C: Big impact. Maintenance costs are unpredictable. Parts replacement, breakdown repairs, inspections, all can happen suddenly. Like recently, actuator cylinder bent damage, small part je (only small part), but repair cost shots up. We have no pricing mechanism like fuel surcharge to pass these costs to customers, so we absorb everything.
9	Participant C	Q16) What are the key barriers to adopting or sustaining such technology , particularly for your company or SMEs or smaller operators? Participant C: Main thing is cost bro. For SMEs or small players like us, cost of implementation and ongoing maintenance really heavy. In trucking, GPS already compulsory. Now with the recent announcement by MOT, speed limiter also "kena pasang"/have to install because too many heavy vehicle accidents. All this technology come with hardware cost upfront and monthly subscription every month. For smaller operators, many might choose not to install if not compulsory. Even though got operational benefit, cost still hold people back. Without strong regulatory enforcement or support from customer, many SMEs really difficult to sustain tech adoption.
4	Participant C	Q17) What reforms or industry actions would help ensure pricing reflects actual cost structures? Participant C: For me bro, if really want pricing to reflect actual cost, we need proper guideline. Should align with something like NTP 2030 lah. Must have structured pricing approach that include diesel price, vehicle maintenance, technology cost, and also fair compensation for workers. This can support long-term sustainability, maintain service quality and create better partnership between service provider and customer. But now, most customer just do tender and only focus on lowest bid. That's the problem. Lowest price wins but later cannot sustain. So...
5	Participant C	Q21) If a transparent pricing framework were introduced, what features would you prioritise (e.g., tiered costing, cost mapping, compliance incentives)? Participant C: If got transparent pricing framework, I would prioritise three things bro. These are costs that operators like us cannot control. First, fuel price adjustment must tie to national diesel price. When diesel naik, pricing auto adjust, no need renegotiates every time. Second, must include compliance cost. Like load limit rule, sometimes we kena/have to do extra trips to follow regulation. This compliance cost must be included pricing properly.

No	Respondent	Transcript
		Third, labour cost like minimum wage and incentives should be treated as fixed cost. Customer cannot argue on that because every year wages keep naik. This one must be locked in.
10	Participant D	Q7) Do you think these cost-factors are well reflected in current pricing negotiations? e.g. ICT Adoption? Why or why not? Participant D: Yes. Actual operating cost information is a key factor in determining pricing negotiations.
11	Participant E	Q4) In your view, what does "fair pricing" mean in the context of the haulage industry, particularly from a business perspective where both operators and clients benefit? Participant E: Pricing should be left to the open market, but with firm and fair enforcement of all applicable rules and regulations. That is key to ensure a functioning marketplace.
17	Participant F	Q3) Could you share any specific experiences or past involvement that have shaped your understanding of cost structures or pricing practices in the haulage industry? Participant F: Yes, absolutely. my understanding of haulage cost structures and pricing has been shaped by: Economic Downturns Fuel Price Volatility: Labour Wage Consultations Industry Standardisation Technology Adoption Participant F: Exactly. It's a cycle. Every time we think things stabilize, new pressures appear, whether fuel, wages, or technology. That's why fair pricing framework is long overdue for our industry.
18	Participant F	Q4) In your view, what does "fair pricing" mean in the context of the haulage industry, particularly from a business perspective where both operators and clients benefit? Participant F: From the operator's lens, "Fair pricing" means rates that: • For Operators: • For Clients: Fair pricing fosters a partnership approach, moving beyond "lowest price wins" to mutual understanding of costs and value. So, not just about who can quote the cheapest, but a healthy, sustainable ecosystem for both sides. Participant F: Exactly. If we keep chasing lowest price, eventually both sides lose. Stability comes from understanding real cost structures.
14	Participant F	Q5) Do you feel current pricing practices support long-term sustainability for both hauliers and clients? Why or why not?

No	Respondent	Transcript
		Participant F: No, not really, current pricing practices do not adequately support long-term sustainability. For Hauliers: • under-pricing: • Neglect of Investment: • Manpower Challenges:
13	Participant F	Q8) How do manpower-related issues (e.g., driver wages, availability, training) influence your pricing decisions? Participant F: It's a major factor. Manpower issues profoundly influence pricing, being a large and dynamic cost. • Driver Wages: Increases directly impact our cost base; to maintain profitability, these must ideally be passed to clients. • Driver Availability: . • Training & Development: • Retention Costs: Our pricing decisions are intrinsically linked to covering these costs for a competitive and sustainable workforce.
16	Participant F	Q10) What are the barriers to manpower compensation under the current pricing model? Participant F: Primary barriers to adequate manpower compensation under the current pricing model are: Client Price Sensitivity: Clients prioritize the lowest bid, making it hard to pass on higher labour costs.
15	Participant F	Q11) In your experience, how do maintenance-related costs (parts, breakdowns, inspections) influence your pricing decisions? Participant F: They're central. Good maintenance protects reputation and safety, so pricing must support it. Maintenance costs profoundly influence pricing, being essential for operational continuity, safety, and compliance. .... Maintenance costs are investments in reliability, safety, compliance, and asset longevity, which must be reflected in sustainable pricing.
12	Participant F	Q20) From your experience, what do you consider the most significant cost challenge in pricing negotiations? Participant F: The most significant cost challenge is the "race to the bottom" mentality, driven by service commoditization and overwhelming focus on the lowest headline price. This manifests as: • Client Price Anchoring, Disregard of Indirect Power Imbalance

No	Respondent	Transcript
		• Lack of Value Recognition: Reliability, safety, compliance, or skilled labour value is often not compensated. This challenge undermines profit margins, reinvestment, and adequate compensation, perpetuating underinvestment and fragility in the haulage ecosystem.
19	Participant G	Q4) In your view, what does "fair pricing" mean in the context of the haulage industry, particularly from a business perspective where both operators and clients benefit? Participant G: Fair pricing in the haulage industry means ensuring that service providers can fully recover their actual operating costs, including fuel, labour, maintenance, and compliance, while maintaining a reasonable profit margin to sustain and grow the business. It ...
22	Participant H	Q4 In your view, what does "fair pricing" mean in the context of the haulage industry, particularly from a business perspective where both operators and clients benefit? Participant H: In short, fair pricing is really about a win-win outcome. Clients get reliable, high-quality service, while hauliers can operate profitably and sustainably, and continue investing in their people, fleets, and systems. That's the ideal balance we want to achieve. Let me break down what I mean by fair pricing into a few key areas. 4. Value Recognition • Fair pricing isn't just about picking the lowest bid. It should reflect the value the haulier brings , such as service reliability, safety records, availability of specialized equipment, and sustainability efforts. • If we always reward the lowest price, we eventually sacrifice quality, reliability, and long-term stability in the industry.
20	Participant H	Q12) Do current pricing structures allow for adequate cost recovery of these expenses? Participant H: Honestly, most of the time, no. There are quite a few reasons why full cost recovery for maintenance is very difficult: In the end, unless pricing models evolve to properly factor in things like fleet age, actual repair histories, and ongoing cost increases, most operators are trapped in this cycle of under-recovering costs, delaying maintenance, and facing more breakdowns, which only leads to more financial pressure.
21	Participant H	Q18) What role should industry associations, government bodies, or port authorities play in regulating or guiding fair pricing? Participant H: Yeah, there are quite a few roles different players can take on. I'll break it down by group:

No	Respondent	Transcript
		• For industry associations, I think: o They can come up with standard cost reporting templates that everyone can use. That way, when operators talk to clients, everyone's looking at costs the same way. o They could also publish regular industry cost indices , like for fuel, labour, maintenance , to give both sides a reference point during negotiations. o Even something as simple as standardized detention fee guidelines would help avoid endless arguments.
24	Participant I	Q18) What role should industry associations, government bodies, or port authorities play in regulating or guiding fair pricing? Participant I: Industry associations and government bodies should take a stronger role by encouraging open dialogue among all stakeholders. Like I mentioned earlier, if we have a proper pricing review system similar to how port authorities regulate port charges, it can help prevent unhealthy undercutting and maintain service standards. Actually, ...
23	Participant I	Q19) How can pricing structures be aligned with sustainability goals (e.g., SDG compliance, green incentives)? Participant I: Haha, like we said just now. .... And to be very frank, customers also prefer cheaper services. As long as the delivery is done, they will go for whoever can give them the lowest price, regardless of whether the truck is new or old.
25	Participant I	Q19) How can pricing structures be aligned with sustainability goals (e.g., SDG compliance, green incentives)? Participant I: Haha, like we said just now. Everything sounds very nice in theory, but the reality is, who's going to bear the cost? Green initiatives are good, but the investment cost is very high. Right now, many operators still buy reconditioned trucks because they are much cheaper. You ....
26	Participant I	Q22. Closing – End of Interview Before we end, may I ask: What are your overall thoughts on the research title: "Fair Pricing in the Malaysian Haulage Industry: An Analysis of Operating Cost Structures in Peninsular Malaysia"? Do you think this topic is timely and important for today's haulage sector? Would you suggest any adjustments to better reflect industry concerns?

No	Respondent	Transcript
		Participant I: I think your research topic is very timely and relevant for our industry. This fair pricing issue has been there for a long time, but not many people want to seriously talk about it because it involves many parties and interests. To implement any proper framework will take time because the problem is quite complex. But ...
27	Participant J	Q16) What are the key barriers to adopting or sustaining such technology , particularly for your company or SMEs or smaller operators? Participant J: The main barrier to adopting technology, or carrying out digitalisation activities, is really a fundamental lack of understanding about why these solutions are needed in the first place. What often happens is that many operators rely heavily on their internal staff to implement the systems. And when that happens, you start to see a lot of irregularities… and in many cases, the result is wasted funds and failed implementations. It becomes a costly mistake , very bad. As …
28	Participant J	Q22. Closing – End of Interview Before we end, may I ask: What are your overall thoughts on the research title: "Fair Pricing in the Malaysian Haulage Industry: An Analysis of Operating Cost Structures in Peninsular Malaysia"? Do you think this topic is timely and important for today's haulage sector? Would you suggest any adjustments to better reflect industry concerns? Participant J: Yes, I think the topic is apt. But if I may suggest, perhaps you could consider adding the word "Transparency" before "Fair Pricing" in the title. I believe that would add a little more depth and better reflect the direction the industry should be heading.

Appendix K: Literature Review – Mind Mapping & Ideas

Visual Conceptualisation of Literature Themes

Before formal coding, a preliminary mind map was developed to visualise key pricing influences in the haulage sector. This exploratory map highlighted broad concepts such as Cost Recovery, Fair Trade, Deregulated Tendering, and Client Engagement, linked to subtopics like pricing opacity, digitalisation costs, and operational risk.

The mind map supported early theoretical framing using Porter's Diamond Theory and TDABC and was later refined through systematic coding into the final eight Main Themes (LR1–LR8), as outlined in the Literature Review Codebook (Appendix C).
This visual is included to show how the initial conceptual exploration informed structured theme development.

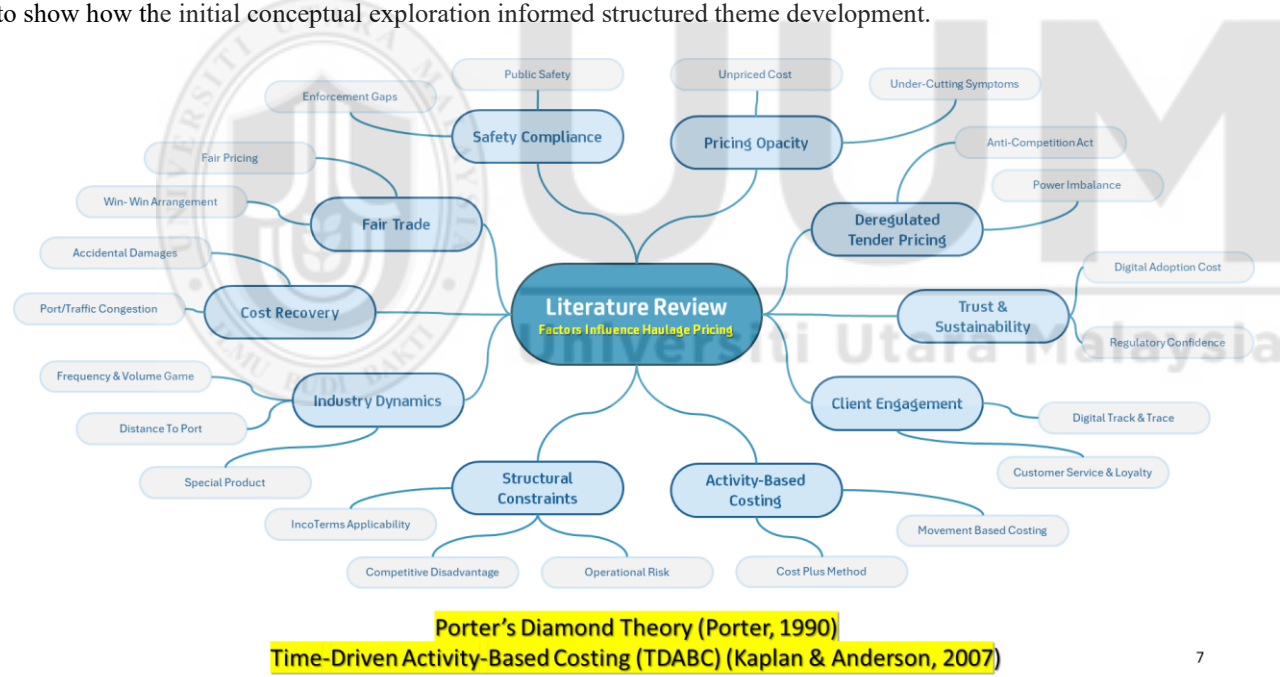

Figure K.0.1
Visual Conceptualisation of Literature Themes
Source: Developed by author based on literature review analysis

Appendix L: Interview Review: Respondents‘ Keywords

Interview Review: Respondents’ Keyword Frequency Visualisation
This word cloud represents the most frequently occurring keywords across all ten stakeholder interviews. It was generated through content analysis of the full transcript dataset to support and visualise thematic coding. Larger words indicate higher frequency, reinforcing key cost-related and operational themes such as pricing, costs, maintenance, clients, and operators.

Figure L.0.2
Word Cloud of Most Frequently Cited Keywords in Interview Transcripts
Source: Developed by author based on interview transcript analysis