

DEVELOPMENT OF ESG FRAMEWORK TOWARDS
SUSTAINABILITY INITIATIVES IN MALAYSIAN
AUTOMOTIVE MANUFACTURING INDUSTRY



اونيورسيتي تيكنيكل مليسيا ملاك
— NOR AIDATUL SHAFIEFA BINTI ABU SEMAN —
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
B052110023

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**DEVELOPMENT OF ESG FRAMEWORK TOWARDS
SUSTAINABILITY INITIATIVES IN MALAYSIAN AUTOMOTIVE
MANUFACTURING INDUSTRY**

This report is submitted in accordance with requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for Bachelor Degree of Manufacturing Engineering (Hons.)



NOR AIDATUL SHAFIEFA BINTI ABU SEMAN

B052110023

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TECHNOLOGY AND ENGINEERING**

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TIDAK TERHAD

Disahkan oleh:



Alamat Tetap:
No. 25, Ramal Villa 2,
43000 Kajang, Selangor

Tarikh: 19/06//2024

Cop Rasmi:



DR. NORAZUA BINTI MOHD YUSOP
Lecturer
Faculty of Manufacturing Engineering
Universiti Teknikal Malaysia Melaka (UTeM)
Hang Tuah Jaya, 76100 Durian Tunggal,
Melaka.

Tarikh: 19/06/2024

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:

Author's Name

: NOR AIDATUL SHAFIEFA BINTI ABU SEMAN

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APPROVAL

This report is submitted to the Faculty of Industrial and Manufacturing Technology and Engineering of Universiti Teknikal Malaysia Melaka as a partial fulfilment of the requirement for Degree of Manufacturing Engineering (Hons). The member of the supervisory committee is as follow:



DEDICATION

Only

To

My dear self,

Past, Present and Future.

I am proud of the person that you were, are and becoming.



ACKNOWLEDGEMENT

All praises to Allah for the good health, happiness, and easy state of mind that He has been blessing me. Because of His blessings, I was able to survive the semester and finish my final year project. I wish to extend my deepest gratitude to my project supervisor, Dr. Nurazua binti Mohd Yusop for her invaluable guidance and support towards this project. Juggling with her tons of work and lectures while trying to contribute her best to her subordinates is not easy, but she successfully makes it work for everybody with her effective leadership. ‘Synergize’ and ‘Think Win-Win’ habits are really practiced. I am grateful that our paths crossed to the point I feel that Allah has been so kind to me. Not to forget, my beloved parents and family for always making me feel loved as the youngest child in the family. I do this for my past, present and future self. For that, I want to congratulate myself for being able to go through it all while experiencing the fun things in my youth and adapting to early stages of adulthood. I wish myself the best for the next adventure in my life.



ABSTRAK

Projek ini mendalami bidang kemampanan yang kritikal dalam industri pembuatan Malaysia, dengan tumpuan khusus pada sektor automotif, dengan mengkaji pelaksanaan prinsip Alam Sekitar, Sosial dan Tadbir Urus (ESG). Disebabkan kekurangan rangka kerja piawai ESG dan piawaian pelaporan, kebanyakan syarikat di Malaysia mempunyai kesediaan yang tidak seimbang dengan peningkatan ESG. Matlamat utama projek ini adalah untuk memenuhi permintaan mendesak industri untuk garis panduan ESG yang diseragamkan dengan menyediakan pendekatan tersusun untuk peningkatan dan keperluan pelaporan ESG. Objektif pertama memberi tumpuan kepada amalan mampan yang telah dilaksanakan di syarikat pembuatan automotif yang mantap. Kajian ini menyiasat peningkatan ESG mereka melalui temu bual terbuka dengan wakil yang boleh dipercayai dan berpengalaman daripada Armstrong Auto Parts Sdn. Bhd. dan PROTON Tanjung Malim Sdn. Bhd. Penemuan ini menekankan kaedah mampan berbeza yang digunakan oleh setiap syarikat, seperti langkah kecekapan tenaga, pengurusan sisa dan kebajikan pekerja mereka. Amalan ini berfungsi sebagai penanda aras untuk pembangunan rangka kerja yang akan membimbing perusahaan kecil dan sederhana pembuatan automotif tempatan dalam perjalanan peningkatan ESG mereka. Untuk memastikan keberkesanan dan kaitannya, rangka kerja yang dibangunkan disahkan oleh pakar kemampanan dan penganalisis ESG yang berpengalaman. Rangka kerja yang dibangunkan menekankan perkaitan amalan mampan dalam meningkatkan kecekapan operasi, memenuhi jangkaan pihak berkepentingan, dan mengekalkan kemampanan jangka panjang dalam persekitaran perniagaan yang berubah secara dinamik.

ABSTRACT

This project delves into the critical realm of sustainability in the Malaysian manufacturing industry, with a particular focus on the automotive sector, by examining the implementation of Environmental, Social, and Governance (ESG) principles. Due to a lack of standardized ESG frameworks and reporting standards, most companies in Malaysia have a disproportionate amount of readiness with ESG enhancements. The primary goal of this project is to meet the industry's urgent demand for standardized ESG guidelines by providing an organized approach to ESG enhancements and reporting requirements. The first objective focuses on the sustainable practices that have been implemented at well-established automotive manufacturing companies. This study investigates their ESG enhancements through open-ended interviews with credible and experienced representatives from Armstrong Auto Parts Sdn. Bhd. and PROTON Tanjung Malim Sdn. Bhd. The findings emphasize the different sustainable methods used by each company, such as their energy efficiency measures, waste management, and employee welfare. These practices serve as the benchmark for the development of the framework that will guide other local automotive manufacturing SMEs (small and medium enterprises) in their ESG enhancements journey. To ensure its effectiveness and relevance, the developed framework is validated by experienced sustainability and ESG analysts. The developed framework emphasizes the relevance of sustainable practices in improving operational efficiency, fulfilling stakeholder expectations, and maintaining long-term sustainability in a dynamically changing business environment.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

"Advancing sustainability" is a major element in the 12th Malaysia Plan, which outlines Malaysia's ambitions to achieve carbon neutrality by 2050 and places Malaysia among the first ASEAN nations to embrace this climate action. Sustainability is a scope to satisfy the demands of the present generation while preserving the ability of future generations to satisfy their own needs (Corporate Finance Institute, 2022). The idea is not just about the environment, but sustainability is also involving people and the economy as its principles.

One of the ways to achieve Sustainability is by enhancing Environmental, Social, and Governance (ESG) practices, which is a component that guides a company for managing their risks and growth opportunities. Given recent occurrences like the COVID-19 epidemic and the worsening environmental circumstances, the role of ESG is even more crucial (Padamshi, 2021). The environmental pillar of ESG assesses a company's environmental effect. The social pillar assesses how organizations manage their employee well-being, health and safety requirements, while Governance pillar evaluates the transparency in leadership, board diversity, anti-corruption policies, and accountability of the organization.

According to the Business Today Editorial, ESG standards are increasingly becoming a point of concern for governments and financial investors when deciding whether to provide funding to a specific company. By remaining aware of its own ESG standard, a company can appropriately monitor and regulate factors that would otherwise cause serious setbacks and jeopardize its long-term viability. It is also worth noting that ESG criteria can be tested against the United Nations Sustainable Development Goals (SDG), which provide 17 ways in which businesses and institutions can grow in accordance with sustainability principles.

Malaysian Ministry of International Trade and Industry (MITI) has introduced a New Industrial Master Plan 2030 (NIMP 2023) that covers 21 sectors in Malaysia which manufacturing sector is included. Aside from being the largest contributor to Malaysia's

export, the manufacturing industry is also one of the biggest contributors to Malaysia's gross domestic products (GDP) (MITI, 2023). ESG enhancement is mentioned in NIMP 2030 under Sustainability key trend. MITI then launched i-ESG framework which puts a special emphasis on Small and Mid-sized Enterprises (SMEs) to support them with funding and export capacity development. As part of this plan, the Malaysian Ministry of Finance (MOF) has assigned the SDGs to all programmes and projects that fall within the development spending. This is anticipated to draw low-carbon investments, improve the reputation and global competitiveness of Malaysian products, and bring long-term financial resources to the local SMEs.

1.2 Problem Statement

Due to a lack of standardized ESG frameworks and reporting standards, most companies in Malaysia have a disproportionate amount of readiness with ESG enhancements. The continually developing ESG reporting requirements, as well as the lack of a unified strategy, make it difficult for companies and investors to choose which standards to follow (Krishnan G., 2023). Furthermore, many people still feel that sticking to ESG principles would result in lower returns, creating a clash between short-termism and long-term investing goals. Thus, it is critical to shift the attention to the long-term positive association between ESG contribution and long-term value creation (Krishnan G., 2023).

The Malaysian Business Sustainability Pulse Report 2022, led by the United Nations Global Compact Network Malaysia and Brunei (UNGCMB) in collaboration with Bursa Malaysia and several other organizations, examined Malaysian companies' readiness to transition and gained collective insights into business attitudes towards sustainability. According to the findings as per illustrated in Figure 1, most respondents are either prepared to consider or have already begun reporting ESG indicators.

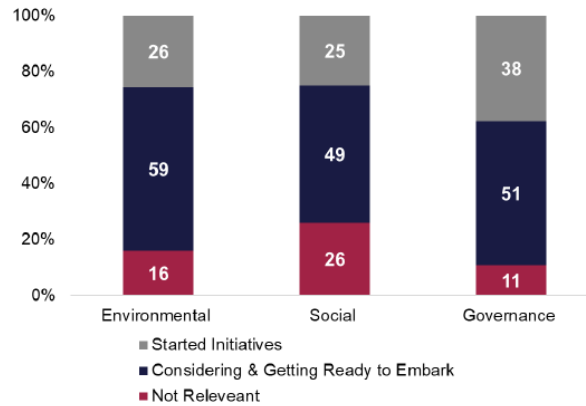


Figure 1. ESG initiatives in Malaysian companies.
 (Source: The Malaysian Sustainability Pulse Report, 2022)

While sustainability reporting has been required for companies that have an influence on the environment, there is still no standardized framework, resulting in disparities in ESG practices and disclosure requirements between corporations especially the manufacturing industry. As a result, the quality of ESG information provided to government and investors suffers, making it harder for them to evaluate and analyze the ESG performance of manufacturing companies in Malaysia. Therefore, there is a need to introduce a suitable and standardized ESG framework for the industry.

1.3 Objectives of the project

The need for greater sustainability is getting stronger every year, from operations to goods to the people that companies do business with. Stakeholders expect companies to be transparent about their efforts to improve sustainability and seek measures that may be seen supporting ESG efforts. The objectives of this project are as follow:

- i. To identify the sustainable practices that have been implemented at well-established local automotive manufacturing companies.
- ii. To develop an ESG framework towards sustainability initiatives for Malaysian automotive manufacturing SMEs.
- iii. To validate the developed framework through experts' consultations.

1.4 Scope of project

This project is to be carried out for deeper understanding on the sustainability initiatives by Malaysian companies, focusing on automotive manufacturing SMEs through the execution of ESG framework.



CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

A literature review is a methodical and well-organized search of previously published research papers or academic studies to uncover a wide range of high-quality references on a certain topic (Rau JL, 2004). This chapter serves as the foundation for the development of this project, and theoretical frameworks. This literature review aims to explore, synthesize, and assess the current body of information around ESG within the context of manufacturing and automotive industry. This study tries to illuminate the present landscape of understanding in the subject by diving into a detailed assessment of scholarly works, research papers, academic articles, industry reports, and other relevant sources, identifying trends, gaps, debates, and emerging issues.

This chapter delves deeply into sustainability and ESG concepts, with an emphasis on their relevance and implementation in a variety of industries, including automotive manufacturing industry. It begins by establishing the three key components of sustainability: planet, people, and profit, emphasizing their interdependence. It then digs into the complexities of ESG criteria, examining their effect, reporting standards, and implementation, with a particular focus on Malaysia's i-ESG framework. This chapter explains the rising relevance of sustainable practices in minimizing environmental consequences and fostering economic and social responsibility by contextualizing them within the automotive industry.

2.2 Sustainability

According to Oxford Languages Dictionary, sustainability is the ability of a process or business to maintain across time. In economic and governmental contexts, sustainability aims to avoid the depletion of natural or physical resources so that they can be used indefinitely (Mollenkamp, 2023). The idea of sustainability is not only about the environment, but it is also involving people and the economy as its elements as per illustrated in Figure 2.

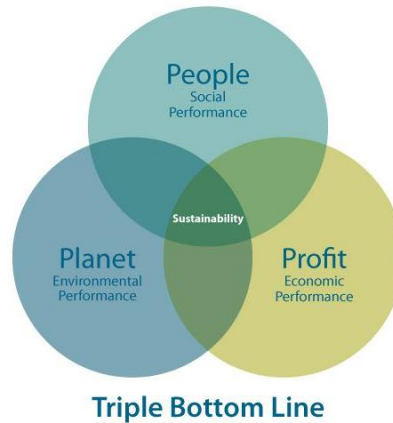


Figure 2. The three pillars of sustainability.
(Source: Inchainge, 2022)

2.2.1 Planet

The planet pillar of sustainability is for environmental sustainability. It suggests that a manufacturing company's operation and strategy should ethically be responsible on how they will affect the environment (Santander, 2023).

For example, choosing a local supplier over an international one, switching to renewable energy sources, and lowering carbon dioxide (CO₂) emissions, and carry out a digital transformation, which will increase business efficiency and make it more profitable and environmentally friendly (Simon, 2023). These initiatives encourage recycling across the company and improve product design, so it is easier to recycle base materials. Besides that, manufacturing processes will also be improved, and the design cycle will be shortened by using more environmental-friendly materials and advanced technology that will lessen the company's environmental effect and result in higher-quality products and good profitability.

2.2.2 People

On the other hand, the people pillar of sustainability is about the company's employees, cultural sustainability, and social responsibility (Simon, 2023). The purpose of social sustainability is to promote the cohesiveness and stability of certain social groupings (Santander, 2023). This applies for both parties of a business internally and externally. A company that is sustainable should ensure that they treat everyone involved in the supply chain fairly in addition to ensuring the rights, development, well-being, and general working conditions supplied to their own employees.

2.2.3 Profit

Next, the third pillar is the profit or economic sustainability which refers to an organization's capacity to manage its resources and create revenues responsibly over time (Santander, 2023). It suggests that company must be lucrative for a long-lasting growth. Economic value is a sign that a business is providing a valued service to its customers and society. A socially conscious company always strives to enhance a broader social climate and does things like donating to charities or favouring vendors. Moreover, a strong commitment to social sustainability measures a success of the company (Simon, 2023).

The planet or environment pillar is critical because a healthy ecosystem is necessary to sustain a strong civilization (Santander, 2023). As a result, the people and social responsibility are secondary concerns. Economic sustainability comes in third place because a flourishing economy cannot exist in the absence of a healthy and equitable society. Understanding the three Ps of sustainability is essential for beginning the change to sustainable development.

One of the ways to achieve sustainability is by enhancing ESG practices. With the growing focus of government and investors on ESG criteria, the relevance of sustainable development for corporate strategy is fast rising to the top of most companies' priority lists (Simon, 2023). The next point explains further on ESG.

2.3 Environmental, Social and Governance (ESG)

Figure 3 illustrates the compliances of ESG. The word 'ESG' was firstly appeared in a 2004 United Nations (UN) report according to Byrne D. from The Corporate Finance Institute, but it has evolved into a comprehensive framework and known as a trend and proactive movement that incorporates environmental and social impact, and how governance structures can be modified to promote stakeholders' well-being.

ESG is a strategic framework for identifying, assessing, and addressing organizational objectives and activities ranging from the company's carbon footprint and commitment to sustainability, to its workplace culture and commitment to diversity and inclusion, to its corporate risks and practices (White, 2023). According to Business Today Editorial, ESG has come into force as a standard of accountability that society demands from companies in recent

years as its criteria has also become a major determining factor in how government and investors value a company, playing an increasingly important part in the fund-raising component of a commercial operation.



Figure 3. ESG compliances.
(Source: Safetymint, 2021)

2.3.1 Environmental

Environmental consideration is the first pillar of ESG which comprises everything related to a company's commitment to its environmental effect, such as carbon footprint, energy use, waste, and environmental responsibility (White, 2023). Basically, it addresses the influence of climatic events on the physical environment as well as the risk to a company and its suppliers or partners (Pérez L., 2022). For instances, it draws focus on how manufacturing companies generally resist to direct and indirect greenhouse gas emissions, natural resources management, emissions of greenhouse gases as well as air, water, and ground contamination.

According to Deloitte, some examples of resource usage are when resources that are used by companies, such as whether they employ virgin or recycled materials in its operations, and how they guarantee that the greatest amount of material in their product is cycled back into the economy rather than ending up in a landfill. Companies are also required to be effective stewards of water resources, and they can also further lessen the negative effects of their operations on the environment by implementing operational procedures that use sustainable materials in their packaging, such as biodegradable plastic or organic fabric (Ionita, 2023).

2.3.2 Social

The second pillar of ESG is social which addresses the social effect linked with societal acts, workers, and the communities in which it operates (Beattie, 2023). Internal workplace culture, employee happiness, retention, diversity, workplace conditions, and employee health and safety are all covered in this pillar (White, 2023). For example, an indication of adhering to socially responsible company practices is by maintaining a diverse workforce. This would be followed by making sure that companies respect all gender roles, political views, religion, race, or other social demographics are not discriminated.

According to a survey by McKinsey based on data gathered between 2010 and 2013, companies that practice greater diversity and inclusivity are 35% more likely to outperform their rivals. Another concern is the extent of companies' commitment to supporting their employee development because a socially conscious company practices include creating opportunities for training and higher education, setting up leadership and team-building exercises.

2.3.3 Governance

The third pillar of ESG is governance which compliance, internal corporate culture, compensation ratios, the business ethos, and openness and accountability in leadership all contribute to the company's commitment to governance (White, 2023). Investors are looking for companies that can keep up with changing rules and regulations, as well as those who are committed to workplace justice and equality. Corporate governance in another words is a process through which a company is managed and led assessing governance structure, the timing and quality of decision-making, and the distribution of rights among stakeholders for beneficial societal effect and risk mitigation (Pérez L., 2022).

It suggests that the interests of the company's stakeholders which include shareholders, suppliers, employees, and customers are guaranteed by the company's executive component without bias where all decisions shall be made that favour the company's long-term and consistent growth over short-term and quick financial gains. Rather than hiring through any sort of discriminatory practices or handholding, making sure a company's board is comprised of people selected for their qualifications is also

an example of sustainable corporate governance practice (Beattie, 2023). The governance pillar exists to encourage leadership transparency and accountability.

In today's business, consumer, employee, and investor decisions are increasingly influenced by social and environmental concerns (Lucas, 2022). A poor ESG score might have an impact on a company's perceived viability and a higher ESG score also correlates with the company being more sustainable, having happier employees, and being more productive and profitable overall as a result of improved working conditions (Lucas, 2022). However, ESG cannot be reliably quantified. Hence, improving ESG performance is complicated as it requires a variety of approaches.

According to Deloitte, with the increased need for ESG-related information, the ESG framework has become associated with reporting. It is worth mentioning that ESG practices are becoming more common, with many other countries adopting these factors into their investment and company plans which is further discussed in the next section.

2.3.4 The countries impacted by obligatory ESG reporting

To close the gap between investors demand for ESG information and corporate supply, many countries are enacting obligatory ESG disclosure legislation. A 2023 research published by Krueger P. et al., titled "*The Effects of Mandatory ESG Disclosure around the World*" revealed 25 countries that imposed mandates on corporations to report ESG information over the sample period, with the majority applicable to financial institutions, state-owned companies, and big, publicly traded companies. The 25 countries are United States, United Kingdom, Germany, France, Canada, Japan, Australia, Sweden, Netherlands, Switzerland, Norway, Denmark, Finland, Singapore, South Korea, Brazil, South Africa, India, China, Hong Kong, Taiwan, Mexico, Spain, Italy, and Belgium.

Asia, in recent years, the governments, international organizations, and private sector have recognized ESG factors may have a long-term impact on market performance (OECD, 2022). As illustrated in Figure 4, ESG ratings applied to companies accounting for 80% of APEC's market capitalization in 2021. Countries such as Japan (83%), Korea (69%), Singapore (84%), and Malaysia (67%) follow a similar pattern. Nonetheless, some countries, such as Indonesia (23%), are still in the early stages of ESG rating coverage, and this is projected to rise in coming years.

ESG rated public companies by country as a share of market capitalisation (2021)

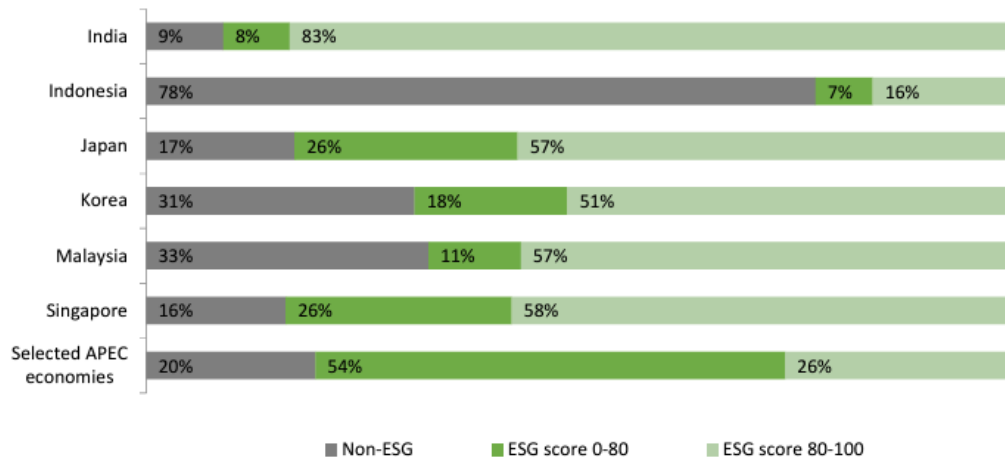


Figure 4. ESG rated public companies by country in 2021.
(Source: OECD, 2022)

While most Asian countries are still getting ready to adopt ESG, Malaysia however since 2016 has made ESG reporting mandatory for all publicly traded firms, making the country one of the first countries to compel this type of disclosure (Worldfavor, 2023). Nonetheless, the result illustrated in Figure 4 shows that over 33% of the publicly traded firms have not started their ESG journey despite being a Bursa listed companies. This supports the problem statement of this project, which says that the development of Malaysia's ESG ecosystem is still in its early stages and there is still no uniform ESG framework (Krishnan G., 2023). As a result, businesses rely on sustainability reporting standards to determine how and what to disclose in their reports. The reporting standards are discussed in the next point.

2.3.5 ESG reporting standards

Sustainability or ESG reporting is usually done using one or more frameworks. For example, The Global Reporting Initiative (GRI) and the Sustainable Accounting Standards Board's standards (SASB) are the two most utilized reporting frameworks. Table 2.1 lists the most prominent sustainability frameworks used for reporting ESG (Paul, L. G., 2023).

Table 2.1.
The prominent frameworks used for reporting ESG.

No.	Sustainability Framework	Description
1.	International Financial Reporting Standards (IFRS)	The purpose is to develop a single set of disclosure standards that can be utilized worldwide to report ESG data to investors. The International Sustainability Standards Board is developing two sets of requirements for IFRS; which is one for broad disclosures of sustainability-related financial information, and another for specialized disclosures of climate-related risks and possibilities.
2.	Sustainability Accounting Standards Board (SASB)	The SASB Standards include guidelines for providing financially material sustainability information in 77 industries. The framework identifies subsets of significant ESG concerns for each industry, such as marketplaces for various IT goods and services. SASB was absorbed by the IFRS Foundation in 2022 after being merged into the Value Reporting Foundation in 2021. The SASB standards are still in use, however the IFRS Foundation has said that they will be superseded by other standards in the future.
3.	Climate Disclosure Standards Board (CDSB)	The CDSB created this to help mainstream corporations include ESG reporting in their annual reports and 10-K filings. The framework's original edition, announced in 2010, focused on climate change challenges; an upgrade in 2015 included wider environmental reporting, and another in 2022 added information on ESG's social components. It is still usable for the time being, but no further development of the framework will take place when the CDSB is merged into the IFRS Foundation in 2022.
4.	Global Reporting Initiatives (GRI) Standards	The GRI Standards are a modular framework that includes sets of universal, sector-specific and topic-based sustainability reporting standards. In addition to the reporting companies themselves, GRI says the standards are relevant to investors, government policymakers and other stakeholders.
5.	Carbon Disclosure Project (CDP)	The CDP started in 2000. It administers its own environmental disclosure system, which allows businesses to report on their business risks and possibilities connected to climate change, water security, and deforestation using distinct

		questionnaires on those themes. City governments can also utilize the CDP disclosure system to report on their climate action plans and other environmental statistics.
6.	Task Force on Climate-related Financial Disclosures (TCFD)	The TCFD was established to make recommendations on what information corporations should publicly disclose about their financial risks connected to climate change for investors, lenders, and insurance underwriters. The 11 suggestions, which were released in 2017, are organized around four major themes: governance, strategy, risk management, and climate-related indicators and objectives.
7.	United Nations Global Compact (UNGC)	The UNGC describes itself as the "world's largest corporate sustainability initiative," with a focus on aligning company strategy and operations with a set of ten principles governing human rights, labour standards, the environment, and anti-corruption. In 2023, the organization will introduce a new digital platform for communication on progress (CoP) submissions that will replace the original narrative style with a standardized questionnaire. Furthermore, firms may report on their contributions to and impacts on the UN's larger SDGs via a separate platform that combines the Global Compact's principles with the GRI Standards.
8.	Workforce Disclosure Initiative (WDI)	The WDI provides a platform for reporting data on labour practices and management. The WDI framework is based on the CDP's disclosure system: participating organizations complete an online survey and receive a "disclosure scorecard" to use for benchmarking against their business counterparts.
9.	International Integrated Reporting Council (IIRC)	The IIRC is a worldwide coalition founded in 2010 that includes regulators, investors, businesses, standard setters, the accounting profession, academics, and non-governmental organizations (NGOs). Its primary purpose is to promote integrated reporting globally. To fulfill the demands of multiple stakeholders and encourage sustainable business practices, integrated reporting incorporates both financial and non-financial information, as well as considerations for ESG.

ESG reporting is traditionally accomplished through the publication of a sustainability report, while an increasing number of companies are revealing their sustainability data through webpages that highlight the company's ESG performance in addition to a more traditional report.

As illustrated in Figure 5, stock exchange guideline documents have been distributed in several Asian countries to ensure that ESG data is disclosed in an international and consistent way. These documents cite reporting tools obtained from the GRI, SASB, CDP, TCFD, IIRC and CDSB.

ESG disclosure guidance by Asian stock exchange and cited industry guidance and frameworks

Market	Stock Exchange	ESG Guidance	GRI	SASB	TCFD	IIRC	CDSB	CDP
Bangladesh	Dhaka Stock Exchange	Guidance on Sustainability Reporting (2019)	X					
People's Republic of China (China)	Shanghai Stock Exchange, Shenzhen Stock Exchange	Guidelines for Environmental Information Disclosure of Listed Companies in Shanghai Stock Exchange (2008 – in Chinese) , Social Responsibility Instructions to Listed Companies (2006)						
Hong Kong (China)	HKEX	How to Prepare an ESG Report: A Step-by-Step Guide to ESG Reporting (2020)	X	X	X			
India	Bombay Stock Exchange	BSE Guidance Document on ESG Disclosures (2018)	X	X		X		X
India	National Stock Exchange of India	NSE-SES Integrated Guide to Business Responsibility & Sustainability Report (BRSR) (2022)	X	X	X	X		X
Indonesia	Indonesia Stock Exchange	Application of Sustainable Finance for Financial Services Institutions, Issuers and Public Companies (2017-in Indonesian)						
Japan	Japan Exchange Group	Practical Handbook for ESG Disclosure (2020)	X	X	X	X		
Kazakhstan	Kazakhstan Stock Exchange	Methodology of preparing an Environmental, Social and Governance report (2018)	X	X		X		
Malaysia	Bursa Malaysia	Sustainability Reporting Guide (2018)	X	X	X	X		X
Philippines	Philippine Stock Exchange	Sustainability Reporting Guidelines for Publicly Listed Companies (2019)	X	X	X	X		
Singapore	Singapore Exchange	Sustainability Reporting Guide (2018)	X	X	X			
Sri Lanka	Colombo Stock Exchange	Communicating Sustainability: Six Recommendations for Listed Companies (2019)	X	X		X		
Thailand	Stock Exchange of Thailand	Guidelines for the preparation of sustainability reports (2012)	X			X		X
Viet Nam	Hanoi Stock Exchange	Environmental and Social Disclosure Guide (2016)	X					

Figure 5. ESG disclosure guidance by Asian stock exchange.
(Source: OECD, 2022)

Based on this data from OECD shown in Figure 5, Malaysia has been following all the reporting standards by GRI, SASB, TCFD, IIRC, and CDP but not following CDSB.

Consequently, to come out with a proper framework for ESG reporting, Malaysia introduced i-ESG framework as mentioned in Chapter 1 which the action plans include

speeding the shift to sustainable practices. The i-ESG framework will be explained further in the next subsection.

2.3.6 Malaysia's i-ESG Framework for the manufacturing sector

In NIMP 2030, MITI took notice of three recent key trends, which are geopolitical movements, digitalization, and sustainability which increased ESG compliance requirements, as well as the opportunities afforded by these trends. There are also six set goals mentioned which are listed below.

Six set goals of NIMP 2030:

- i. Increase economic complexity.
- ii. Create high value job opportunities.
- iii. Extend domestic linkages.
- iv. Develop new and existing clusters.
- v. Improve inclusivity.
- vi. Enhance ESG practices.

In October 2023, MITI has launched national industry ESG framework called i-ESG framework that can accelerate Malaysia's goal of achieving sustainable development goals by facilitating the transition to sustainable practices among manufacturing companies. The i-ESG framework is intended to equip the manufacturing sector, particularly micro, small, and medium-sized companies (MSMEs) to embrace ESG concepts.

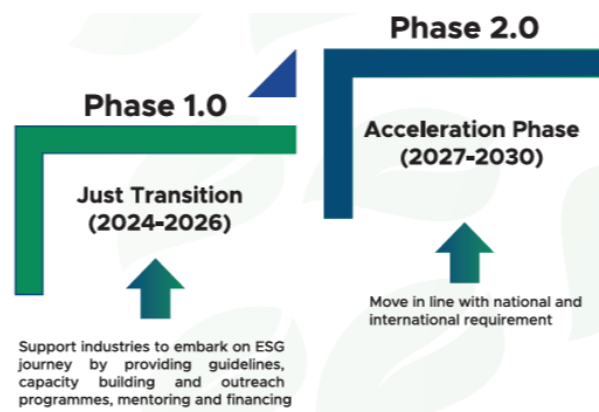


Figure 6. The phases of i-ESG framework.
(Source: MITI, 2023)

There are two phases of the framework execution. As shown in Figure 6, the first phase (2024 to 2026) lays the basis and supports the establishment of a strong ecosystem to assist businesses as they begin on their ESG journey. During this first phase that has started this year, manufacturing MSMEs are assisted in beginning their sustainability and ESG journey through self-assessment, outreach, training and mentoring programs, and financing choices.

Moreover, MITI has also launched its "KenalESG" outreach campaign in Kuala Lumpur with over 200 companies participated, Penang (190 companies), and Johor (130 companies) to develop ESG awareness and expose sectors to the i-ESG framework. The initiative was also implemented in Sarawak, Kelantan, Terengganu, and Pahang by the end of 2023, with the other states covered by the first quarter of 2024. This shows that the current i-ESG execution is currently still in the transition and awareness phase, with no guidelines on ESG practices designed for the companies.

Alongside the initiative, MITI will also provide clinic sessions in Phase 1.0 to empower and advise a total of 50 companies in completing their first sustainability report. This will eventually guarantee that they are ready to satisfy the more stringent requirements of the second phase which will start in 2027.

Manufacturing companies can comply with ESG rules in a variety of ways. For example, their ESG criteria may be tested against the UN's SDGs which provide 17 ways in which manufacturing companies can grow in accordance with sustainability principles that is discussed in the next point.

2.3.7 The intersection between ESG and SDGs

SDGs were established by the UN in 2015 as a global call to action to wipe out poverty, safeguard the environment, and guarantee that peace and prosperity would be experienced by everyone by the year 2030. Figure 7 illustrates 17 goals that understand social, economic, and environmental sustainability must balance and that actions in one area will have an impact on others.



Figure 7. Sustainable Development Goals (SDGs) 2030.
(Source: KPMG, 2024)

The SDGs are the blueprint to get rid of hunger, AIDS, prejudice against women, and other sustainable developments. In every setting, the SDGs must be achievable, and this requires the knowledge, creativity, technology, and financial resources of the whole population (UN, 2015).

To obtain a thorough grasp of sustainability and its ramifications, the SDGs 2030 Agenda is the successor of the Millennium Development Goals and is organized around all the 17 goals. As a result, the UN issues an annual report that examines how each aim is developing. Based on UN’s 2021 report, the following Table 2.2 is a concise summary of current SDG fulfilment.

Table 2.2.
The UN’s summary of current SDG fulfilment as of 2021.

No.	Goals	Description
1.	No Poverty	Putting an end to poverty.
2.	Zero Hunger	Putting an end to hunger.
3.	Good Health and Well-Being	Providing for the health and well-being of people of all ages.
4.	Quality Education	Providing inclusive and equal educational opportunities.
5.	Gender Equality	Gender equality and the empowerment of all women and children.
6.	Clean Water and Sanitisation	Providing access to and sustainable management of water and sanitation for all.

7.	Affordable and Clean Energy	Providing everyone with affordable, dependable, clean, and contemporary energy.
8.	Decent Work and Economic Growth	Economic growth that is inclusive, inclusive, and sustainable.
9.	Industry, Innovation, and Infrastructure	Building robust infrastructure, supporting equitable and sustainable industrialization, and encouraging innovation are all priorities.
10.	Reduced Inequalities	Reducing inequality within and among countries.
11.	Sustainable Cities and Communities	Making cities and human settlements more inclusive, safe, resilient, and long-lasting.
12.	Responsible Consumption and Production	Ensure long-term consumption and production trends.
13.	Climate Action	Taking immediate action to address climate change and its consequences.
14.	Life Below Water	Conserving and exploiting oceans, seas, and marine resources in a sustainable manner for long-term development.
15.	Life on Land	The conservation, restoration, and promotion of terrestrial ecosystems for long-term usage.
16.	Peace, Justice, and Strong Institutions	Promoting peaceful and inclusive societies in order to achieve long-term development.
17.	Partnerships	Strengthening implementation mechanisms and revitalizing the global partnership for sustainable development.

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According to Mishra (2023), investors are attempting to provide a larger context to their present business engagements by mapping SDGs to ESG concerns, guiding capital flow toward positive and verifiable effect, and demanding accountable and responsible business behaviour from companies. In this regard, ESG considerations might provide a new strategic lens through which to analyse and assess company actions in the context of the SDGs. Linking SDGs to current ESG issues will serve as a common communication channel to influence and define business decision-making processes and investment plans at the macro level.

An SDG and ESG-integrated business approach will direct companies' attention toward financial and non-financial factors such as corporate governance, direct and indirect environmental footprint, human rights issues, etc which can help them maintain

and facilitate a transition toward a more active stance on adopting new business models through disruptive or realignment strategies (Mishra, 2023).

Lastly, according to the SAFETY4SEA (2022), companies and investors who actively pursue the SDG Agenda 2030 are more likely to enhance their ESG score and discover new chances for growth and development. The appeal of the objectives is that every company can participate to achieve sustainability through ESG and SDGs, and every effort will have an effect on the 3Ps that has been discussed in 2.2.

2.4 Sustainability perspectives in the automotive manufacturing industry.

When the first studies indicating that high corporate sustainability performance relates to favourable financial results were published in 2013 and 2014, the slow expansion of ESG investment was considerably accelerated (Kell G, 2018). Academics such as George Serafeim, Bob Eccles, and Ioannis Ioannou have demonstrated the use of ESG data in analysing organizational risks, strategies, and operational performance. Figure 8 shows that sustainable company equities often beat their less sustainable equivalents.

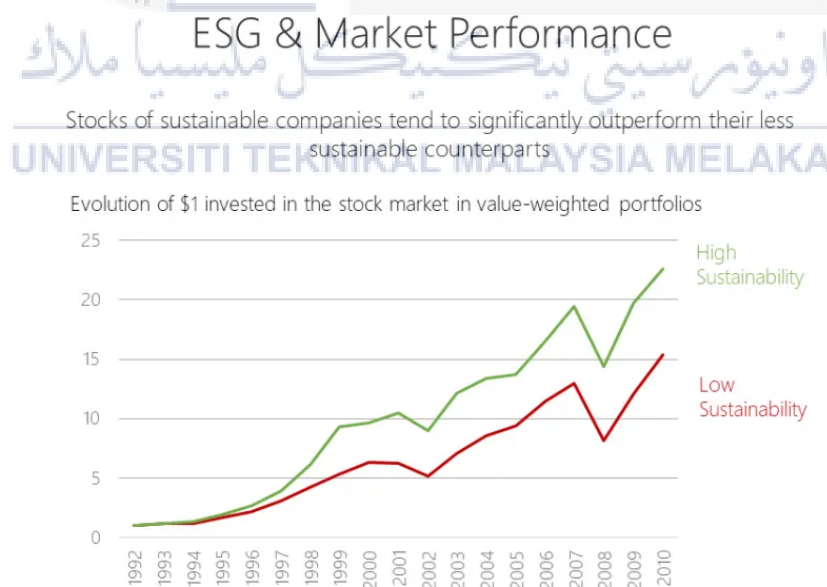


Figure 8. ESG and market performance.
(Source: Forbes, 2018)

Numerous research businesses, academic institutions, consulting groups, and industry specialists have produced studies, reports, and academic papers on the relationship of ESG

aspects to the automotive industry. These studies include a wide variety of themes, such as emissions reduction, sustainable manufacturing methods, labour rights, diversity and inclusion, supply chain management, ethical considerations in self-driving cars, and governance processes inside automotive companies.

2.4.1 The rise of interests of ESG in automotive industry

The most up-to-date and comprehensive understanding of ESG in the automotive industry research are accessible on academic databases such as Mendeley, Google Scholar, as well as reports from other ESG research providers. These sources give more precise and up-to-date information on the number of research articles or studies that specifically address ESG concerns in the automotive industry.

As of December 2023, there was no exact count of research articles specifically focused on the interaction of ESG aspects with the automotive sector. Based on a roughly observation, there was over 13,200 academic studies found on Google Scholar ranging from the year 2010 up to 2023 with the key words of 'ESG in Automotive industry'. On a side note, there were about 32 research papers retrieved by Mendeley ranging from 2013 to 2023. A graph in Figure 9 illustrates the rise on research and interest in ESG and Automotive related studies.

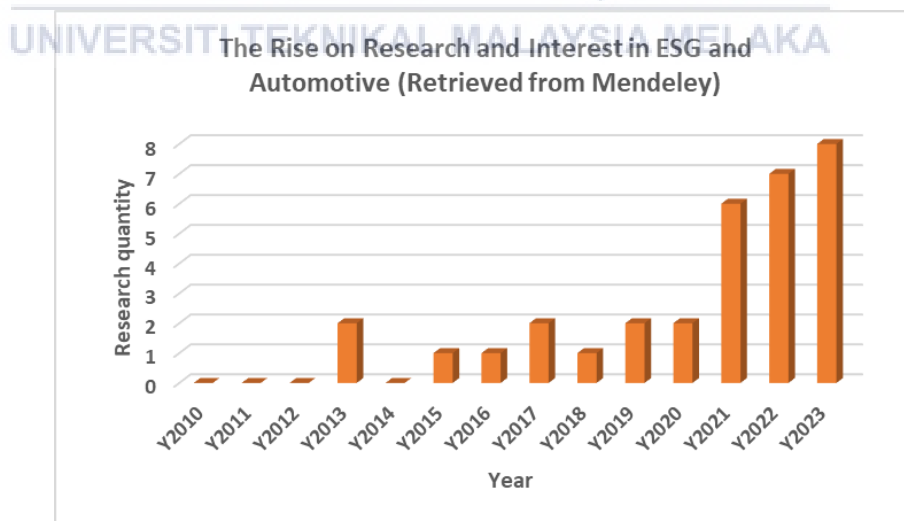


Figure 9. The rise on research and interest in ESG and Automotive related studies retrieved from Mendeley.

The analysis on ESG concerns in the automotive industry were gaining traction, but it is not as widely as in other industries such as finance or technology. It was recently in the early 2020s that ESG is becoming more important for businesses amidst the result of a series of events, including demand from a new generation of investors, and Covid-19 epidemic. Based on the graph in Figure 12, ESG research is projected to have expanded in the years after 2022, with more organizations and investors using ESG indicators into their strategy.

In addition, consumer demand, investor interest, and regulatory obligations were projected to put increasing pressure on automotive businesses to address and report on their ESG practices (Sadegh B., 2023). Since 2022, it is probable that the automotive industry's interest on ESG has grown, with more research, studies, and efforts focused on analysing and improving ESG performance among automotive manufacturers and allied organizations. This might include advances in sustainable vehicle manufacture, pledges to minimize carbon emissions, labour practices improvements, and improved openness in governance systems.

According to Society of Motor Manufacturers and Traders (SMMT), the automotive industry has made significant progress in the recent decade to decrease the environmental effect of its products throughout their life cycle. Because of improvements in manufacturing processes, energy consumption in car production is down 19%, water consumption is down 35%, and 91% less trash enters dump sites (Kullukcu C., 2023). Social and ethical concerns in the automotive industry include labour abuses, supply chain transparency, and diversity and inclusion. Private vehicles and vans have played a significant part in environmental deterioration, accounting for more than 25% of worldwide oil consumption and roughly 10% of global energy-related CO₂ emissions in 2022 (Petropoulos A., 2023).

To reduce greenhouse gas emissions, transition options include creating energy-efficient vehicles such as electric and hydrogen fuel cell vehicles. While electric vehicles (EVs) accounted for 14% of worldwide vehicle sales in 2022, to meet the Net Zero Emissions by 2050 Scenario, all car and van sales will need to be zero-emission by 2035. The next point discusses further how automotive industry may contribute to Malaysia's environment as the demand for vehicles increases.

2.4.2 Automotive sector is one of the contributors to the environmental concerns

Malaysia's automotive sector is the third biggest in Southeast Asia and the 23rd largest in the world, producing more than 500,000 vehicles per year (Bharadwaj S., 2023). Malaysia now has a greater number of national vehicle manufacturers and is the only Southeast Asian country with two well-known vehicle brands (Statista, 2023), Proton and Perodua. Despite the entry of other national vehicle manufacturers, Proton and Perodua have significantly higher manufacturing volumes than the other national manufacturers (Anazawa, 2021).

According to MITI, Malaysia's automotive industry is a vital and key component of Malaysia's industrial economy. The automotive sector accounts for 4% of Malaysia's GDP (MIDA, 2021). Malaysia has 27 manufacturing and assembly factories that produce passenger and commercial vehicles, composite body sports cars, motorbikes, and scooters (MITI, 2016). Malaysia also boasts around 600 automotive component manufacturers, who produce a wide range of components such as body panels, trim parts, engine parts, rubber parts, and electrical and electronic components (MITI, 2022).

The growing population in the country has created a significant demand for vehicles especially for middle-income earners in Malaysia. Their growing income levels have increased their purchasing power, boosting demand for vehicles (Bharadwaj S., 2023). Figure 10 shows that since 2010 until 2021, the number of vehicles registered in Malaysia increased.

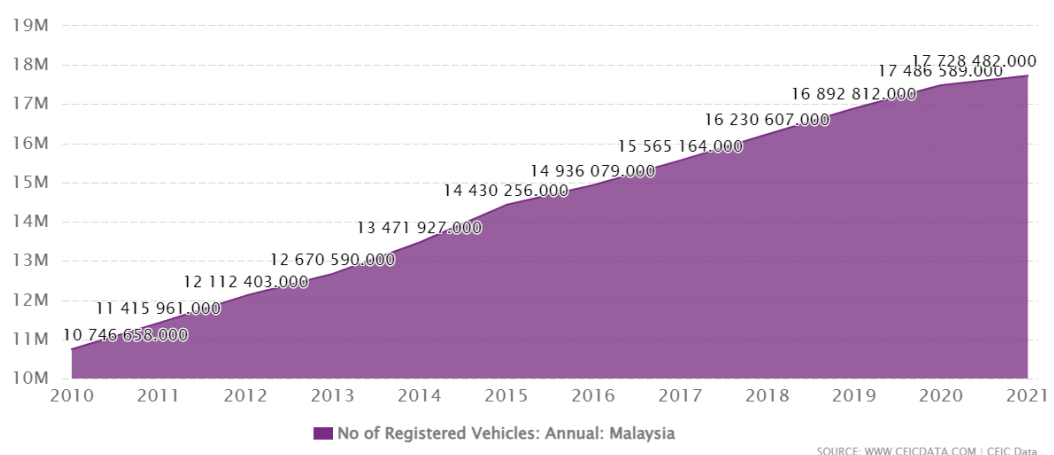


Figure 10. The rise in number of registered vehicles in Malaysia.
(Source: Ken Research, 2023)

The number of vehicles on the road increases from 15.2 million in 2019 to 17.3 million in 2021. With a present population of 32.2 million, Malaysia's number of vehicles on the road increases by one million every year. Based on the data studied by Statista, Malaysian car industry surged by more than 40% in 2022 after declining for the previous two years owing to the COVID-19 epidemic.

With a report released by Malaysian Automotive Association (MAA), new vehicle sales were robust in 2023, with Total Industry Volume (TIV) increasing by 11% to 799,731 units from 721,177 units in 2022 as compared in Figure 11.

Market segment	2023	2022	Variance	
			Units	%
Passenger vehicles	719,160	642,157	77,003	12%
Commercial vehicles	80,571	79,020	1,551	2%
Total vehicles	799,731	721,177	78,554	11%

Figure 11. Table of TIV in 2023 versus 2022.
(Source: MAA, 2024)

Robust sales by Proton and Perodua contributed significantly to the increased TIV of the first half of 2023 outperforming other car brands as per illustrated in Figure 12.

MAKE	SALES (UNITS)		MARKET SHARE (%)		RANKING	
	Jan-Jun 2023	Jan-Jun 2022	Jan-Jun 2023	Jan-Jun 2022	Jan-Jun 2023	Jan-Jun 2022
Perodua	144,690	127,343	39.5%	38.4%	1	1
Proton	76,012	57,402	20.8%	17.3%	2	2
Toyota	48,145	45,449	13.2%	13.7%	3	3
Honda	33,727	39,673	9.2%	12.0%	4	4
Mitsubishi	11,811	12,621	3.2%	3.8%	5	5
Others	51,652	49,258	14.1%	14.8%		
TOTAL	366,037	331,746	100.0%	100.0%		

Figure 12. Table of the top five car manufacturers.
(Source: MAA, 2023)

It is important to understand that as the demand for vehicles increases, the production of the vehicles as well increases. Figure 13 shows that the Total Industry Production (TIP) of new cars grew by 72,325 units or 10% in 774,600 units, up from 702,275 units in 2022.

Increased vehicles manufacturing frequently results in increased energy consumption, pollution, and resource exploitation. Vehicle manufacture requires considerable energy consumption, raw material extraction, and emissions at various phases such as production, transportation, and disposal (J.L. Sullivan, 2010). This has the potential to contribute to environmental deterioration and climate change.

SEGMENT	2023	2022	VARIANCE	
			UNITS	%
Passenger vehicles	724,891	650,190	74,701	11%
Commercial vehicles	49,709	52,085	(2,376)	-5%
Total vehicles	774,600	702,275	72,325	10%

Figure 13. Table of TIP in the first half of 2023 versus 2022.
(Source: MAA, 2024)

According to Malaysia Investment Development Authority (MIDA), Malaysia remains an attractive site for global car makers. Honda, Toyota, Nissan, Mercedes-Benz, and BMW are among the worldwide automakers that have established operations in the country to capitalize on strong customer demand. In 2017, Geely Auto Group, a major Chinese automaker, purchased PROTON shares. This reflects China's serious interest in using Malaysia to enter the ASEAN market. ZF, Delphi, Continental, Nippon Kayaku, PD Kawamura, Akashi Kikai, Denso, and Bosch are among the international component makers that have established themselves in Malaysia to promote their goods in the area.

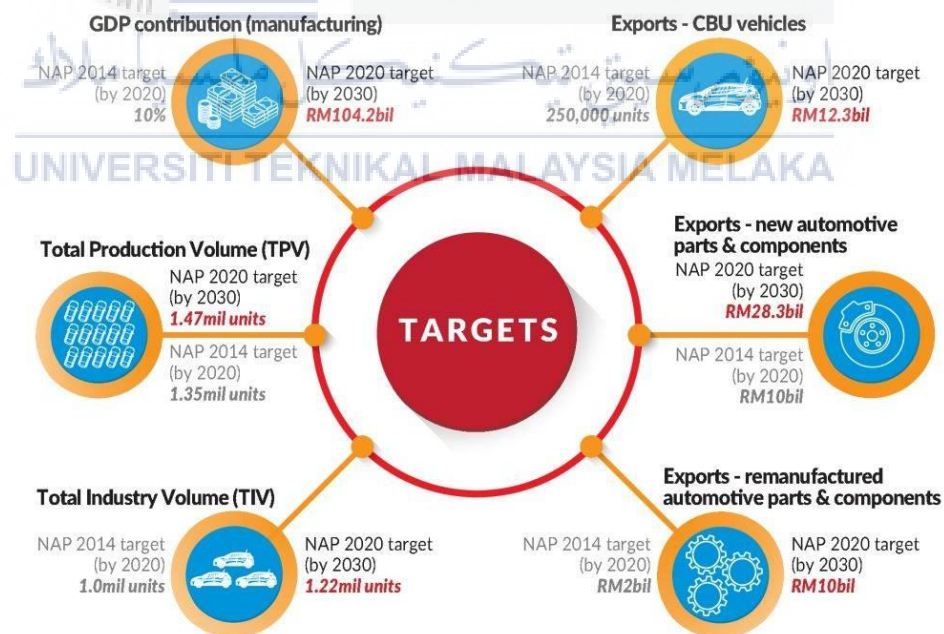
With the aspiration to cultivate a more competitive market for automotive companies, in 2020, MITI has launched National Automotive Policy 2020 (NAP 2020) that guides the local automotive sector over the next 10 years to become a regional

leader in manufacturing, engineering, technology, and sustainable development in the automotive industry, which is further discussed in the next point.

2.4.3 Malaysia's National Automotive Policy 2020 (NAP 2020)

The government's NAP 2020 aims to increase current 4% of GDP to 10% by 2030 (Bharadwaj S., 2023). The NAP 2020 focuses to improve Malaysia's automotive sector throughout the digital industrial transition period of 2020 to 2030, allowing Malaysia to realize Connected Mobility. Malaysia has undergone a dramatic transition of the automotive sector over the last half-decade, as mobility technologies and IR4.0 have become critical to global competitiveness. To maintain corporate viability and future competitiveness, the sector must adapt to the new era of automotive technology.

Additionally, the rise of the Internet-of-Things (IoT) and Big Data Management has created a slew of new opportunities, such as auto-pilot cars and collaborative product and process development. The Vision also intends to keep the local automotive sector current with global technology trends by implementing IR4.0 technologies as Malaysia moves into the connected mobility phase of growth.



Source: MARii Internal Analysis

Figure 14. Targets of NAP 2020.
(Source: MARii Internal Analysis, 2020)

By considering another perspective other than illustrated in Figure 14, since 2014, Malaysia's automotive sector also has been working to develop Energy Efficient Vehicles (EEVs) (Amirul, 2021). EEVs or EVs are described as cars that fulfil a set of established requirements for carbon emissions (g/km) and fuel consumption (l/100 km). EEVs include fuel-efficient cars, hybrids, electric vehicles, and vehicles powered by alternative fuels such as CNG, LPG, biodiesel, ethanol, hydrogen, and fuel cells.

Based on investment statistics as of June 2021, MIDA has authorized approximately 50 projects in the EEV ecosystem, with an approved investment value of RM8 billion. There is still a lot of space for growth in Malaysia's EVs ecosystem, since the deployment of EVs is still gaining traction. MIDA anticipates EVs to gain popularity and become more mainstream, especially in ASEAN, where there is a rising need for green mobility.

2.5 Conclusion

In conclusion, the literature review provides a comprehensive literature analysis that serves as the core framework for comprehending sustainability and ESG concepts in the manufacturing and automotive sectors. The assessment began by defining sustainability as the balanced pursuit of environmental stewardship, social equality, and economic success, as captured by the "planet, people, profit" paradigm. This comprehensive approach emphasizes the connectivity and interdependence of these aspects in accomplishing sustainable development objectives.

ESG criteria were thoroughly examined, emphasizing their importance in driving business behaviour toward more responsible practices. The evaluation emphasized the importance of ESG indicators in evaluating environmental impact, social responsibility, and governance transparency inside businesses. This was contextualized within Malaysia's changing regulatory landscape, notably with the implementation of the i-ESG framework, which aims to improve sustainable practices among SMEs in the manufacturing sector.

Throughout the literature research, the significance of standardized reporting frameworks and the difficulties associated with differing ESG disclosure requirements were highlighted. The debate focused on how these inequalities might impede comparability and transparency,

providing issues for investors, government, and stakeholders looking to adequately evaluate companies' sustainability performance.

Furthermore, the research found gaps in current research, including the need for further empirical studies on the actual application of ESG practices in automotive manufacturing SMEs, particularly in Malaysia. These gaps highlight the need for specialized frameworks and recommendations to help SMEs effectively integrate ESG concepts into their operations.



CHAPTER 3

METHODOLOGY

3.1 Introduction

The engineering design process methodology is a set of stages that engineers follow while developing functional processes. This chapter discusses the methodological choices used for this research, which serve as guidance for numerous research techniques that improve the quality and transferability of this project. This chapter describes the methodological approach used in this project, going through each stage from project design to validation. It begins with an overview of the project flow chart, which visualizes the research process. This is followed by the identification of key aspects, which specify crucial components and metrics based on the literature study. Next, the survey technique is detailed, which includes questionnaire design and interview conduct, both of which are required for primary data collection. The next section focuses on framework development, bringing together findings from earlier stages to create a comprehensive model. Finally, the chapter assesses the framework's trustworthiness and applicability in real-world circumstances.

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3.2 Project Flow Chart

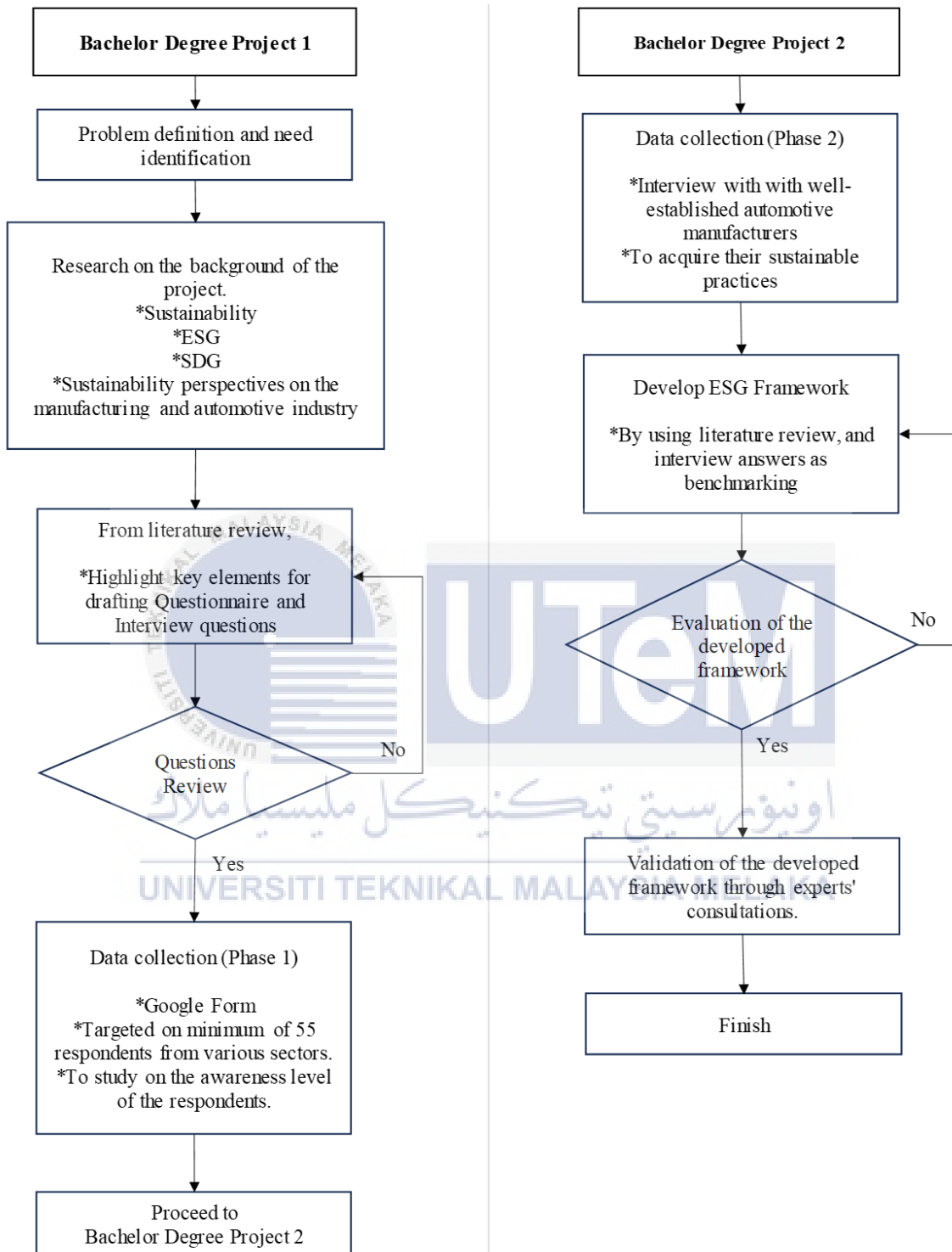


Figure 15. The project flow chart.

3.3 Identify the key elements

The key elements for the project are firstly identified. This was done through literature review metrics, which is beneficial for the questionnaire development, as well as for getting a vision on the outcomes of the interview sessions.

3.3.1 Literature Review Metrics

A literature review is a piece of academic writing that demonstrates knowledge and grasp of the academic literature on a particular topic in context (The University of Edinburgh, 2023). A literature review involves a critical evaluation of the content, which is why it is called a review rather than a report. Literature review or research metrics are techniques for assessing performance at the journal and author levels (Kavic MS, 2021).

3.3.2 Key elements

By using literature review metrics, the key elements in developing an appropriate ESG framework for the local automotive manufacturing SMEs are outlined in the form of a list as in Table 3.1. It also contains all of the components related to the outcome of the framework.

Table 3.1
Project requirements for designing ESG framework after literature review metrics is completed.

<p>Framework Identification</p> <ul style="list-style-type: none"> i. ESG framework towards sustainability. ii. For local automotive manufacturing SMEs <p>Benchmark Identification</p> <ul style="list-style-type: none"> i. The target manufacturers for this project will be for local automotive manufacturing SMEs. ii. Benchmark for framework: <ul style="list-style-type: none"> • Sustainability reporting standards. • Sustainable practices that have been implemented at 	<p>Social Priorities</p> <ul style="list-style-type: none"> i. Workplace health and safety ii. Training and education iii. Diversity and equal opportunities iv. Labour practices v. Affected communities and stakeholders <p>Governance Priorities</p> <ul style="list-style-type: none"> i. Board of directors ii. Organization chart iii. Risk management iv. Stakeholder relations v. Anti-corruption
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the interviewed companies.	
<p>Key Focus (General)</p> <ul style="list-style-type: none"> i. Environmental ii. Social iii. Governance 	<p>Key Project Deadlines</p> <ul style="list-style-type: none"> i. 2 semesters to finalize the development of the framework. ii. Target benefiting for local automotive manufacturing SMEs in Malaysia.
<p>Environmental Priorities</p> <ul style="list-style-type: none"> i. Energy consumption and efficiency ii. Water consumption iii. Waste management iv. Materials used v. Products and services 	<p>Financial Requirements</p> <ul style="list-style-type: none"> i. None <p>Approval and Validation</p> <ul style="list-style-type: none"> i. Framework reliability: Framework is reviewed and validated by experts.

Creating project requirements table assists in outlining the key components by prioritizing them for the development of the framework. The literature review metrics provides excellent input for writing these requirements. However, these project requirements might undergo some alterations as data collection from qualitative method by carrying out a survey and interview takes place.



3.4 Survey

Survey research is defined as "the collection of information from a sample of individuals through their responses to questions" (Check J., 2012). This form of research provides for a range of approaches for recruiting individuals, collecting data, and utilizing various instrumentation methods (Ponto J., 2015). Survey research can employ quantitative research tactics by using numerically scored surveys, qualitative research strategies by utilizing open-ended questions, or both mixed methodologies. Surveys are widely utilized in social and psychological research because they are regularly used to describe and study human behaviour (Singleton R. A., 2009). For this project, information will be obtained by individuals and groups through the use of survey research called questionnaire and interview. The interview ranges asking targeted questions to the well-established automotive manufacturers on their current sustainable practices.

3.4.1 Questionnaire

A questionnaire will include a variety of question types mostly open-ended and closed-ended questions in order to collect both quantitative data that can be examined to make conclusions and qualitative data that can be used to offer lengthier, more precise explanations (Qualtrics, 2023). The questionnaire designed for this project ranges asking targeted questions on public individuals and employees of different sectors on ESG relating the key elements discussed in 3.3.2 to obtain information related to ESG using Google Form platform. The major goal of this survey is to acquire information defining the characteristics of a minimum 55 respondents on their awareness on their company's sustainability and ESG initiatives. This survey aims to support the problem statement of this project, as well as the literature review.

The designed questionnaire was also reviewed and commented by four different lecturers experienced in research conduct for any improvements to ensure its reliability before distributing to the public.

3.4.2 Interview

Another method of data collecting utilized in survey research is conducting interviews. An interview is a qualitative research approach that collects data by asking questions. Interviews are conducted by two or more persons, one of whom is the interviewer who asks the questions (George T., 2023).

There are several sorts of interviews, which are frequently distinguished by their amount of organization. Firstly, preset questions are asked in a preset order during structured interviews. Secondly, unstructured interviews are more natural and semi-structured interviews are a combination of both unstructured and semi-structured interviews.

Data collection of this project involves semi-structured interviewing the local's well-established automotive manufacturers on the targeted questions designed after the key elements to acquire the sustainable practices that have been implemented at their companies. Their sustainable practices are set as a benchmark for developing the framework, which then catered to the first objective of the project.

3.5 Development of the framework

The framework was developed after analysing the sustainable practices that have been practiced at the well-established automotive manufacturing companies. Their discussed sustainable practices are set as a benchmark for the development of this framework. The completion of the framework developments means that the second objective of the project is successfully catered.

The guidelines that are highlighted in the developed framework are:

- i. Key performance indicators (KPIs) for ESG. In this case, the KPIs are the priorities listed in the key elements table in 3.3.2.
- ii. How and what to disclose in sustainability reporting, with references attached.
- iii. Guidelines for sustainable practices, summarised from the benchmark.

3.6 Validation of the framework

There are several approaches to validate conceptual frameworks in research, which can be divided into two major categories which are internal validation and external validation (Garcés G., 2015). For this project, the validation of the developed framework is obtained through experts' consultations, which is also known as the external validation. External validation consists of three methods which are:

- i. Triangulation of methods, which various research methods are employed to acquire data on the topic under study, and the results are compared to the predictions of the conceptual framework.
- ii. Expert consultation, which to consult with research professionals to get their feedback on the conceptual framework's validity.
- iii. Empirical tests, which the hypotheses obtained from the conceptual framework are tested via data collecting and analysis.

Expert consultations played a pivotal role in validating the developed framework by leveraging specialized knowledge and experience in sustainability. According to Miles et al.

(2014), experts provide critical insights into the clarity, coherence, and theoretical underpinnings of a framework, thereby enhancing its effectiveness and relevance.

For this project, two experts were chosen based on their significant experience and knowledge in sustainability reporting and ESG advocacy. This is because integrating specialists ensures that the framework is developed on current theoretical viewpoints and has practical application (Creswell, 2017).



CHAPTER 4

RESULT AND DISCUSSION

4.1 Introduction

According to Creswell & Creswell (2018), the "Results" portion of a thesis consists of presenting the facts acquired throughout the study in a clear and straightforward manner, without interpretation. Following that, the "Discussion" evaluates the results, emphasizing their importance considering the study questions and current literature. It also examines the ramifications of the findings, recognizes the study's shortcomings, and proposes topics for further research. This chapter discusses the insights gained from conducting and analysing the general survey on awareness level of some of the working Malaysians on ESG enhancements and the summary of the open-ended interviews with well-established SMEs within automotive manufacturing industry. The purpose of this chapter is to understand the current sustainability practices that are being implemented by the companies that could give positive impact on ESG. From the findings, ESG framework is developed and validated.

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4.2 Results of the questionnaire

A survey was done with feedback collected from over 75 respondents. The respondents include a varied group of working Malaysians from various industries, with a special emphasis on those sectors identified in the NIMP 2030.

4.2.1 General awareness

Table 4.1 categorizes the 75 respondents by sector. According to the data, a sizable proportion of respondents (28%) chose "Other" as their sector, suggesting that their industries are not included in the NIMP 2030. This shows that the ESG advancements stated in the NIMP 2030 may have less direct impact on certain sectors, potentially due to their unique characteristics or a lower emphasis on ESG within them.

The Manufacturing-Related Services sector have about 18 respondents contributed to the survey. It is followed by the Electrical and Electronics sector with over 11 respondents. There are 2 respondents respectively represented Halal, Textile, Apparel and Footwear, as well as Education sector. However, this survey was successfully reached to only 1 respondent from Aerospace, Automotive, and Shipbuilding and Ship sector.

Table 4.1
Summary of the survey respondents.

Sector	Number of respondents
Automotive	1
Chemical	1
Digital & ICT	7
Electrical & Electronics	11
Food Processing	1
Halal	2
Manufacturing-Related Services	18
Metal	1
Shipbuilding & Ship Repair	1
Textile, Apparel & Footwear	2
Education	2
Other	21

Based on Figure 16, the pie chart depicts the level of awareness and understanding of the 75 respondents towards ESG. The majority of them (60%) have heard of ESG, but only a tiny percentage (9%) really comprehend it. However, a large proportion of respondents (31%) are entirely unknowledgeable of ESG.

Further observation finds that among the 31% respondents work for local SMEs, with only one worker representing a multinational corporation (MNCs) falling into this group. Similarly, the bulk of the 60% who have heard of ESG work for local SMEs, with a minority working for MNCs and government-linked companies (GLCs). This shows that larger businesses, such as MNCs and GLCs, have a higher level of ESG knowledge and comprehension than local SMEs.

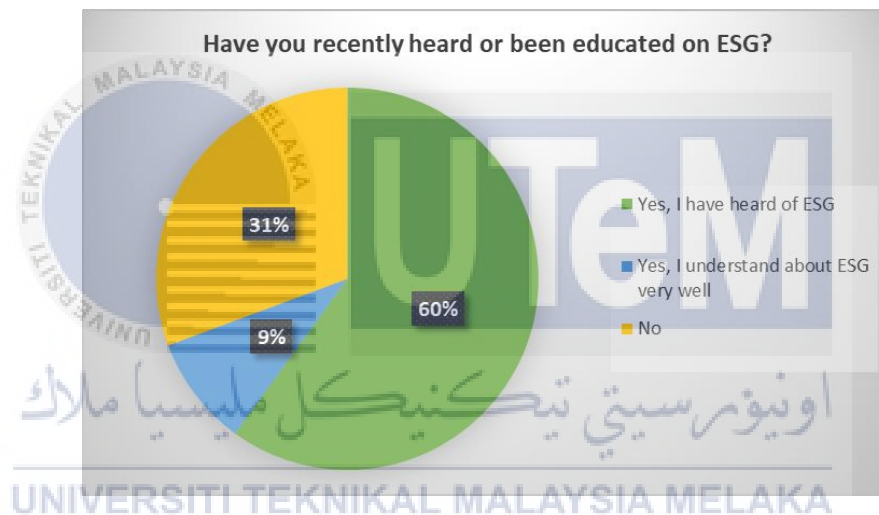


Figure 16. The feedback on the awareness towards ESG.

The feedback gives the opposite results from a survey conducted by Alliance Bank Malaysia 2023 which showed only 14% of Malaysian businesses have come across the term 'ESG', while the other 86% have not. This slight of an improvement could be due to the government's initiative in educating Malaysians and companies on ESG through NIMP 2030.

Nevertheless, over 49% respondents which consist of all SMEs workers claimed that they have not been given a training or the opportunity to participate in ESG and sustainability related activity by their company on how to consider ESG issues in decision-makings, as per illustrated in Figure 17.

This supports the survey in The Open University's report which revealed that roughly a 30% of local SMEs do not offer training. Many local SMEs may lack the financial means as implementing ESG standards frequently considers initial investments in training. This could result in many companies giving lip service to studying ESG principles to promote ESG compliance, but the vast majority of them are unable to practice what they preach (Lee, 2023).

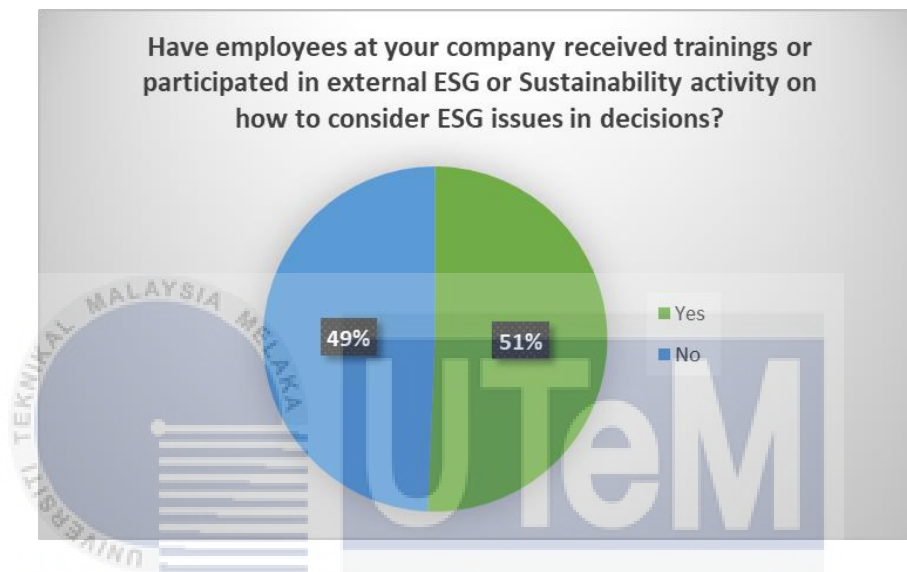


Figure 17. The feedback on their participation in external ESG and sustainability activity on how to consider ESG issues in decision.

4.2.2 Part 1: Environmental

Although most of the companies were not familiar with 'ESG' as per discussed in 4.4.1, they have actually been implementing ESG on their own terms unconsciously (Alliance Bank, 2023), despite the dearth of knowledge among them about the significance of ESG. From the feedback shown in Figure 18, it is observed that most of the companies have adopted energy saving, waste recycling, and management of environmental system as their measures to reduce environmental impact, alongside other ways.

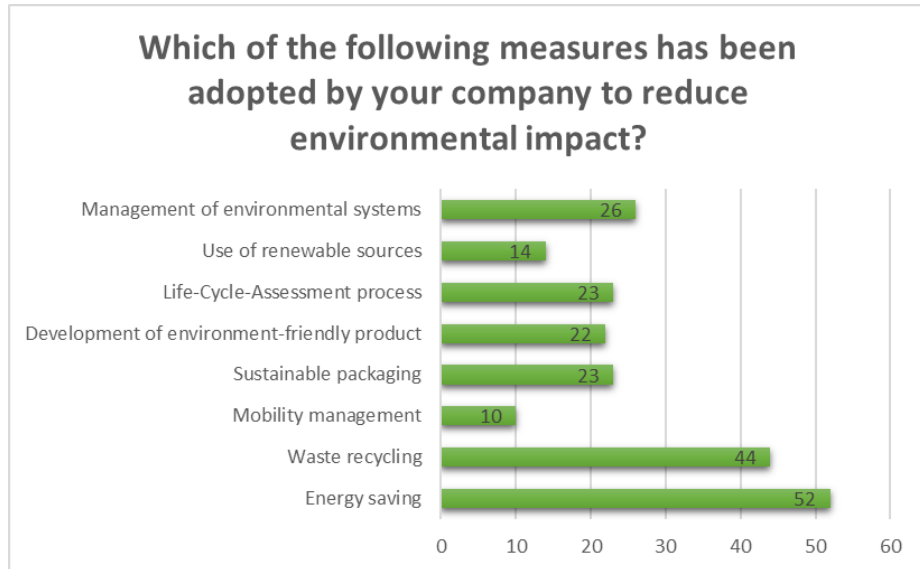


Figure 18. The feedback on the environmental practices that companies have adopted to reduce environmental impacts.

Additionally, the percentage of the measures is also supported by the second feedback on environmental in which the respondents opted that their company's policy cover areas such as energy consumption and greenhouse gas emissions (42%), natural resources management and waste reduction (23%), responsible chemical management (15%), air quality (9%), and water quality and consumption (7%) as per illustrated in Figure 19. This shows that these companies in Malaysia do concern about their impact to the environment from their business practices.

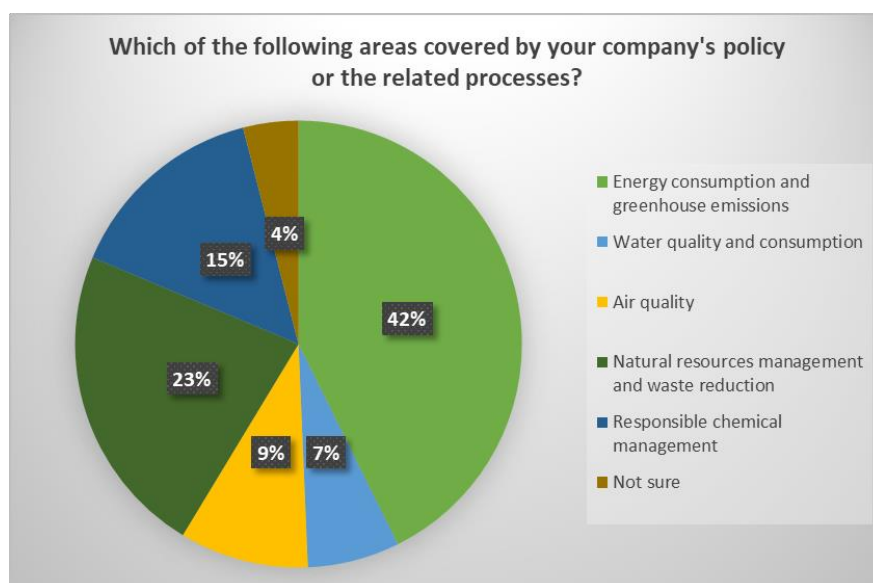


Figure 19. The feedback on the areas covered by company's policy or the related processes and working procedures.

This aligns with the government's strategy to implement energy efficiency measures and embrace renewable energy which would cut carbon emissions while saving money in the long run (MITI, 2023). The techniques include decommissioning old equipment and replacing it with new, less power-intensive equipment, as well as establishing energy management systems.

This is also due to the country faces enormous environmental concerns, such as deforestation, air and water pollution, and waste management issues. In this case, technological solutions, such as waste-to-energy facilities and improved recycling systems, are being investigated to solve these concerns (Department Of Environmental, 2020). From the general survey conducted, it shows that 98% of the respondents agree with DOE and hope for a technological solution, as per strategized by the government last year.

To tackle the ever-increasing generation of wastes in Malaysia, over 34% of the respondents suggest that the capacity of waste recycling in Malaysia should be increased and another 35% of them urge that community involvement should be prioritised to treat at the source of generation. The ratings are also followed by putting charges on wastes generated per individual (19%), generating less waste (11%), and organizing collaborative partnerships across every company sector as shown in Figure 20. This really explains that the public knowledge of environmental concerns in Malaysia has been developing, with a growing number of individuals supporting sustainable practises and legislation (WWF-Malaysia, 2022).

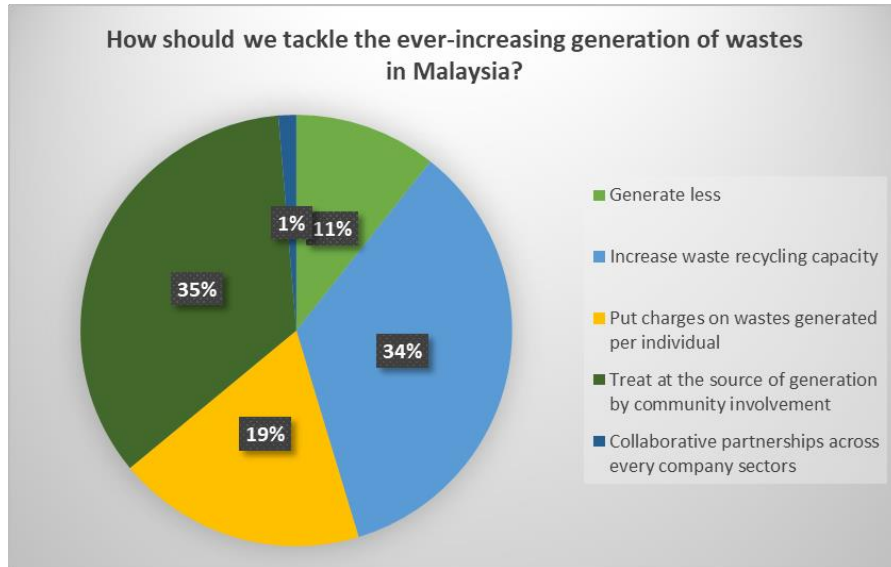


Figure 20. The feedback on how companies should tackle the ever-increasing generation of wastes in Malaysia.

However, Malaysia's waste recycling rate is rather low, and there is an urgent need to improve recycling infrastructure to properly handle the rising volume of waste (SWCorp Malaysia, 2021). As illustrated in Figure 21, about 13% respondents think that the solid wastes in Malaysia should be managed by the municipal corporations and other government departments but also 11% respondents believe that individuals, households, and the societies should be responsible for the management. Overall, most of them (75%) think that all parties mentioned including private companies should be held accountable for managing the solid wastes.

This supports a claim made by the UN Development Programme (UNDP) Malaysia that says community engagement is critical for successful waste management. Initiatives that include communities in waste sorting and recycling at the source have demonstrated promising outcomes in increasing recycling rates (UNDP, 2019).

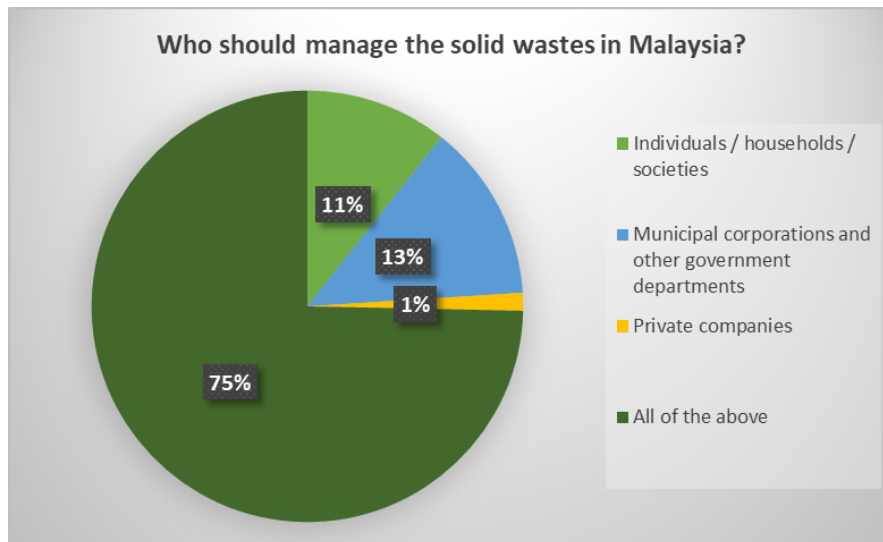


Figure 21. The feedback on who should manage the solid wastes in Malaysia.

4.2.3 Part 2: Social

It is observed that the problems that the respondents' companies have recently faced were employee safety (35) and overtime (35) as illustrated in Figure 22. With over 30 respondents as well voted for fair salary issues at their company. This is followed by irregular work (24), children work (6), and women rights (6).

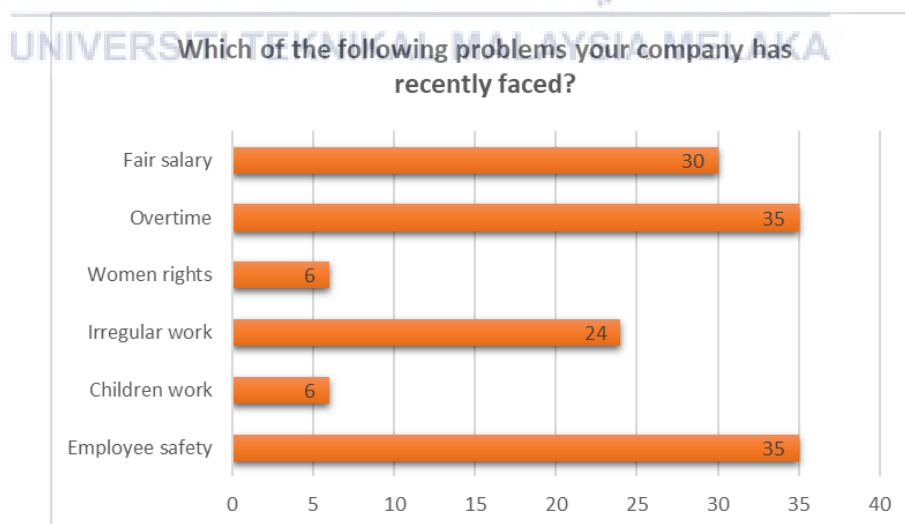


Figure 22. The feedback on the problems their companies have recently faced.

The reason for their concern on working overtime is due to burnout (58), which then would affect their health (34) and decreases their productivity (30) at work. When their productivity decreases, they would be less satisfied (28) with their overall job performance and would potentially cause ‘occupational injury’ especially for workers that have their safety at risk.

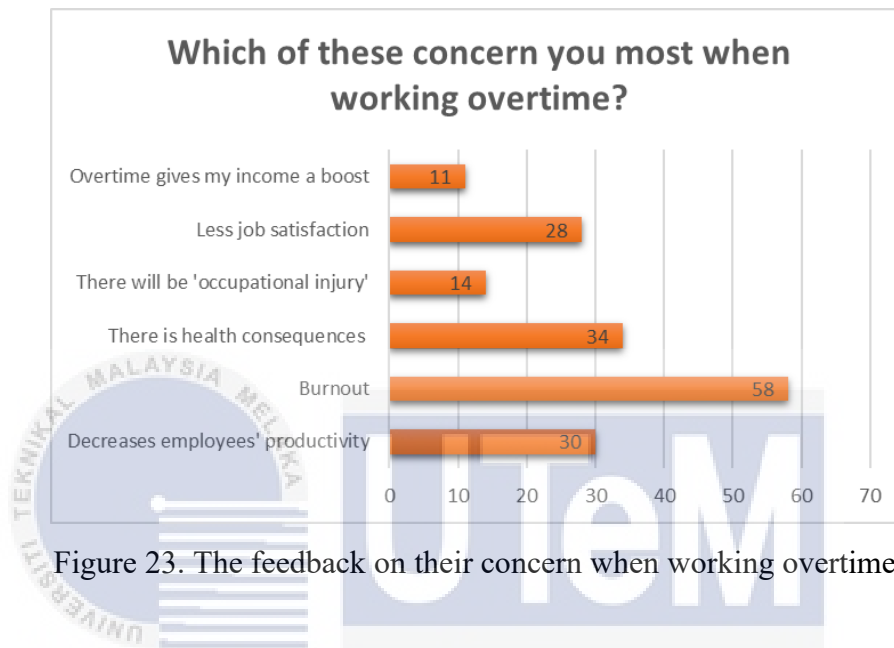


Figure 23. The feedback on their concern when working overtime.

These findings are consistent with previous research, which shows that worker safety and lengthy working hours remain major challenges in Malaysia's diverse sectors, notably manufacturing and services (International Labour Organization, 2020). Irregular work is common, and there are continuous initiatives to combat child labour, particularly in informal industries (UNICEF Malaysia, 2018). Despite advancements, gender discrimination and abuses of women's rights continue to be documented throughout industries (KPWKM, 2021).

On a side note, there are also 11 respondents who believe that working overtime would increase their profit of the month. This is relatable to Malaysian workers express discontent with their pay, which frequently do not cover the cost of living, particularly in metropolitan areas (World Bank, 2019).

According to 83% respondents, their companies already have a written policy in place for working conditions and human rights issues, which complies with Malaysia’s law, industry requirements and international standards. However, there are about 17%

which do not, as illustrated in Figure 24. The policies that are already in place for the employees are health and safety (46), wages and benefits (45) working hours (42), harassment (22), and non-discrimination (22) as shown in Figure 25 which complements ESG principles.



Figure 24. The feedback on their management system to manage working condition and human rights issues.

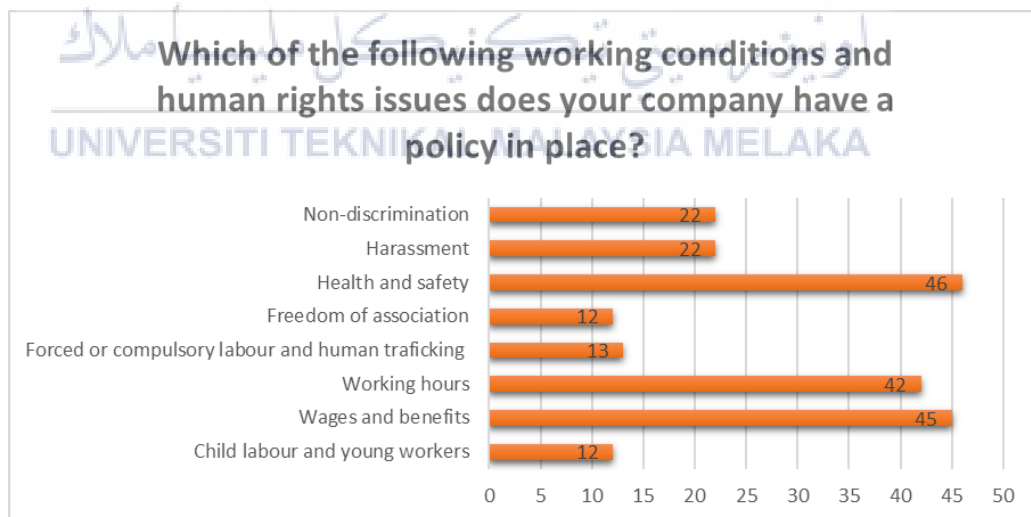


Figure 25. The feedback on the policies that are in place within their organization.

This supports a statement by UN Global Compact Malaysia in 2022 that says Malaysian companies are rapidly recognizing the importance of ESG principles, and their ESG strategies incorporate regulations on health and safety, pay, working hours,

harassment, and non-discrimination. The results are consistent with larger studies showing that many organizations in Malaysia have developed written policies on working conditions and human rights, conforming with local legislation, industry norms, and international principles. Health and safety, pay, and benefits are essential components of workplace rules. Many organizations strive to satisfy both regulatory standards and international best practices (DOSH, 2020).

Next, the respondents also agree that diversity in workplace is important for the sustainability of their business, with over 86% of them claimed that their companies have started practicing gender equality or diversifying their social demographics. Workplace diversity is widely regarded as crucial for company sustainability since it encourages innovation and demonstrates a commitment to social responsibility (WAO, 2021). The rest of the respondents claimed that their companies have not started practicing diversity and equality with half of them thinking that gender equality is not necessary for sustainability as shown in Figure 26.

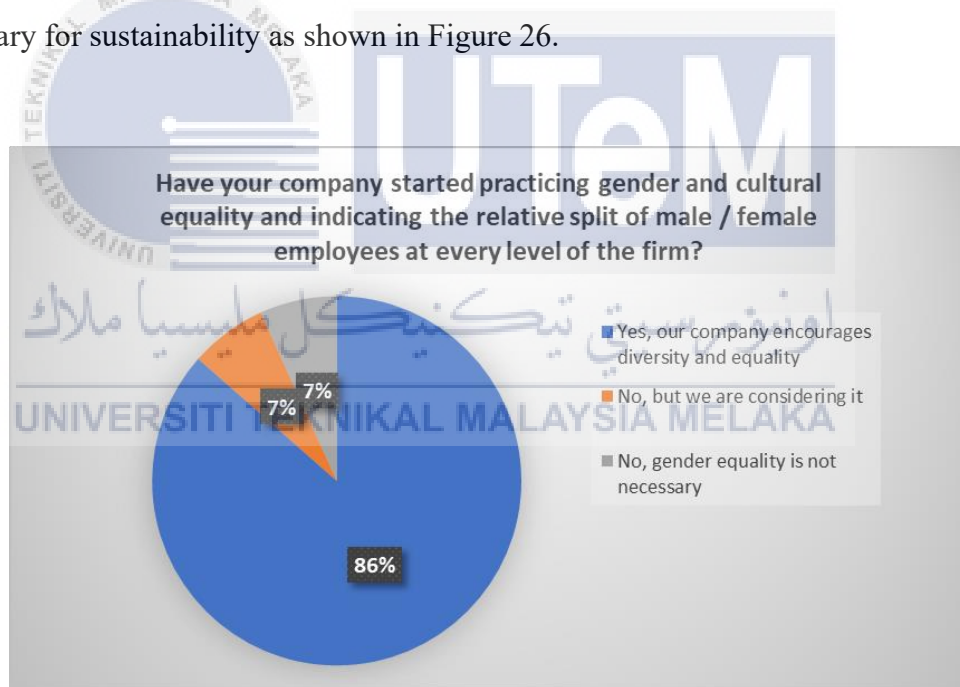


Figure 26. The feedback on gender equality and diversity at their workplace.

Furthermore, employee’s development programmes are critical for personal and professional advancement, with most Malaysian businesses investing in training to improve their employees' abilities, according to Malaysian Institute of Human Resource Management. Based on the feedback received, about 16% respondents claimed that their companies do not organise training programmes for employees’ personal and

professional development, which means the other 86% of them are committed with their employees' professional growth which complements ESG practices.

4.2.4 Part 3: Governance

It is observed that most of the respondents (92%) claimed that their respective companies have a formal policy in place regarding business ethics, and only 8% of them do not as per illustrated in Figure 27.

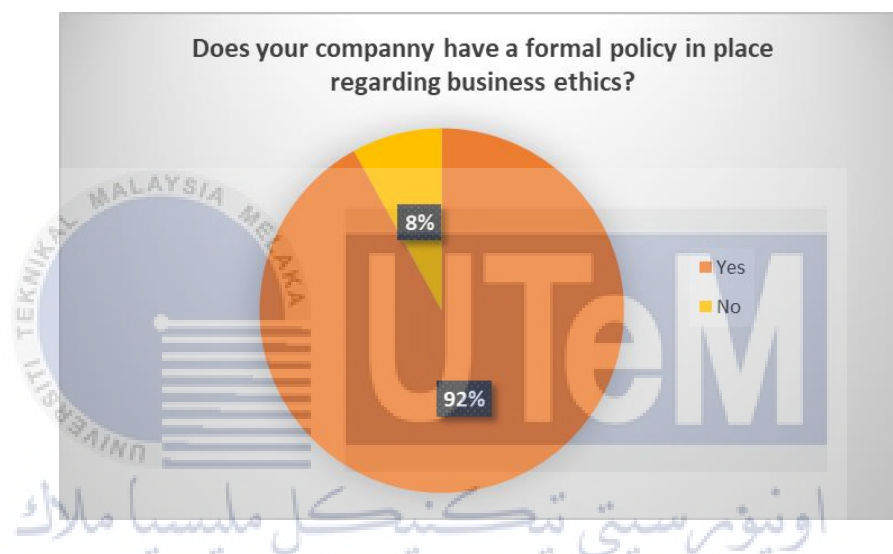


Figure 27. The feedback on the relevance of professional ethics in progressing their sustainability reporting.

Based on the survey, most of the respondents agree that the same level of assurance and relevant ethics and independence standards that apply to financial information should also be applied to sustainability information. This is because professional ethics are increasingly recognized as critical to developing sustainability reporting because they provide openness, accountability, and stakeholder confidence (MIA, 2021).

For greater transparency to the market in which their business operates, 55 respondents claimed that their company provide clear information about their products and services. The important practices are followed by doing investigation about customer's satisfaction (49), selection and evaluation of suppliers (38), registration of complaint by customers (27), and supply chain control (26), and code of conduct for suppliers (23) as illustrated in Figure 28.

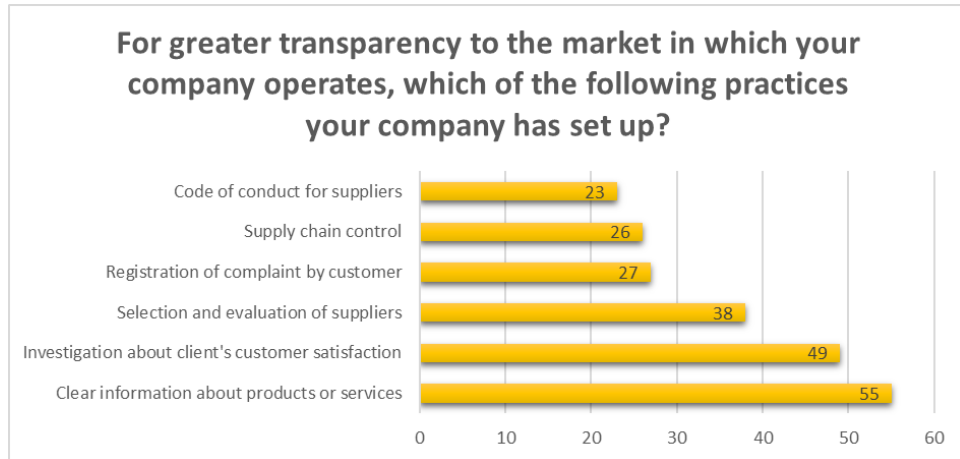


Figure 28. The feedback on the sustainable governance practices that their company has set up.

These supports the studies which demonstrate that openness in corporate operations is critical for establishing trust and maintaining consumer loyalty. Many Malaysian businesses are progressively giving comprehensive information about their products and services to the market (TIM, 2020). Implementing a code of conduct for suppliers helps guarantee ethical behaviour and adherence to standards across the supply chain (ETI, 2020) which is also practiced by most of the companies.

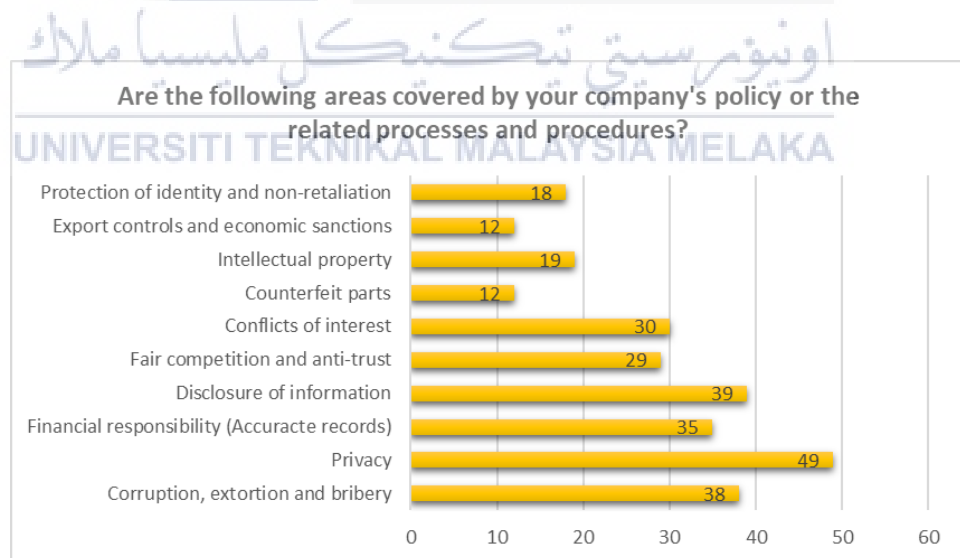


Figure 29. The feedback on the areas covered by their company's policy.

Moreover, when those practices are set up for maintaining transparency in their business, it is also crucial for companies to have some areas covered by their policy or the related processes and procedures. Based on the survey results in Figure 29, over 49

respondents picked 'Privacy' as the protected area by their company. Privacy protection is a key concern for enterprises in Malaysia, with many organizations having thorough privacy policies to preserve consumer and employee data. (PDPD, 2021).

This is followed by disclosure of information (39) which transparency in the disclosure of information is essential for maintaining trust and accountability in business operations (TIM, 2020). Next, corruption and bribery (38) which is currently being strengthened through stringent laws and corporate policies, financial responsibility (35), conflicts of interests (30), intellectual property (19), protection of identity and non-retaliation (18), counterfeit parts (12) and export controls (12). Companies are progressively implementing strategies to avoid counterfeit components and comply with export restrictions to maintain product integrity and regulatory compliance (FMM, 2018).



4.3 Results of the interview

The interview comprised speaking with a representative from Armstrong Auto Parts Sdn. Bhd., and two representatives from PROTON Tanjung Malim Sdn. Bhd.

The representative from Armstrong Auto Parts is positioned as Assistant Manager of the production department. Whereas the other two representatives from PROTON is the Assistant Manager (Head of Technical Quality Painting) who is also a licensed Technologist, and Manager (Warehouse and Inventory) with a master's in business administration background. All three representatives have considerable expertise and a strong background in the automotive manufacturing industry.

According to Armstrong Auto Parts, the company has started taking initiatives to keep up with the industry trends since November 2023 after the launch of MITI's NIMP 2030. The initiatives include educating their employees of all levels on the enhancements of ESG. PROTON Tanjung Malim on the other hand has long started their sustainability initiatives.

4.3.1 Key priorities for environmental concern

4.3.1.1 Energy consumption and efficiency

Table 4.2 below summarises the sustainable initiatives for the first key priority for environmental, which is energy consumption and efficiency.

Table 4.2

The summary of the interviews feedback on energy consumption and efficiency.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjung Malim Sdn. Bhd.
Energy consumption and efficiency	<ul style="list-style-type: none"> i. Monitor employees' travel distance and fuel consumption. ii. Replaced normal switches to sensor-based switches for energy efficiency. iii. Adhere to company's policy on setting the air 	<ul style="list-style-type: none"> i. Implement key performance indicators (KPIs) to track and optimize energy usage. ii. Replaced normal switches to sensor-switches for energy efficiency. iii. Adhere to company's policy on setting the air

	conditioning (AC) units above 23°C. iv. Regularly turn off and unplug unused electrical devices.	conditioning (AC) units above 23°C. iv. Industrial fans installation to improve energy efficiency. v. Recently turn off and unplug unused electrical devices. vi. Solar panels installation at their plant and parking lots.
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One of the main initiatives that Armstrong Auto Parts Sdn. Bhd. has taken since is conducting a survey on their employees' travel distance and fuel consumption from travelling back and forth to their workplace. This survey is conducted to assess the environmental impact that their employees have towards the environment as travelling by car greatly increases a company's carbon footprint. Companies that measure travel distances and fuel usage can identify high-impact areas and take action to decrease GHG emissions (WEF, 2021). Monitoring these variables enables companies to implement more sustainable practices, such as encouraging carpooling, remote work, or public transit.

PROTON Tanjung Malim on the other hand implements effective key performance indicators (KPIs) to track and optimize their energy usage. This KPI tracks the amount of energy spent per unit of output generated. Setting objectives to minimize energy consumption per unit allows manufacturing organizations to uncover inefficiencies in their production processes and adopt energy-saving initiatives (MIDA, 2021).

In terms of energy consumption, they both are consistent with SDG 7 by switching from using normal switches to sensor-based switches for energy efficiency. Sensors, such as motion or occupancy sensors, turn lights on when motion is detected and turn them off after a certain amount of time. This guarantees that lights and gadgets are only turned on when necessary, decreasing energy usage (Sarkisian, 2016).

They both also have a policy in place on setting the air conditioning (AC) units above 23°C. This is because AC units use a lot of power, especially when indoor temperature is much lower than the outside temperature. Setting air conditioners to 23°C or higher can drastically cut energy use. According to energy experts, each degree

rise in AC temperature can reduce energy use by 3-5% (Kuek, 2023). This practice aligns with SDG 13 which focuses on taking immediate action to prevent climate change.

Besides that, PROTON Tanjung Malim have industrial fans installed at their plant to improve energy efficiency. Industrial fans increase air circulation and ventilation in production environments. This minimizes the need for energy-intensive air conditioning systems, resulting in decreased energy usage and power bills (MIDA, 2021). According to Sustainable Energy Development Malaysia, industrial fans assist to regulate the indoor atmosphere, which is critical for both machinery and staff comfort. This can lead to higher productivity and lower cooling costs because fans use less energy than traditional cooling systems.

This practice is also followed by turning off and unplugging unused electrical devices since unplugged devices can lead to significant energy consumption over time. Many electrical devices continue to consume power even after they are switched off but remain plugged in, a phenomenon known as "standby power" or "phantom load." (Mundorf, 2023). Both of the companies are complimenting SDG 12 "Responsible Consumption and Production" for reducing energy consumption and waste.

Moreover, PROTON is advancing SDG 7 "Affordable and Clean Energy" by successfully introducing solar panels at over 2880 parking lots which generate energy from both direct and reflected sunlight. This sustainable initiative has reduced the plant's CO₂ emissions by 32,406 tonnes, exceeding its initial forecast target of 11,536 tonnes per year (PROTON, 2024). Thus far, the use of renewable energy has produced 45.78 GWh and decreased the facility's power costs by 11% in 2023, saving more over RM10 million since its inauguration. This has strengthened PROTON's commitment to maintaining a greener, cleaner operational environment. This also aligns with Malaysia's goal to cut carbon emissions by 45% in 2025 and 60% in 2035.

4.3.1.2 Water consumption

Table 4.3 below summarises the sustainable initiatives for the second key priority for environmental, which is the water consumption.

Table 4.3
The summary of the interviews feedback on water consumption.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjung Malim Sdn. Bhd.
Water consumption	i. Rainwater harvesting for toilet use.	i. <i>Recommend rainwater harvesting for toilet use.</i>

Recently, Armstrong Auto Parts has started harvesting rainwater for their toilet use as it decreases their reliance on municipal water sources, resulting in considerable savings on water costs. Rainwater may be utilized for non-potable uses including cooling, irrigation, and cleaning (Praveena, 2019). In this case, the company use the harvest water for toilet flushing and other personal applications. Implementing rainwater harvesting systems demonstrates a dedication to sustainability (Rodriguez, 2024). This practice supports ecological balance by recharging groundwater and maintaining biodiversity, while also reducing the load on natural water supplies (Parker, 2023).

The representatives of PROTON Tanjung Malim as well suggest rainwater harvesting is a good practice towards sustainability. This suggestion complements Armstrong Auto Parts' sustainable practice to save on wastewater, and also aligns with SDG 6 which the objective seeks to guarantee the availability and sustainable management of water and sanitation for everybody.

4.3.1.3 Waste management

Table 4.4 below summarises the sustainable initiatives for the third key priority for environmental, which is waste management.

Table 4.4
The summary of the interviews feedback on waste management.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjong Malim Sdn. Bhd.
Waste management	<ul style="list-style-type: none"> i. Implement recycling programme to separate every wastes according to their categories. ii. Adopt Ultrasonic machine technology in their production process. 	<ul style="list-style-type: none"> i. Implement recycling programme to separate every wastes according to their categories. ii. Sell manufacturing scraps for revenue streams.

At both of the companies, recycling programme is being implemented where they separate every wastes according to their respective categories, such as papers and plastics to fulfil their environmental responsibility. Recycling initiatives assist to decrease waste generated by manufacturing operations, lowering pollution and conserving natural resources (Johnny, 2024). This programme has been practiced at the company for years, as it also contributes to a positive corporate image and reputation by complementing SDG 12 which to minimize waste generation.

Additionally, the 12th sustainable goal is further enhanced by PROTON Tanjong Malim which the company sells their manufacturing scraps such as wood to the furniture manufacturers. Selling manufacturing leftovers generates their revenue stream. Instead of throwing away those scraps, PROTON Tanjong Malim benefit by selling them to other companies who can utilize them as raw materials. According to the United States Environmental Protection Agency, manufacturers limit the quantity of garbage they generate by selling scraps. This not only reduces disposal expenses, but it also conforms with environmental rules and sustainability goals, allowing businesses to reduce their environmental effect.

Besides that, waste in industrial processes directly leads to increased production costs. Companies may reduce their raw material, energy, and trash disposal costs by implementing waste-reducing technology (Cherrett, 2004). Armstrong Auto Parts has adopted Ultrasonic machine technology in their production process, as Ultrasonic technology enables for more accurate control over the production process, which means

less material is wasted due to imprecise process (Zhou, 2019). Furthermore, Ultrasonic machines are often more energy efficient than conventional manufacturing because they work at lower temperatures and use less electricity. Reduced energy usage not only decreases operating expenses, but also reduces their environmental effect of energy production and consumption.

4.3.1.4 Materials used

Table 4.5 below summarises the sustainable initiatives for the fourth key priority for environmental, which is the materials used.

Table 4.5
The summary of the interviews feedback on materials used.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjung Malim Sdn. Bhd.
Materials used	i. Replaced kerosene solvent with water-based solvent to remove rust from metal surfaces.	i. Use Regenerative Thermal Oxidizer (RTO) systems during vehicles drying process.

Previously, Armstrong Auto Parts used kerosene as a solvent to remove rust from metal surfaces. It works by dissolving and releasing the rust on the metal's surface, making it simpler to remove. Kerosene was used for this purpose since it is relatively mild and less aggressive than certain other solvents, lowering the danger of harming the metal beneath the rust, besides its wide availability and reasonable price. However, Kerosene is a fossil fuel that pollutes the air and water, as well as emits GHG (WHO, 2019). According to Agency for Toxic Substances and Disease Registry, exposure to kerosene can be hazardous to one's health, especially when used inside without enough ventilation. Long-term kerosene exposure has been related to major health problems, including neurological and developmental damage.

In this case, Armstrong Auto Parts Sdn. Bhd. has successfully replaced kerosene with water-based materials. Water-based products are a more sustainable and ecologically responsible solution for rust removal than kerosene-based solvents. They

have effective rust-removal qualities while reducing detrimental effects on human health and the environment. Water-based rust removers often contain biodegradable chemicals, which are designed to limit the discharge of hazardous compounds into the air and water, hence lowering overall environmental effect (Chen, 2016).

At PROTON Tanjung Malim, new produced vehicles are dried in ovens, where the presence of volatile organic compounds (VOCs) and other gases is an important concern. According to them, these gases, often known as ROI (Residual Organic Impurities) or similar designations, cannot be simply discharged into the atmosphere due to their environmental and health implications. Untreated ROI gas, which contains VOCs and HAPs, causes serious health concerns to workers and the surrounding populations (OSHA, 2020). When exposed to these substances, workers may get breathing difficulties, skin irritation, and other major health concerns.

To overcome this issue, Regenerative Thermal Oxidizer (RTO) systems is used during the process, especially to regulate and eliminate VOCs and other harmful pollutants. RTO systems are particularly effective at destroying VOCs and other organic pollutants produced by activities such as vehicles drying and painting. They produce high destruction efficiency rates, frequently surpassing 99%, resulting in considerable reductions in hazardous emissions into the atmosphere (EPA. 2020).

Both of these practices are contributing to SDG 12 and SDG 13 which aims to minimize the generation of waste and pollutions from manufacturing activities, which helps to reduce greenhouse gas emissions and enhance air quality.

4.3.1.5 Products and services

Table 4.6 below summarises the sustainable initiatives for the fifth key priorities for environmental, which is the products and services.

Table 4.6
The summary of the interviews feedback on products and services.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjung Malim Sdn. Bhd.
Products and services	i. Ramp up for EVs production.	i. Ramp up for EVs production.

As the automotive industry accelerates its transition to EVs, Armstrong Auto Parts and PROTON Tanjong Malim are preparing production capacity to satisfy rising demand for EVs aligning with the NAP2020. They are integrating modern technology and expanding their supply networks to enable EVs production.

This technology transition in automotive is enhancing SDG 9 “Industry, Innovation and Infrastructure” as it focuses on creating resilient infrastructure, supporting equitable and sustainable industry, and encouraging innovation, including the research and manufacture of innovative and sustainable mobility technology. As EVs help lower greenhouse gas emissions, it is also contributing to SDG 13 “Climate Action”.

According to National Renewable Energy Laboratory, EVs have the potential to lessen reliance on finite fossil fuel resources like oil and gas, which are volatile in price and prone to geopolitical conflicts. Furthermore, advances in battery technology are improving the recyclability and sustainability of EV batteries, therefore adding to resource conservation initiatives. Additionally, EVs emit fewer greenhouse gases than traditional internal combustion engine vehicles, especially when fuelled by renewable energy sources like solar or wind, according to International Energy Agency.

4.3.2 Key priorities for social concern

4.3.2.1 Workplace health and safety

Table 4.7 below summarises the sustainable initiatives for the first key priority for social, which is the workplace health and safety.

Table 4.7
The summary of the interviews feedback on workplace health and safety.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjong Malim Sdn. Bhd.
Workplace health and safety	i. Equip employees with personal protective equipment (PPE).	i. Equip employees with personal protective equipment (PPE).

	<ul style="list-style-type: none"> ii. Provide wellness initiatives to employees. iii. Report hazards and keep accidents on record. 	<ul style="list-style-type: none"> ii. Provide counselling services and wellness initiatives to employees. iii. Report hazards and keep accidents on record. iv. Adopt automated guided vehicle (AGV) technology.
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In terms of health and safety, both Armstrong Auto Parts and PROTON Tanjong Malim equip employees with PPE for the safety of their employees. PPE protects workers against sharp objects, noise, flying debris, and chemical spills, protecting their safety and well-being. Investing in PPE, while initially pricey, has long-term economic advantages by reducing accidents and assuring consistent output (FMM, 2020). It is also a regulatory compliance as the government maintains strong occupational safety rules through institutions such as Department of Occupational Safety and Health (DOSH) which requires the use of suitable PPE to protect employees from occupational hazards.

Additionally, they are also advancing the good health and well-being of their employees (SDG 3) by providing wellness initiatives such as health screenings and mental health assistance that contribute to their overall well-being as it may boost energy and improve overall job performance. According to Malaysian Employers Federation, healthy workers are more productive and perform better, and companies profit from increased efficiency and quality of work.

At PROTON Tanjong Malim, they enhance their employees' safety (SDG 8) by using Automated Guided Vehicles (AGV) in their warehouses. According to OSHA, AGVs lower the likelihood of accidents caused by human error. They are outfitted with sensors and navigation systems that allow them to avoid obstacles and work safely alongside humans, therefore reducing industrial accidents. This is also PROTON's initiative to reduce risks of the workers from carrying heavy loads, that could possibly trigger musculoskeletal disorders.

Keeping records of workplace accidents and dangers is vital within both companies, besides for legal compliance. This is because, detailed records make it easier to spot patterns and trends in workplace accidents and dangers. By examining this information,

the company could identify reoccurring concerns and apply specific risk-mitigation actions, ultimately enhancing worker safety. Based on Malaysian rules and regulations, OSHA Act 1994, it requires the documentation and reporting of workplace accidents and risks. Maintaining correct records helps that companies meet these regulatory standards and avoid potential penalties or legal action (OSHA, 1994) and prevent future accidents.

4.3.2.2 Training and education

Table 4.8 below summarises the sustainable initiatives for the second key priority for social, which is training and education.

Table 4.8
The summary of the interviews feedback on training and education.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjung Malim Sdn. Bhd.
Training and education	<ul style="list-style-type: none"> i. Employees' involvement in HRDCorp Claimable Programme. ii. Provide required training and upskilling programme to employees for relevant certifications. 	<ul style="list-style-type: none"> i. Employees' involvement in HRDCorp Claimable Programme. ii. Provide required training and upskilling programme to employees for relevant certifications.

Both companies engage their staff in HRD Corp (Human Resource Development Corporation) claimable programmes. These programmes provide several benefits that are consistent with the companies' objectives of strengthening personnel skills, increasing productivity, and remaining competitive in a continuously changing industrial context. HRD Corp claimable programmes offer systematic training to assist employees learn new skills and improve existing ones.

Alongside the programmes, the companies also provide other external or internal training opportunities to the employees for getting certified in the relevant skills to their industry. Employees with current credentials have the skills and expertise to complete their duties more efficiently (ILO, 2020). This minimizes mistakes, downtime, and the

need for rework. Besides that, upskilling certifications are also beneficial for the professional growth of the employees where they can have career advancement. According to Malaysian Institute of Human Resource Management (MIHRM), certifications offer employees with the credentials they need for professional progress and promotions, which boosts workplace satisfaction and drive.

PROTON Tanjung Malim assists their employees obtain certifications relating to EVs manufacture. This includes training on new technology, safety standards, and environmental requirements, ensuring that their crew is ready for the transition to EV manufacturing. This is critical for keeping up with the newest industry trends and innovations.

This sustainable practice is enhancing the “Quality Education” (SDG 4) by delivering accessible and equitable quality education while also encouraging lifelong learning opportunities for all. In addition, it also supports long-term, sustainable economic growth, full and productive employment, and decent work for all, by improving skills and offering chances for employee development (SDG 8).

4.3.2.3 Diversity and equal opportunities.

Table 4.9 below summarises the sustainable initiatives for the third key priority for social, which is diversity and equal opportunities.

Table 4.9
The summary of the interviews feedback on diversity and equal opportunities.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjung Malim Sdn. Bhd.
Diversity and equal opportunities	<ul style="list-style-type: none"> i. Workforce diversity regardless of race, religion, gender etc. ii. Provide Employees Suggestion Scheme. 	<ul style="list-style-type: none"> i. Workforce diversity regardless of race, religion, gender etc. ii. Collaborate with big and small businesses within the supply chain.

According to Boston Consulting Group, having a varied staff allows organizations to better understand and serve to foreign markets. Employees with diverse origins can

offer insights into other cultures and customer preferences. However, due to the area where PROTON Tanjong Malim is located at, the majority of their employees are consisted of Malays. The workforces that they have working for their production are also male employees due to manufacturing risks association. Nevertheless, they do not have discriminations towards any kind of social demographics and empowers female rights, as their engineers and other superior positions are also gender diverse. According to Armstrong, gender discrimination is a point of concern by the board of directors themselves. They also practice gender and race diversity among labour workforces to their top managements and board of directors (SDG 10).

As equal opportunities are important, Armstrong Auto Parts provide Employees Suggestion Scheme to their employees for reducing inequalities at their workplace (SDG 10) which the employees can suggest their ideas on programmes that they find beneficial to the company, such as the environmental campaigns. Equal opportunities guarantee that all employees are treated equally and evaluated based on their ability and performance, rather than their gender, ethnicity, age, or power (EEOC, 2021). This results in increased levels of productivity and work satisfaction. This practice also promotes a sense of belonging to the employees.

Although PROTON Tanjong Malim is a well-established company in automotive manufacturing industry, they still provide collaborative opportunities to the other smaller local SMEs as one of their approaches towards equal opportunities (SDG 10) within their supply chain. According to International Trade Centre, collaborating with small enterprises fosters economic development and inclusivity by providing them with growth possibilities. This benefits local economies and promotes a more equal distribution of income. MITI also says that working with a combination of huge businesses and small SMEs results in a more resilient supply chain.

4.3.2.4 Labour practices

Table 4.10 below summarises the sustainable initiatives for the fourth key priority for social, which is labour practices.

Table 4.10
The summary of the interviews feedback on labour practices.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjong Malim Sdn. Bhd.
Labour practices	<ul style="list-style-type: none"> i. Limit working overtime on every employee. ii. Establish a committee or union for the employees. iii. Provide working conditions that adhere to labour law. iv. Organise intervention between employees and top managements. 	<ul style="list-style-type: none"> i. Limit working overtime on every employee. ii. Establish a committee or union for the employees. iii. Provide working conditions that adhere to labour law. iv. Organise intervention between employees and top managements.

In terms of labour practices, both Armstrong Auto Parts and PROTON Tanjong Malim are advancing the “Good Health and Well-being” of their employees again (SDG 3) which they set overtime limitation for the employees. According to Malaysian Employment Act 1995, the total number of overtime hours should not exceed 104 hours in any month, which the average overtime should not exceed 104 hours over a 3-month period. Limiting overtime helps to avoid employee burnout and tiredness, which can lead to physical and mental health problems (ILO, 2020). This also shows that both companies provide working conditions that adhere to labour law.

Besides that, they also have internal employees’ union or committees that protects and promotes fair labour practices of the employees. Employee unions use collective bargaining to negotiate pay, benefits, and working conditions on behalf of its members. They also improve communication between employees and management, encourage fair treatment, and fight for workers' rights. Through this union as well, employees are able to have direct interventions with the top managements, which for PROTON Tanjong Malim happens monthly.

4.3.2.5 Affected communities and services

Table 4.11 below summarises the sustainable initiatives for the fifth key priority for social, which is the affected communities and services.

Table 4.11
The summary of the interviews feedback on affected communities and services.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjung Malim Sdn. Bhd.
Affected communities and services	i. Regularly organise corporate social responsibility (CSR) programmes.	i. Regularly organise corporate social responsibility (CSR) programmes.

The companies prioritize the concerns of affected communities and services in which their companies operate. Apart from other related initiatives such as proper environmental and social management, responsible manufacturing companies take into account the well-being of surrounding populations by supporting local services like education as it boosts social cohesiveness and quality of life (Business for Social Responsibility, 2021). They are actively shooting for SDG 17 which entails working with communities, non-governmental organizations (NGOs), and other stakeholders to solve social, economic, and environmental challenges.

PROTON Tanjung Malim has organised many CSR programmes. Internally, they provide a day care service specially for their employees and fitness classes such as Zumba to the employees. Additionally, they also regularly organise road safety campaigns to the public on the necessity of safe driving habits, the right usage of seat belts, the hazards of drunk driving, and adhering to speed limits. Participating in or financing road safety programs improves their brand reputation as socially responsible businesses concerned with the well-being of their consumers and the community (BSR, 2020).

Armstrong Auto Parts as well is very committed at giving back to the communities. They often collaborate with technical universities in Melaka to educate students on the latest developments of the technology used in automotive industry (SDG 4). Partnering with prestigious institutions improves a company's reputation as a forward-thinking and

supportive employer (Forbes, 2021). It indicates a dedication to education, research, and the training of future engineers.

4.3.3 Key priorities for governance concern

Companies' performance and long-term viability are dependent on good governance standards. Armstrong Auto Parts and PROTON Tanjung Malim demonstrated that strong governance contributes to increased transparency, accountability, and ethical corporate behaviour, which in turn boosts investor confidence, operational efficiency, and long-term sustainability. Table 4.12 below summarises the sustainable initiatives for all the key priorities for governance.

Table 4.12
The summary of the interviews feedback on all key priorities of governance.

KPIs	Armstrong Auto Parts Sdn. Bhd.	PROTON Tanjung Malim Sdn. Bhd.
Board of directors	<ul style="list-style-type: none"> i. Disclose required details of each member including the chairman. ii. Take account of gender equality among board of directors. 	
Organization chart	<ul style="list-style-type: none"> i. Establish accountability for their key performance indicators (KPIs). ii. Diversify organization. 	
Risk management	<ul style="list-style-type: none"> i. Engage with internal and external stakeholders on potential risks and emerging issues. ii. Conduct internal and external audits. iii. State clear company's missions and visions for business continuity. iv. Keep up with current industry standards. 	
Stakeholder relations	<ul style="list-style-type: none"> i. Provide transparent reporting in financial reporting, ESG and sustainability performance. ii. Participate in related associations to influence policy development. 	
Anti-corruption	<ul style="list-style-type: none"> i. Develop code of conduct. ii. Conduct extensive due diligence on third parties to ensure they follow ethical standards. iii. Conduct internal and external audits. 	

Disclosing board details promotes transparency in corporate governance (SDG 16). This practice is essential for both Armstrong Auto Parts and PROTON Tanjung Malim in

promoting transparency and trust among stakeholders. According to Harvard Business Review 2019, providing thorough information about board members fosters confidence among investors, consumers, and stakeholders. It demonstrates the company's commitment to open and honest communication. Furthermore, the disclosure of board details can emphasize the diversity on the board (McKinsey, 2021). Both companies in this case really take accountability of gender diversity (SDG 5) among their board of directors. It promotes their company to prioritize diversity and inclusion in their leadership, which results in improved decision-making and creativity.

This eventually relates to the organization chart of the companies, where it represents clear structure and roles of every position at their companies. Setting KPIs for every employee is a strategic technique that allows Armstrong Auto Parts and PROTON Tanjung Malim to objectively assess performance, assure responsibility, and drive continuous development. This practice is encouraged by Forbes, which they believe that KPIs foster a sense of accountability among employees. Knowing that their performance is being assessed against precise indicators helps employees to take ownership of their job.

Integrating risk management into governance methods allows for better informed decision-making. Understanding the risks associated with various alternatives enables leaders to make more effective strategic decisions (McKinsey, 2019). According to Armstrong Auto Parts, engaging with their external stakeholders (SDG 17) such as customers and suppliers provide distinct perspectives that aid in recognizing hazards that are not immediately obvious. In this case, their customers regularly check their International Organization for Standardization (ISO) certifications for trust and openness.

This is similar for PROTON Tanjung Malim, which they require related operation certifications from their partners to ensure compliance with international standards that contributes to quality and reliability of the operations. An international journal of Production Economics (2021) discusses that working with ISO-certified partners allows manufacturing companies to ensure that their finished goods satisfy high quality requirements, resulting in increased customer satisfaction and fewer returns or complaints which complementing SDG 9. From this practice as well, companies able to combat corruption or bribery due to internal and external audits requirements.

Besides that, Harvard Business Review 2021 also states that a defined sustainability objective and vision drive the company's strategic orientation, as they guarantee that all corporate actions are consistent with sustainability goals, allowing for more informed and focused decision-making. Both companies set objectives and visions for sustainability as it is vital for directing strategic direction, assuring regulatory compliance and risk management. By connecting these statements with core principles, outlining specific targets, they successfully communicate their commitment to sustainability and build a more responsible and profitable business environment, moreover in the recent market trends which is incorporating ESG.



4.4 The developed framework

As stated in Chapter 3, the framework is developed after doing the research regarding the sustainability reporting standards and analysing the sustainable practices that have been practiced at Armstrong Auto Parts and PROTON Tanjung Malim. Their discussed sustainable practices are set as a benchmark for the development of this framework.

Figure 30 shows the overview of the framework, while the full developed framework is attached in Appendix E.

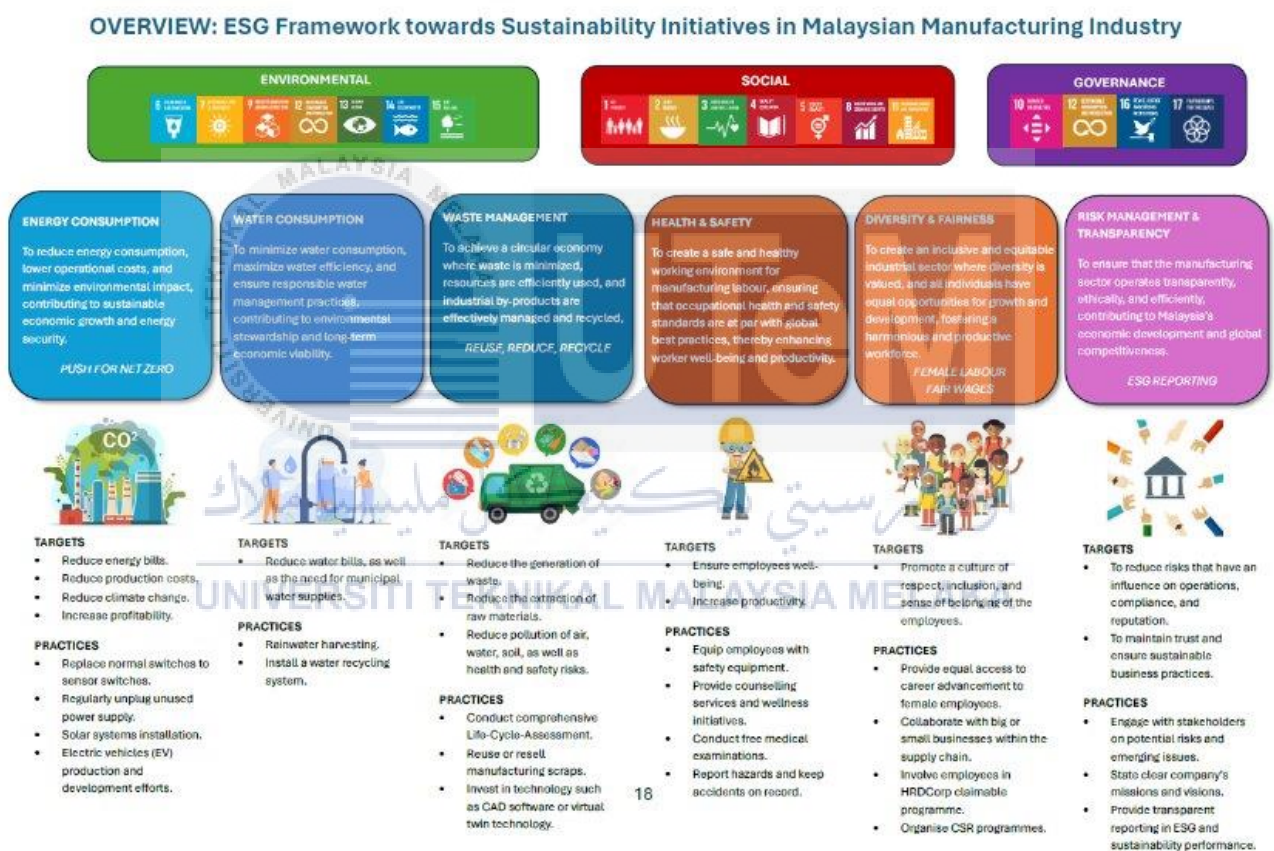


Figure 30. The overview of the developed framework.

4.5 Validation of the developed framework

The developed framework is validated by two sustainability and ESG analysts. One of the validators is an experienced lecturer at Universiti Putra Malaysia (UPM) who is also an ESG and sustainability advocate. Another validator is a certified sustainability reporting specialists with years of experience in sustainability auditing. With their credibility and valuable expertise, it is beneficial for the improvement of this project.

Both experts provided such comprehensive comments on the developed framework, which is attached in the Appendix F and Appendix G, with similar recommendations on a particular proposed sustainable practice which is illustrated in the Figure 31 below.

GUIDELINES FOR ENHANCING ESG PRACTICES

Table below gathers sustainable practices adopted by well-established automotive manufacturing companies that can serve as guidance for other SMEs.






Criteria	Issues	Targets	Approaches	SDGs
Environmental	Energy consumption and efficiency	Reduce energy bills, production costs and increase profitability.	<ul style="list-style-type: none"> Replace normal lamps (incandescent or fluorescent lamps) with LED. Replace normal switches to sensor switches. Keep air conditioner's temperature in between 23°C to 26°C. Regularly turn off or unplug unused power supply. Install industrial fan systems. Install solar systems. 	 
	Water consumption	Reduce water bills, as well as the need for municipal water supplies.	<ul style="list-style-type: none"> Explore alternative water sources such as rainwater harvesting and greywater systems. Install a water recycling system. 	
	Waste management	Reduce the generation of waste, and extraction of raw materials.	<ul style="list-style-type: none"> Reuse, reduce, and recycle materials or production waste. Conduct comprehensive Life-Cycle-Assessment. Resell manufacturing scraps. Adopt Lean Six Sigma or other methodologies to reduce waste. 	 

Figure 31. The proposed guidelines for enhancing ESG practices.

In the twelfth page of the framework, a guideline for enhancing ESG practices is proposed. The second issue is the water consumption which the target is to “reduce water bills”. However, after doing experts consultations, both of the validators suggested that the term “reduce water bills” is changed to “reduce wastewater” instead, same goes to the first issue which the target is to “reduce energy bills”. This is because, the reduction of energy and water bills may not effectively reflect efficiency monitoring, and it will be more

accurate to use intensity metrics, such as energy use per unit of production or water use per square meter, for monitoring purposes.

For key performance indicators (KPIs) for ESG as shown in Figure 32, the validator also suggests that the developed framework referencing GRI and SASB standards as the foundational references as these frameworks are widely recognized and commonly used in Malaysia. However, when in automotive manufacturing context, ISO standards are more applicable and valuable.

KEY PERFORMANCE INDICATORS (KPIs) FOR ESG

Companies may refer to the information provided below for guidance on disclosure.

Criteria	Issues	What to disclose	References
Environmental	Energy consumption and efficiency	<ul style="list-style-type: none"> The energy consumption during the reporting year is broken down by non-renewable and renewable sources in commonly used measurement units. The total reduction in energy consumption achieved through energy-saving and efficiency initiatives. Provide the energy efficiency index, which measures energy usage per product unit. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 302: Energy Sustainability Accounting Standards Board (SASB). Automotive Industry Standards.
	Water consumption	<ul style="list-style-type: none"> The total volume of water used for its main activity during the reporting year, categorized by source type (surface water, groundwater, rainwater, wastewater, utility, and other water supply systems). The impact of the company's consumption on the source of water, biological diversity, state natural reserve fund status, and importance to the local population. The total volume of water reused and its share in total consumption, as well as calculate the water efficiency index (volume consumed per product unit). 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 303: Water and Effluents. Sustainability Accounting Standards Board (SASB). Water Management.
	Waste management	<ul style="list-style-type: none"> The total weight of hazardous and non-hazardous wastes available in the company, their classification, and disposal methods (decontamination, recycling, dumping) during the reporting year. The total weight of hazardous waste carried, imported, exported, and recycled, as well as the percentage of domestic and foreign transportation. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 306: Waste. Sustainability Accounting Standards Board (SASB). Waste Management.

Figure 32. The proposed guidelines on what to disclose in ESG report.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Summary of the main findings

Throughout the research, the emphasis has been on investigating sustainable practices at well-established automotive manufacturing companies named Armstrong Auto Parts Sdn. Bhd. And PROTON Tanjong Malim Sdn. Bhd. It proceeds with developing a solid framework for ESG enhancements and reporting for local automotive manufacturing SMEs. This conclusion summarizes the results and suggestions from Chapter 1 until 4, emphasizing the importance of sustainable development in the automotive manufacturing industry.

The ESG conversation was divided into three parts which are environmental, social, and governance, which revealed the complex implications and duties that each sector puts on organizations. ESG reporting standards were examined, demonstrating the several frameworks that influence the sustainability reporting of companies from specific countries. The literature reviews provide a thorough overview of relevant literature, focusing on current trends, frameworks, and standards in sustainability reporting. Key ideas such as ESG criteria, GRI and other commonly used sustainability reporting standards, and SDGs to lay the theoretical groundwork for the development of the framework.

A significant emphasis was placed on Malaysia's i-ESG framework designed specifically for the manufacturing sector, which served as a case study for national-level ESG implementation. The assessment also emphasized the relationship between ESG and the SDGs, demonstrating how ESG activities contribute to larger global sustainability goals.

The methodology for creating the developed framework involved conducting interviews with Armstrong Auto Parts and PROTON Tanjong Malim to identify existing sustainable practices and learn about their corporate sustainability strategies which is then catered to the first objective of the project. The project strategy combined qualitative and quantitative methodologies to ensure a comprehensive knowledge of the companies' sustainable practices.

The developed framework catered to the second objective of the project is a strategic tool for the local automotive manufacturing SMEs to successfully assess, manage, and communicate their sustainability effects. It includes essential pillars of sustainability such as environmental stewardship, social responsibility, and governance practices, which fosters a culture of continual improvement and stakeholder involvement.

Furthermore, the results reported the interview results and verified the developed framework. It emphasized the exceptional sustainable practices adopted by both of the companies, which ranged from energy efficiency and waste management to stakeholder participation and employee wellbeing. To cater to the third objective, sustainability and ESG experts assessed the developed framework, providing constructive suggestions to improve its comprehensiveness, conformity with global standards, and effectiveness in promoting sustainable development for the automotive manufacturing industry. The outcomes of this project highlight the importance of ESG in improving corporate responsibility, transparency, and performance in the automotive manufacturing sector.

Moving ahead, Malaysian's automotive manufacturing SMEs are recommended to utilise the developed framework and incorporate it as they try to embark on ESG journey. These include improving reporting rules, boosting data management systems, increasing stakeholder interaction, and incorporating new best practices. By doing so, the SMEs may enhance their commitment to sustainable development, reduce risks, and seize possibilities for innovation and long-term success.

5.2 Recommendations for further improvement

The recommendations serve as a growth roadmap to successfully meet future problems and opportunities. To begin, the questionnaire survey would have been more detailed the categorization question to better understand the demographics of responses is included in the questionnaire. The demographics are the categories of their respective companies such as SMEs, GLCs, or MNCs. This information would allow for more targeted analysis, increasing the relevance and application of the survey findings.

Secondly, the interviews should have the involvement of more than two well-established automotive manufacturing companies for a more effective and comprehensive data collection on the benchmarked sustainable practices. In addition, the interviews should have been conducted with a more credible representatives of the companies, such as the executives in charge for sustainability at the companies. Their skills and viewpoint can give useful insights into the company's sustainability strategies and difficulties, which would be even more beneficial to the development of the framework.

As for the comprehensive comment on the proposed sustainability targets as per discussed in Chapter 4.5, the energy and water consumption should be measured by using intensity metrics such as energy use per unit production or water use per square meter for a more accurate and efficient monitoring.

Besides that, a deep understanding of the different sustainability reporting standards should be enhanced. For this case, one of the sustainability experts who is also a certified sustainability reporting specialist suggests that the developed framework should prioritize using GRI and SASB as the foundational references for the guidelines on what to disclose in ESG report, while considering ISO Standards where automotive manufacturing industry needs are more evident. He also pointed out the misalignment of some of the references and suggests that the latest versions of the reporting standards are referenced instead.

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APPENDICES A

		Project Title	Level	Duration	Start	End												
		Designing ESG Framework towards Sustainability Initiatives in Malaysian Manufacturing Industry	Bachelor Degree Project 2	4 months	11-Mar	19-Jun												
Phase	Project Task	Remarks	Mar-23			Apr-23				May-23				Jun-24				
			W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	
1	Chapter 4: Result and Discussion	Questionnaire: Preparation of the questions [To be reviewed by other lecturers before distributing to the public]	Supervised by Dr Nurazua	█	█													
		Questionnaire: Data collection	Platform: Google Forms				█	█										
		Interview: Preparation of the questions & Letter of Request	Supervised by Dr Nurazua						█									
		Questionnaire: Analysis and critical review									█							
		Interview: Confirmation on the interview date & time with the representatives of the respective companies. [Include formal Letter of Request & template of interview questions.]	Appointment confirmation								█							
		Interview: Data collection	Platform: Google Meet										█					
		Interview: Analysis and critical review												█				
		Framework Design: Draft	Supervised by Dr Nurazua															
		Framework Design: Final																
		Framework Design: Validation	Validation by ESG experts															
		Logbook submission	31/5/2024															
2	Chapter 5: Conclusion	Conclusion																
		Recommendations	Review by Dr Nurazua															
3	IMPORTANT SUBMISSIONS	Finalise all chapters	Review by Dr Nurazua															
		DRAFT: Presentation slides																
		ORAL Presentation	19/6/2024															
		Submit final report to Supervisor and Examiners (Panel 1 & Panel 2 only) [Submission to Dr. Azua: 21/06/2024]	26/6/2024															
		Final report and CD submission to Supervisor	5/7/2024															
Submit to eThesis portal	10/7/2024																	

APPENDICES B

6/19/24, 1:11 PM

Designing ESG Framework towards Sustainable Initiatives in Malaysian Manufacturing Industry

Designing ESG Framework towards Sustainable Initiatives in Malaysian Manufacturing Industry

This survey is being carried out as part of a bachelor's degree project at Universiti Teknikal Malaysia Melaka (UTeM) under the Faculty of Industrial and Manufacturing Technology and Engineering (FTKIP).

The purpose of this survey is to enhance our understanding on perceptions of Malaysians of specific backgrounds concerning **Environmental, Social and Governance (ESG)**.

Additionally, it aims to investigate how local SMEs in Malaysia incorporate such information into their business practices. This survey also seeks to gain insights into emerging trends in ESG analysis and identify best practices that are being established.

There are 3 parts of this questionnaire with 9 questions for each part. Please kindly spare some time to contribute to this project.

- Part 1: Environmental
- Part 2: Social
- Part 3: Governance

We assure you that the personal information provided by you (such as your email address) will be kept strictly confidential and will be used only for the academic research purpose. Please answer the questions intuitively and honestly as there are no right or wrong answers. Every honest, truthful, and accurate answer is good and best for this research project. We will be highly obliged for your kind co-operation. Thank you.

* Indicates required question

1. Email *

Environmental, Social and Governance (ESG) is a component or framework that guides companies on managing their risks and growth opportunities related to environmental, social, and governance criteria. It is a strategic framework for identifying, assessing, and addressing organizational objectives and activities ranging from the company's carbon footprint and commitment to sustainability, to its workplace culture and commitment to diversity and inclusion, to its overall ethos regarding corporate risks and practices (White, 2023).

The word 'ESG' was firstly appeared in a 2004 United Nations (UN) report according to Byrne D. from The Corporate Finance Institute, but it has evolved into a comprehensive framework and known as a trend and proactive movement that incorporates environmental and social impact, and how governance structures can be modified to promote stakeholders' well-being.

According to Business Today Editorial, ESG has come into force as a standard of accountability that society demands from companies in recent years as its criteria has also become a major determining factor in how government and investors value a company, playing an increasingly important part in the fund-raising component of a commercial operation.



19. **Have your company started practicing gender and cultural equality and indicating the relative split of male/female employees at every level of the firm?** *

Particularly the Board of Directors and management team.

Mark only one oval.

- Yes, our company encourages diversity and equality
- No, but we are considering it
- No, gender equality is not necessary

20. **Does your company organise training programmes for personal and professional development of employees?** *

Mark only one oval.

- Yes
- No

21. **Which of these concern you most when working overtime?** *

Tick all that apply.

- Decreases employee's productivity
- Burnout
- There is health consequences
- There will be 'occupational injury'
- Less job satisfaction
- Overtime gives my income a boost

22. **Does your company have a management system in place to manage working conditions and human rights issues?** *

Mark only one oval.

- No
- Yes, we have documented procedures and policies
- Yes, we have a certified Social management system

2. Define your professional background (sector of your company). *

Mark only one oval.

- Aerospace
- Automotive
- Chemical
- Digital & ICT
- Electrical & Electronics
- Food Processing
- Global Services & Professional Services
- Halal
- Machinery & Equipment
- Manufacturing-Related Services
- Medical Devices
- Metal
- Mineral
- Palm Oil-Based Products
- Pharmaceutical
- Petroleum Products & Petrochemicals
- Rail
- Rubber-based Products
- Shipbuilding & Ship Repair
- Textile, Apparel & Footwear
- Wood, Paper & Furniture
- Education
- Other



3. **Have you recently heard or been educated on Environmental, Social and Governance (ESG)?** *

Mark only one oval.

- Yes, I have heard of ESG
- Yes, I understand about ESG very well
- No

4. **Do employees at your company receive a training or have participated in external ESG & sustainability activity on how to consider ESG issues in decisions?** *

Mark only one oval.

- Yes
- No

5. **How does your company communicate its Policy to employees?** *

Tick all that apply.

- Internet / Meetings / Brochures, etc.
- Training
- Other: UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Environmental

The 'E' in ESG stands for 'Environmental' evaluates a company's impact on the natural world and its efforts to mitigate environmental risks and promote sustainability. It aims to gauge how well a company manages its environmental risks, reduces its ecological footprint, and contributes to a more sustainable future. It provides a framework for action, setting environmental objectives which take into account applicable legal and other requirements and the company's environmental impact of its operations, products and services, with the purpose of decreasing the environmental impact, saving resources and costs.

6. **Which of the following measures has your company adopted to reduce environmental impact?** *

Tick all that apply.

- Energy saving
- Waste recycling
- Mobility management (car pooling, car sharing)
- Sustainable packaging
- Develop of environmental friendly product
- Life Cycle Assessment processes
- Management of environmental system
- Use of renewable resources
- Other: _____

7. **Are the following areas covered by your company's policy or the related processes and working procedures?** *

Mark only one oval.

- Energy consumption and greenhouse emissions
- Water quality and consumption
- Air quality
- Natural Resources Management and Waste Reduction
- Responsible Chemical Management
- Other: _____

8. **Who should manage the solid wastes in Malaysia?** *

Mark only one oval.

- Individuals / households / societies
- Municipal corporations and other government departments
- Private companies
- All of the above.
- Other: _____

9. **Do you think our mother earth is facing the biggest ecological crisis in recent years?** *

Mark only one oval.

- Agree and hope for a technological solution
- Disagree and in favor of industrialization
- Agree and worried
- Disagree and in favor of extracting resources from nature

10. **How should we tackle the ever-increasing generation of wastes in Malaysia?** *

Mark only one oval.

- Generate less
- Increase the capacity of waste recycling capacity
- Put charges on wastes generated per individual
- Treat at the source of generation by community involvement
- Other: _____

11. **Do you think that strict implementation of laws will help to curb environmental degradation?** *

Mark only one oval.

- Yes
- No

12. **Do you agree that environment-related values-ethics can be helpful for sustainable development?** *

Mark only one oval.

- Yes
- No

13. **Do you think improper environmental conditions also cause psychological problems to the citizens?** *

Mark only one oval.

Yes

No

14. **Sustainable development calls for changes in conduct and lifestyle. What should we do for the same?** *

Tick all that apply.

Sustainability and environmental education

Awareness programs on ESG

Public participation and movements on ESG

Government should be stricter with the law

SOCIAL

The 'S' in ESG stands for 'Social' evaluates how a company manages relationships with its employees, customers, suppliers, communities, and other stakeholders. This aspect focuses on factors related to social responsibility, human rights, labor practices, and community engagement. Examples of social topics to address include non-discrimination, freedom of association, health and safety, etc.

15. **Which of the following problems your company has recently faced?** *

Tick all that apply.

Employee safety

Children work

Irregular work

Women rights

Overtime

Fair salary (despite: race / gender / religion etc)

Other: _____

16. **Which is the area of social responsibility more significant for your company? ***

Tick all that apply.

- Governance and dialogue with the stakeholders
- Policy towards employees
- Relationship with clients and suppliers
- Relationship with the community
- Other: _____

17. **For which of the following working conditions and human rights issues does your company have a policy in place? ***

Tick all that apply.

- Child labour and Young Workers
- Wages and Benefits
- Working hours
- Forced or compulsory labour and human trafficking
- Freedom of association and collective bargaining
- Health and Safety
- Harassment
- Non-discrimination
- Other: _____

18. **Do you agree that diversity in workplace is important for the sustainability of a business? ***

Mark only one oval.

- Agree
- Disagree

23. **Does your company have a written health & safety policy in place, which complies * with Malaysia's law, industry requirements and international standards?**

Mark only one oval.

Yes

No

GOVERNANCE

The 'G' of ESG stands for 'Governance' evaluates how a company is managed, including its leadership structure, decision-making processes, transparency, and accountability. Governance factors are crucial in assessing a company's long-term sustainability and its ability to create value for shareholders while managing risks. It focuses on the systems and processes that guide the behavior of companies and their leaders, promoting transparency, accountability, and ethical conduct.

24. **Does your company have a formal policy in place regarding business ethics? ***

Mark only one oval.

Yes

No



25. **Are the following areas covered by your company's policy or the related processes and procedures?** *

Tick all that apply.

- Corruption, extortion and bribery
- Privacy
- Financial responsibility (Accurate Records)
- Disclosure of Information
- Fair competition and anti-trust
- Conflicts of interest
- Counterfeit parts
- Intellectual property
- Export controls and economic sanctions
- Protection of Identity and Non-Retaliation
- Other: _____

26. **For greater transparency to the market in which your company operates, which of the following practices your company has set up?** *

Tick all that apply.

- Clear information about products or services
- Investigation about client's customer satisfaction
- Selection and evaluation of suppliers
- Registration of complaint by costumer
- Supply chain control
- Code of conduct for suppliers
- Other: _____

27. **Do you believe that the same level of assurance and relevant ethics and independence standards that apply to financial information should apply to sustainability information?** *

Mark only one oval.

- Yes
- No

28. **Have your company considered the relevance of professional ethics in progressing your sustainability reporting or assurance initiatives?** *

Mark only one oval.

Yes

No

29. **What is the purpose of sustainability reporting in your organization?** (Please write 'Not sure' if you don't know the answer) *

30. **What information is provided about the sustainability assurance engagement?** (Please write 'Not sure' if you don't know the answer) *



31. **How do you access your company's sustainability reports?** *

Mark only one oval.

Digital

Print

All of the above

Other: _____

32. **By way of example, please indicate the names of organizations that you believe produce high quality sustainability reports?**



33. **Please add any further information that you consider relevant for this questionnaire.**

APPENDICES C

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Designing ESG Framework towards Sustainable Initiatives in Malaysian Manufacturing Industry

Designing ESG Framework towards Sustainable Initiatives in Malaysian Manufacturing Industry

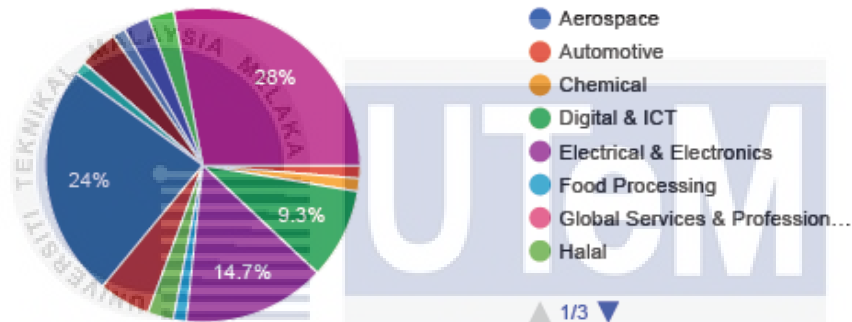
76 responses

[Publish analytics](#)

Define your professional background (sector of your company).

[Copy](#)

75 responses

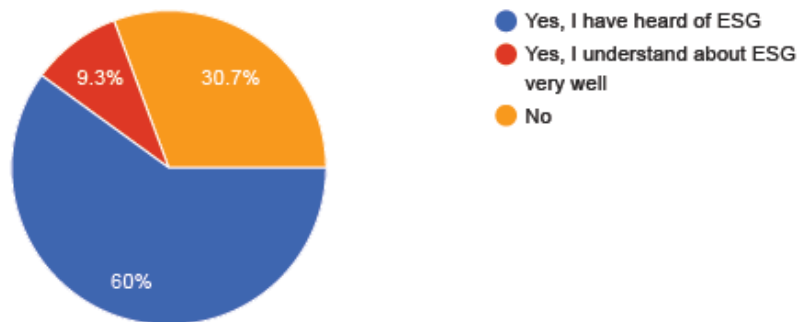


Have you recently heard or been educated on Environmental, Social and Governance (ESG)?

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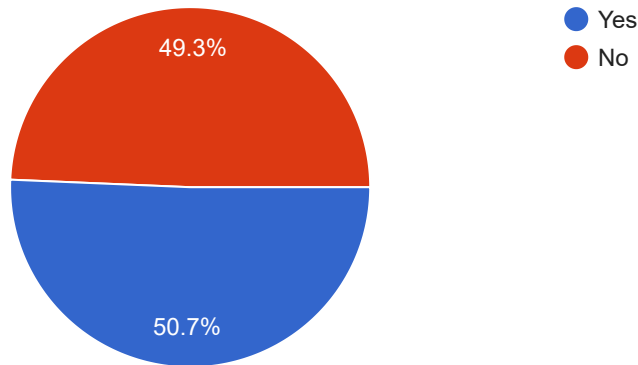
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Do employees at your company receive a training or have participated in external ESG & sustainability activity on how to consider ESG issues in decisions?

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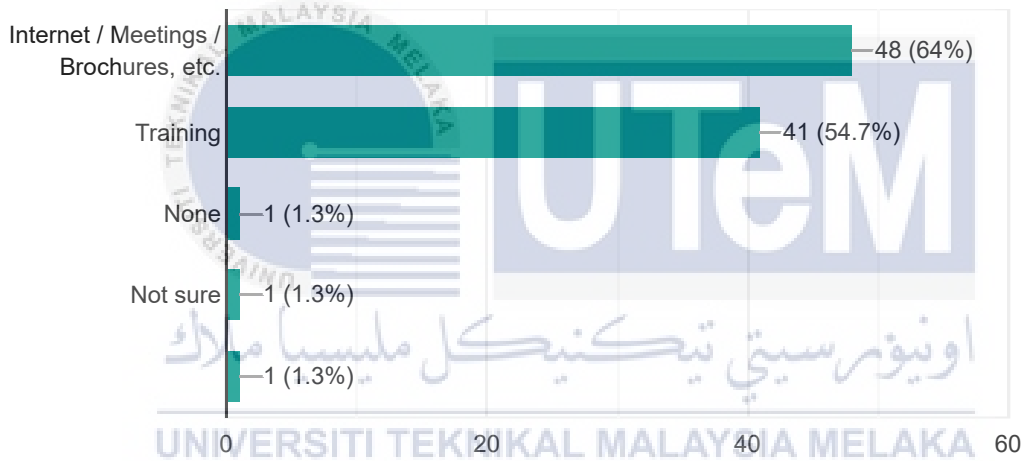
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How does your company communicate its Policy to employees?

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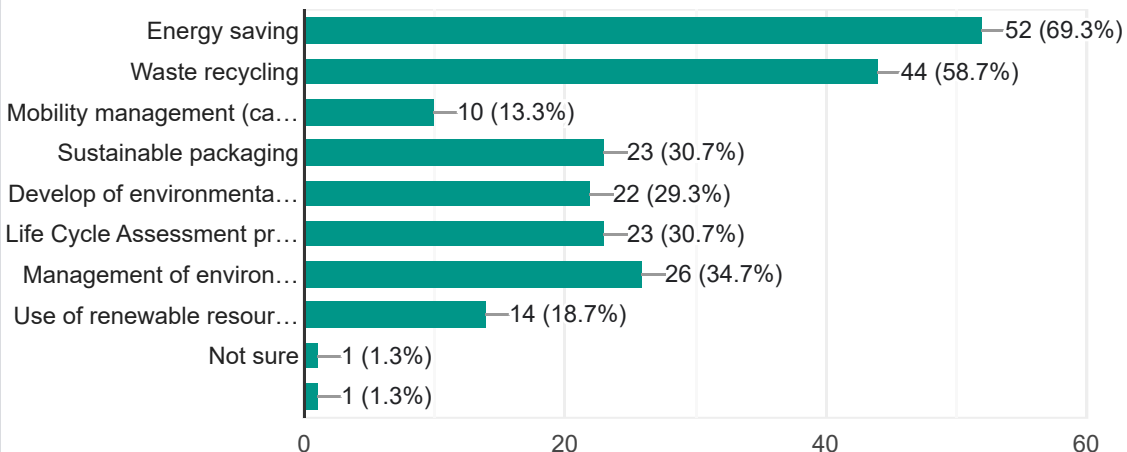


Environmental

Which of the following measures has your company adopted to reduce environmental impact?

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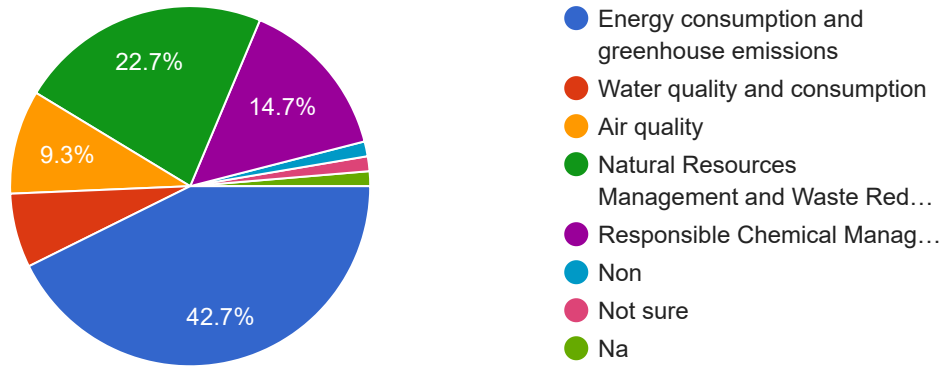
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Are the following areas covered by your company's policy or the related processes and working procedures?

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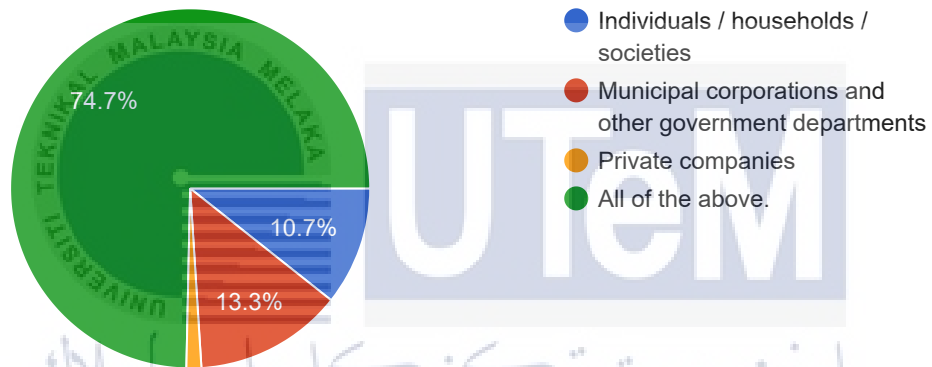
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Who should manage the solid wastes in Malaysia?

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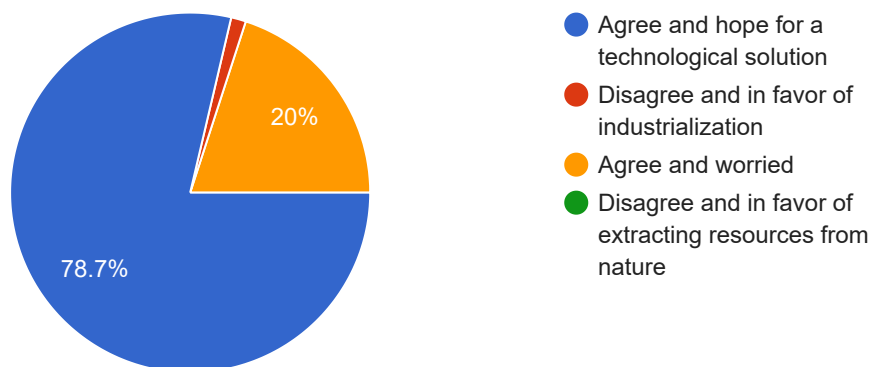
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Do you think our mother earth is facing the biggest ecological crisis in recent years?

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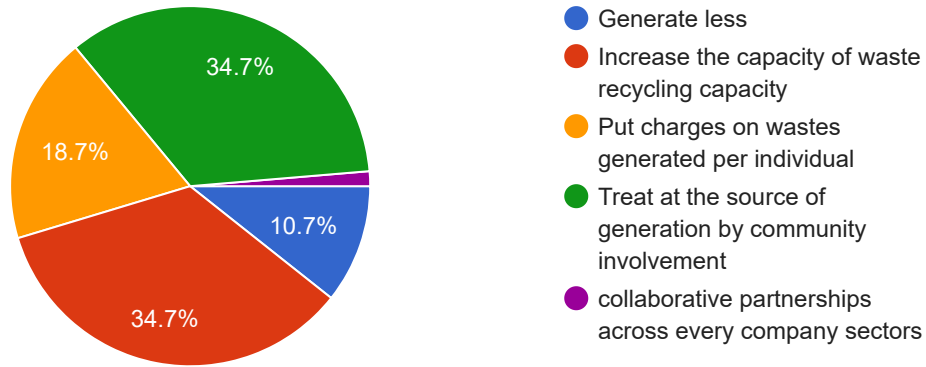
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How should we tackle the ever-increasing generation of wastes in Malaysia?

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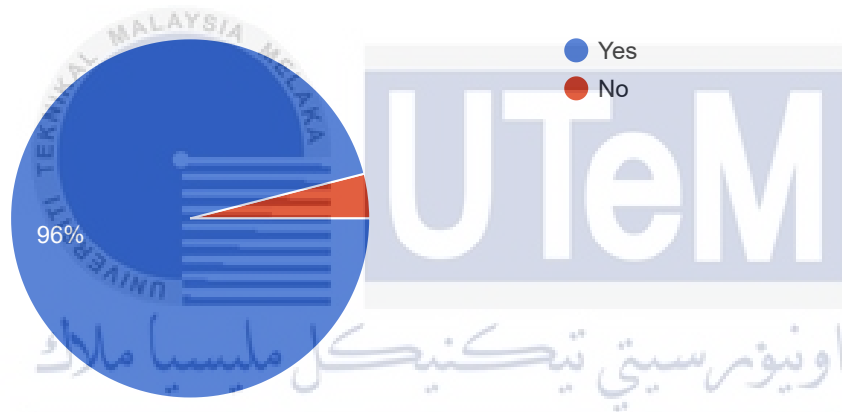
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Do you think that strict implementation of laws will help to curb environmental degradation?

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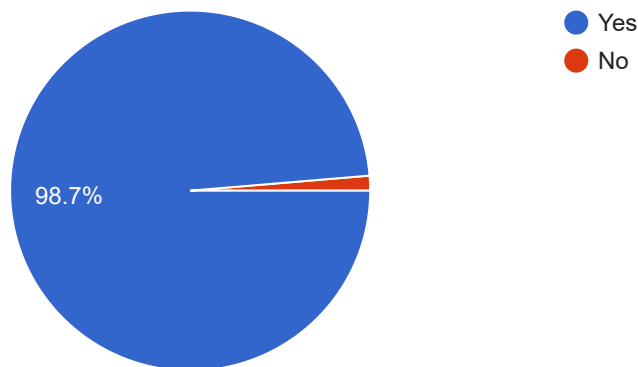
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Do you agree that environment-related values-ethics can be helpful for sustainable development?

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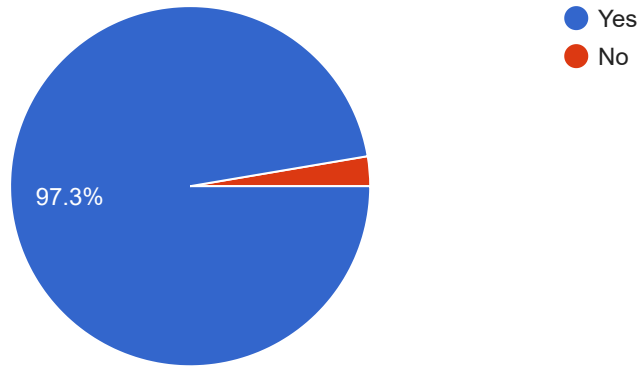
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Do you think improper environmental conditions also cause psychological problems to the citizens?

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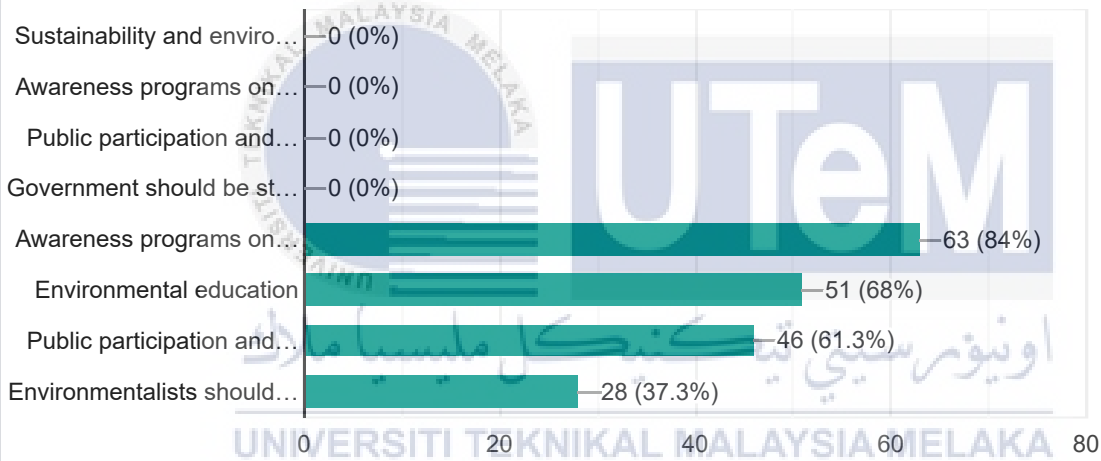
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Sustainable development calls for changes in conduct and lifestyle. What should we do for the same?

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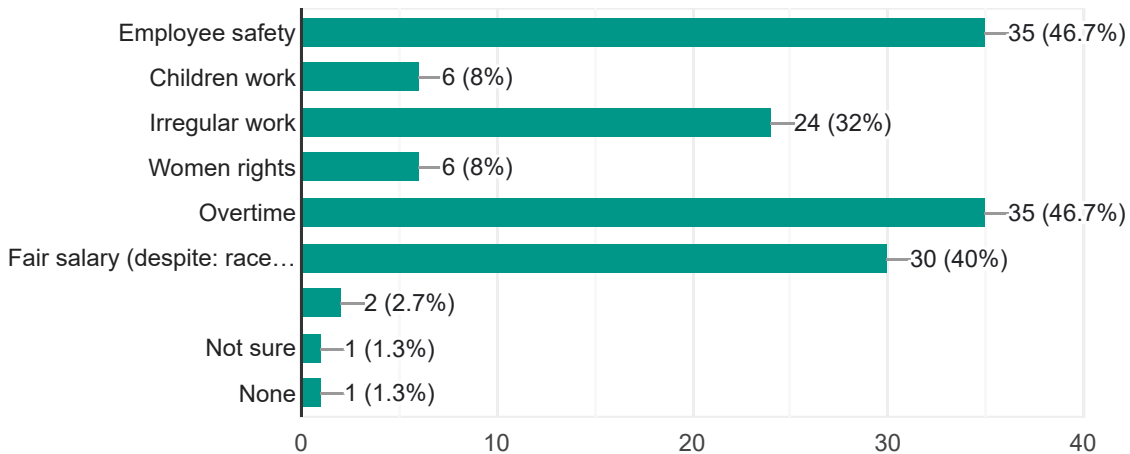


SOCIAL

Which of the following problems your company has recently faced?

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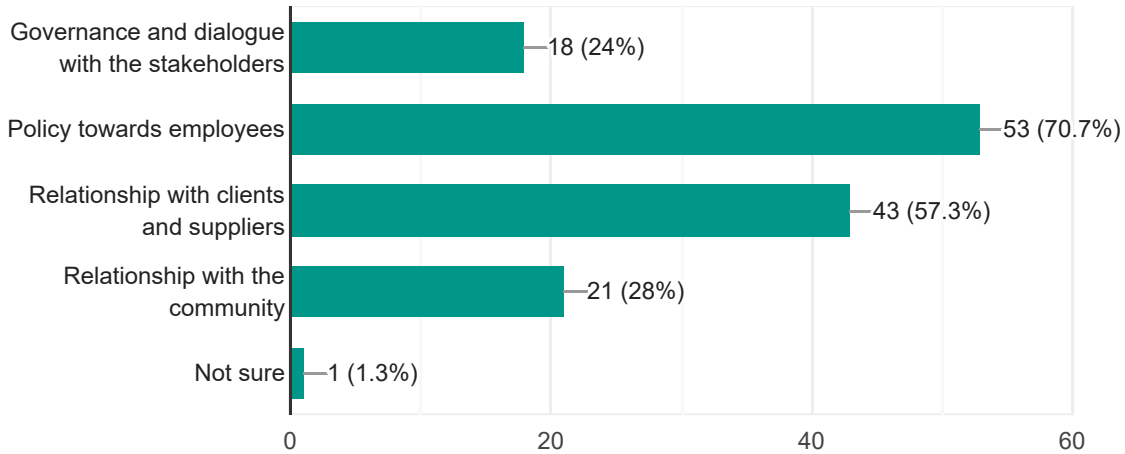
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Which is the area of social responsibility more significant for your company?

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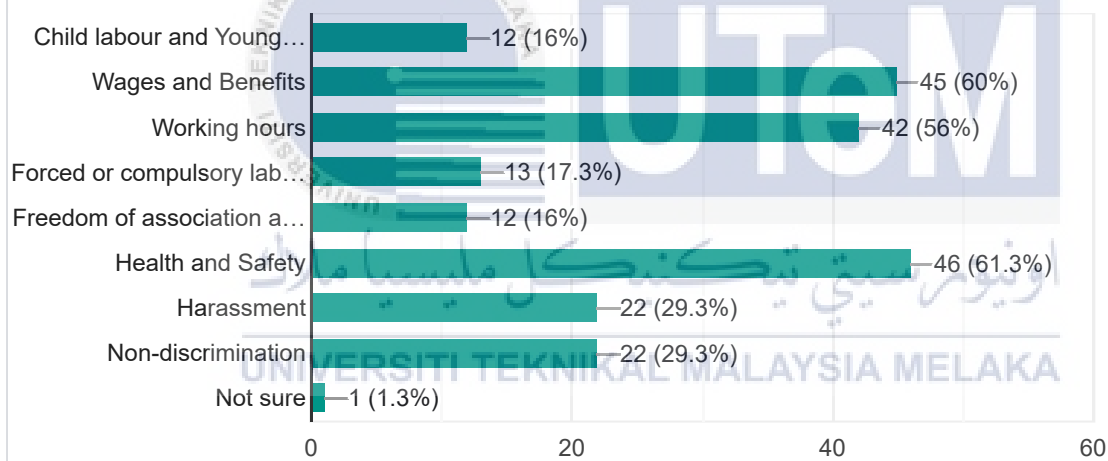
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For which of the following working conditions and human rights issues does your company have a policy in place?

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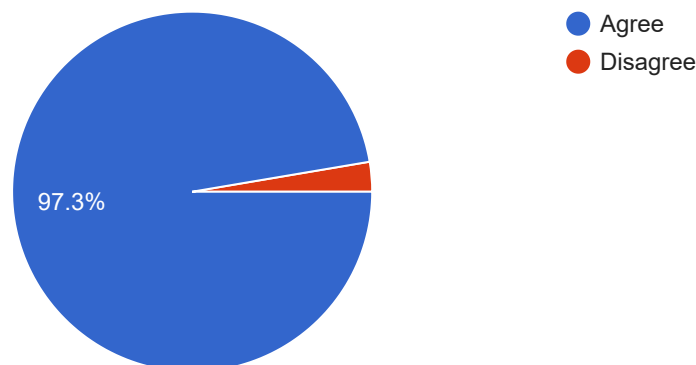
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Do you agree that diversity in workplace is important for the sustainability of a business?

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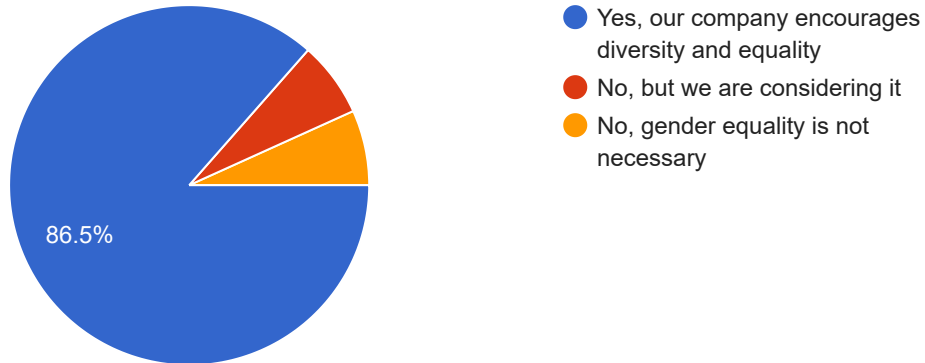
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Have your company started practicing gender and cultural equality and indicating the relative split of male/female employees at every level of the firm? Particularly the Board of Directors and management team.



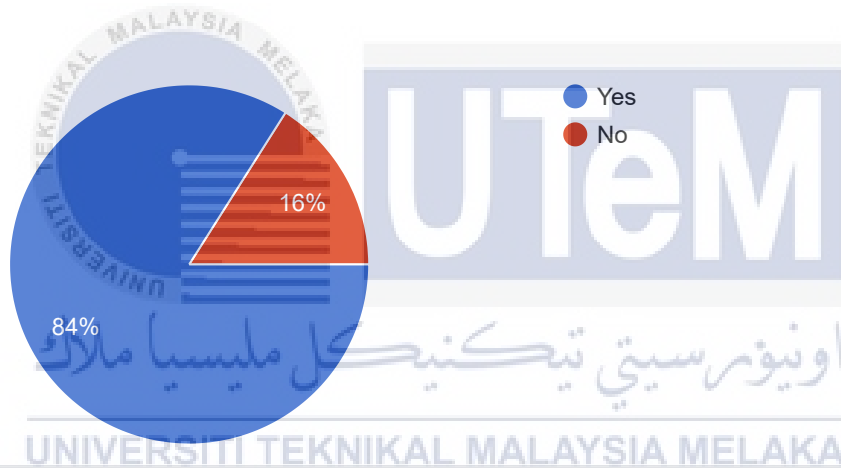
74 responses



Does your company organise training programmes for personal and professional development of employees?



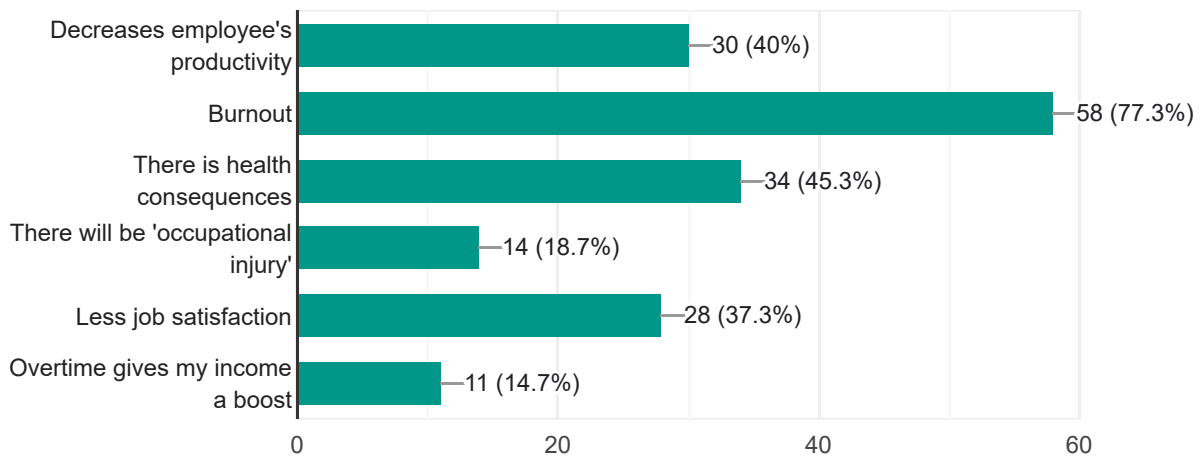
75 responses



Which of these concern you most when working overtime?



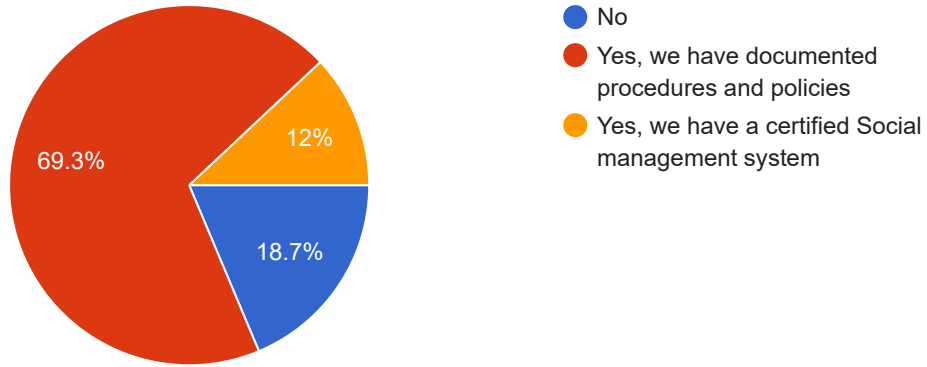
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Does your company have a management system in place to manage working conditions and human rights issues?

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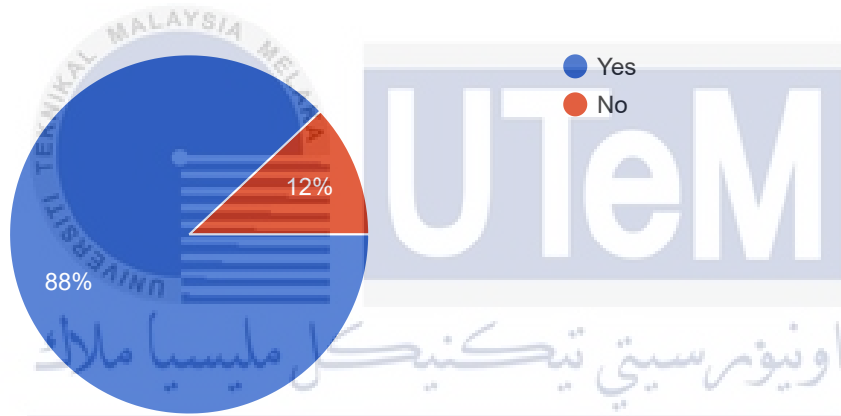
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Does your company have a written health & safety policy in place, which complies with Malaysia's law, industry requirements and international standards?

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75 responses

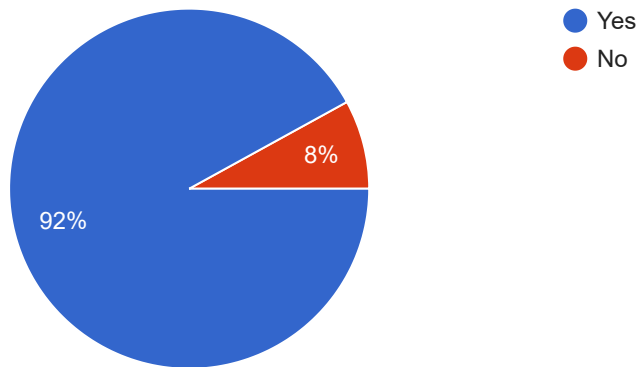


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Does your company have a formal policy in place regarding business ethics?

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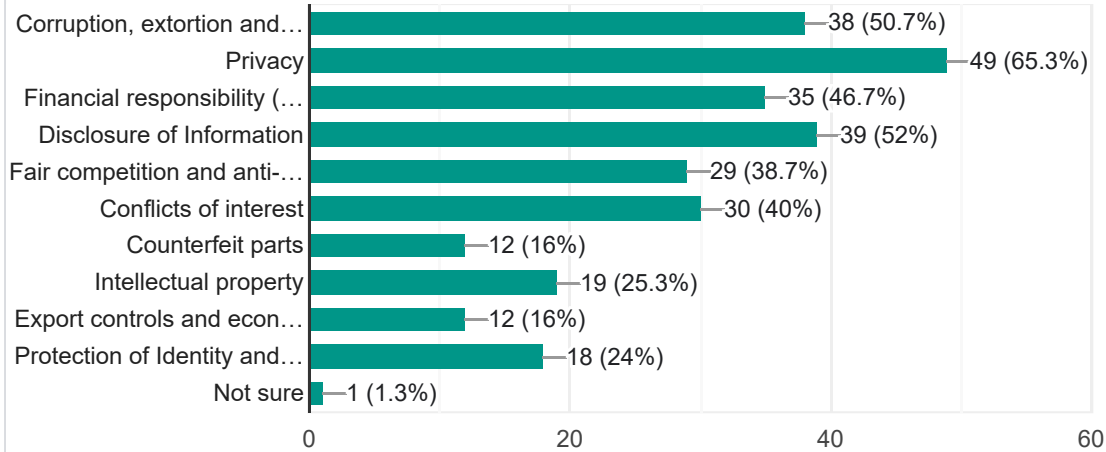
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Are the following areas covered by your company's policy or the related processes and procedures?



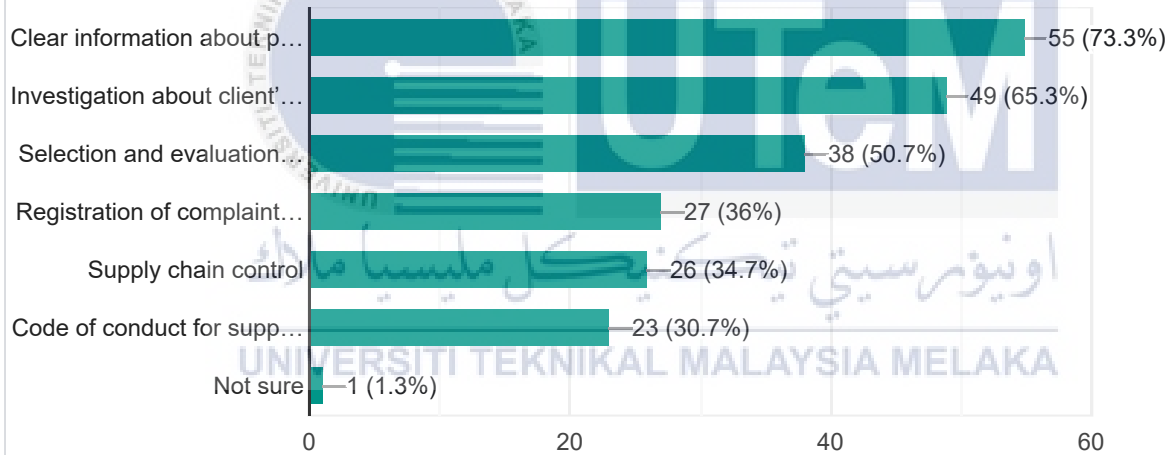
75 responses



For greater transparency to the market in which your company operates, which of the following practices your company has set up?



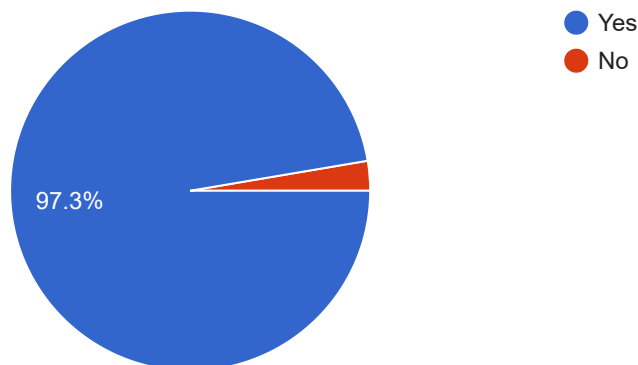
75 responses



Do you believe that the same level of assurance and relevant ethics and independence standards that apply to financial information should apply to sustainability information?



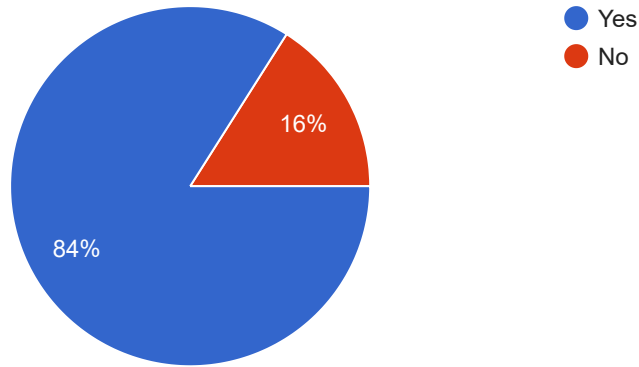
75 responses



Have your company considered the relevance of professional ethics in progressing your sustainability reporting or assurance initiatives?

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75 responses



What is the purpose of sustainability reporting in your organization? *(Please write 'Not sure' if you don't know the answer)*

74 responses

Not sure

not sure

Not Sure

Not sure

-

to maintain the company

Sustainability reporting helps organizations identify, assess, and manage environmental, social, and governance risks and opportunities.

Nt sure

Sustainability reporting is a way for companies to be transparent about their impact on the environment, society, and how they're governed (often called ESG). It's not just bragging about good deeds, but also acknowledging areas for improvement.

to demonstrate our commitment to corporate responsibility, accountability, and transparency by disclosing environmental, social, and governance (ESG) performance metrics and initiatives to stakeholders

Sustainability spans environmental, social and governance issues. Today every organization must embrace sustainability for future competitiveness.

To be clear of company's progress and efforts to reach those goals

I think sustainability reporting in the organization is about openly sharing on environmental, social, and governance performance. It reflects the commitment to sustainability and helps us improve over time.

- 1) A way to communicate the performance and impact in ESG matters.
- 2) Encourage confidence and trust in an organisation especially to the stakeholders.
- 3) a way of assessing risks and opportunities.
- 4) Allows organisation to identify redundancies and enhance operational efficiency, paving the way for impactful optimization

to be transparent with current and future stakeholders



To make sure there is no miscommunication

to create a better environment

To show our organisation continued commitment on ESG to the public and the progress and initiatives we have made for a sustainable workplace and future.

To expand the awareness and elevate the sustainability progress from time to time

What information is provided about the sustainability assurance engagement? (Please write 'Not sure' if you don't know the answer)

74 responses

Not sure

not sure

Not sure

Not Sure

Not surw

-



The assurance report will describe the methodology used by the assurance provider to conduct the assurance engagement.

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Nt sure

Assurance Standards

details about the scope of the engagement, the criteria against which performance is assessed, the provider's qualifications and independence, the methodology used for data collection and evaluation, any limitations or constraints encountered during the process

The Accenture Sustainability Value Promise is to embed sustainability into everything we do, with everyone we work with, creating both business value and sustainable impact, enabled by technology and human ingenuity. Our approach is grounded in science, economics and data by design—it is built into our business strategy, not “bolted on.”

not sure

Internal and external information about the organisation such as financial report



Maybank Berhad

Schneider electric

petronas

PETRONAS

not sure

Hess Corporation

SEDAE

Khazanah Nasional, Kenanga Investment Bank Berhad, Bursa Malaysia, Petronas, Maybank

Hsbc

Please add any further information that you consider relevant for this questionnaire.

13 responses

-

No

None

Great

so far so good mate

Not sure

Welcome

None

Nothing

n/a



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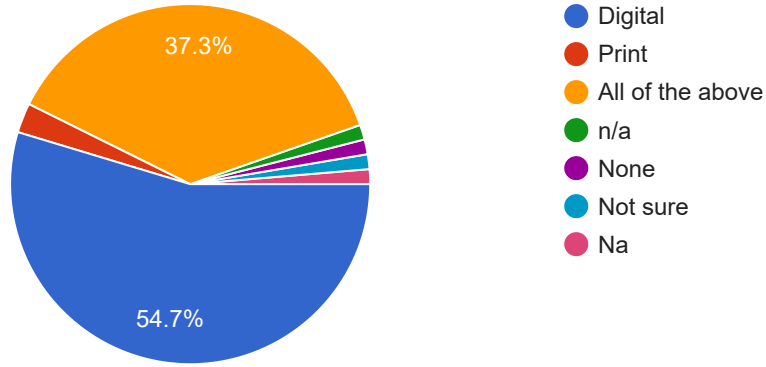
Google Forms



How do you access your company's sustainability reports?

 Copy

75 responses



By way of example, please indicate the names of organizations that you believe produce high quality sustainability reports?

35 responses

Not sure

Petronas

Ikea

Hartalega NGC

GRI

AGV sustainability

sunway berhad

-

infineon

Inari Technology Sdn berhad

IKEA

Nike

Nestle

European company

TNB

Sime darby

Kpmg

Disney (I googled it)

Unilever

Accenture

Food and Beverages



APPENDICES D



UNIVERSITI TEKNIKAL MALAYSIA MELAKA (UTeM) FACULTY OF INDUSTRIAL AND MANUFACTURING TECHNOLOGY AND ENGINEERING

This interview is being carried out as part of a bachelor's degree project "*Designing ESG Framework Towards Sustainable Initiatives in Malaysian Manufacturing Industry*" at Universiti Teknikal Malaysia Melaka (UTeM) under the Faculty of Industrial and Manufacturing Technology and Engineering (FTKIP). This project is to be carried out for deeper understanding on the sustainability initiatives through Environmental, Social, and Governance framework execution by manufacturing industry in Malaysia involving local automotive-related manufacturing SMEs that supply parts to the automotive industry.

The purpose of this interview is to enhance our understanding on how these companies incorporate ESG into their business practices. This interview also seeks to gain insights into emerging trends in ESG analysis and identify best practices that are being established for designing the framework.

There are 5 parts of this interview with 18 questions in total. Please kindly spare some time to contribute to this project.

- Part 1: General and awareness questions
- Part 2: Environmental pillar
- Part 3: Social pillar
- Part 4: Governance pillar
- Part 5: Additional questions

We assure you that all information provided by you will be kept strictly confidential and will be used only for the academic research purpose. Please answer the questions intuitively. Every honest, truthful, and accurate answer is good and best for this research project. We will be highly obliged for your kind co-operation. Thank you.

For further information, please contact Nor Aidatul Shafiefa at B052110023@student.utm.edu.my or WhatsApp +60 18 248 4085.

Interview Questions

Part 1: General and awareness

1. How would you describe your company's overall awareness and understanding of ESG principles, and how long has ESG been a strategic focus within your organization?
2. Are there any specific industry trends or emerging ESG topics that your company is particularly focused on?
3. What efforts does your company undertake to educate employees at all levels about ESG principles and their importance to the business?

Part 2: Environmental pillar

4. How does your company address environmental concerns such as carbon emissions, energy efficiency, and waste management in your operations and supply chain?
 - a. Greenhouse Gas (GHG) emissions reduction – How do you monitor and report? (eg: Include information in Tenaga Nasional Berhad bill to aid in calculating company's Scope 2 emissions).
 - b. Is there carbon pricing? (carbon taxes, emission trading systems and carbon offsets)
 - c. Voluntary Carbon Market?
5. Can you provide examples of any sustainability initiatives your company has implemented?
 - a. Any renewable energy usage, recycling programs, and carbon capture and storage (CCS)?
6. How do you assess and mitigate environmental risks associated with your products and operations?
 - a. Any new technology or digital tools that is being used? (Automation, green technologies etc) – If no, do you know any latest technology should be used?
 - b. Any carbon footprint for products?

Part 3: Social pillar

7. How does your company prioritize social responsibility, including issues such as labour practices, human rights, and community engagement?
 - a. Any professional development / upskilling programme provided for employees?
 - b. Are there any mechanisms in place to solicit feedback from employees, customers, and other stakeholders on ways to enhance ESG awareness and performance over time?
8. What measures does your company take to ensure fair and safe working conditions throughout your supply chain?

- a. Does it concerned your organisation that employees are forced to work overtime?
 - b. Any safety and health policy in place?
9. Can you describe any diversity and inclusion initiatives within your company, including workforce demographics and leadership representation?
- a. Diversity in management, or labour workforce (eg: female managers, balanced female and male workers despite genders etc).
 - b. Any professional development / upskilling programme provided for employees?

Part 4: Governance pillar

10. How does your company ensure transparency and accountability in its corporate governance practices, including board composition and executive compensation?
11. What mechanisms are in place to prevent corruption, bribery, and unethical behaviour within your organization?
12. How does your company engage with stakeholders, including shareholders, employees, customers, and communities, to ensure their voices are heard in decision-making processes?
- a. What frameworks, standards, or guidelines does your company use to assess and report on sustainability performance?
 - b. What practices that your company has set up for greater transparency to the market? (eg: clear information about product services, code of conduct for suppliers etc)

Part 5: Additional

13. What should be reported on a specific aspect of an automotive-manufacturing company's sustainability performance?
14. What activity in your operations have high impact on ESG or sustainability?
15. What key performance indicators (KPIs) does your company use to track progress on ESG goals and targets?
16. What are your company's plans and goals regarding ESG, and how do you plan to address any challenges or obstacles along the way?
17. How do you see the role of ESG evolving within the automotive industry, and what opportunities do you foresee for innovation and collaboration in this area?
18. Is there anything else you would like to share about your company's approach to ESG or its broader sustainability strategy?

APPENDICES E

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) FRAMEWORK TOWARDS SUSTAINABILITY INITIATIVES IN MALAYSIAN MANUFACTURING INDUSTRY (AUTOMOTIVE SECTOR)



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

NOR AIDATUL SHAFIEFA BINTI ABU SEMAN
FACULTY OF INDUSTRIAL AND MANUFACTURING ENGINEERING AND TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA (UTeM)

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PREFACE

"Advancing sustainability" is a prominent element of Malaysia's 12th Malaysia Plan, which aligns with the country's objective to become carbon neutral by 2050. In October 2023, Malaysia's Ministry of Investment, Trade and Industry (MITI) released New Industrial Master Plan 2030 (NIMP 2030) that emphasizes the need of improving ESG performance, notably in the manufacturing sector. The sector is critical to Malaysia's sustainability goals since it contributes significantly to the country's exports and gross domestic product (GDP).

MITI launched national industry ESG framework called i-ESG framework that can accelerate Malaysia's goal of achieving sustainable development goals (SDGs) by facilitating the transition to sustainable practices among manufacturing companies. The i-ESG framework is intended to equip the manufacturing sector, particularly micro, small, and medium-sized companies (MSMEs) to embrace ESG concepts. The i-ESG framework consists of two phases, Phase 1.0 (from 2024 to 2026) known as "Just Transition" phase where manufacturing companies will be assisted in beginning their sustainability and ESG journey through self-assessment, outreach, training and mentoring programs, and financing choices, and Phase 2.0 (from 2027 to 2030) which is known as the "Acceleration" phase.

However, there is still disparities in ESG practices and disclosure requirements between automotive-manufacturing companies as there is no standardized guidelines on ESG practices that they can adhere. Therefore, there is a need to introduce a suitable and standardized ESG-practices framework for the industry.

This framework is designed specially for the automotive-manufacturing SMEs, and is the outcome of an undergraduate degree project at Universiti Teknikal Malaysia Melaka (UTeM) under the Faculty of Industrial and Manufacturing Engineering and Technology (FTKIP). It captures the best of progressive ESG practices within local automotive-manufacturing companies.

INTRODUCTION



What is Sustainability?

- The ability of a process or business to maintain over time.
- The scope to satisfy the demands of the present generation while preserving the ability of future generations to satisfy their own needs. (Corporate Finance Institute, 2022)

One of the ways to achieve sustainability is by enhancing Environmental, Social, and Governance (ESG) practices.



ADVANTAGES OF ESG

- Companies would be seen as more ethical, reliable, and trustworthy, leading to a favourable reputation in the market.
- Attract and retain quality employees.
- Investors are becoming highly attracted to companies that invest in ESG.
- Companies will have a more accurate assessment of any potential long-term risks.

ESG is enhanced by adopting the 17 Sustainable Development Goals (SDGs)



What is ESG?

- A strategic framework for identifying, assessing, and addressing organizational objectives and activities (McKinsey, 2023).
- Was firstly mentioned in a 2004 United Nations report, but it has evolved into a comprehensive framework and known as a proactive movement that incorporates environmental and social impact, and how governance structures can be modified to promote stakeholders' well-being.

What is SDG?

- SDGs were established by the United Nations in 2015 as a global call to action to wipe out poverty, safeguard the environment, and guarantee that peace and prosperity would be experienced by everyone by the year 2030.
- Created to foster global agreement on important and widespread social and environmental issues, giving them universality in application and scalability in context for assessing the effect of ESG.

INTEGRATING ESG INTO SDGs

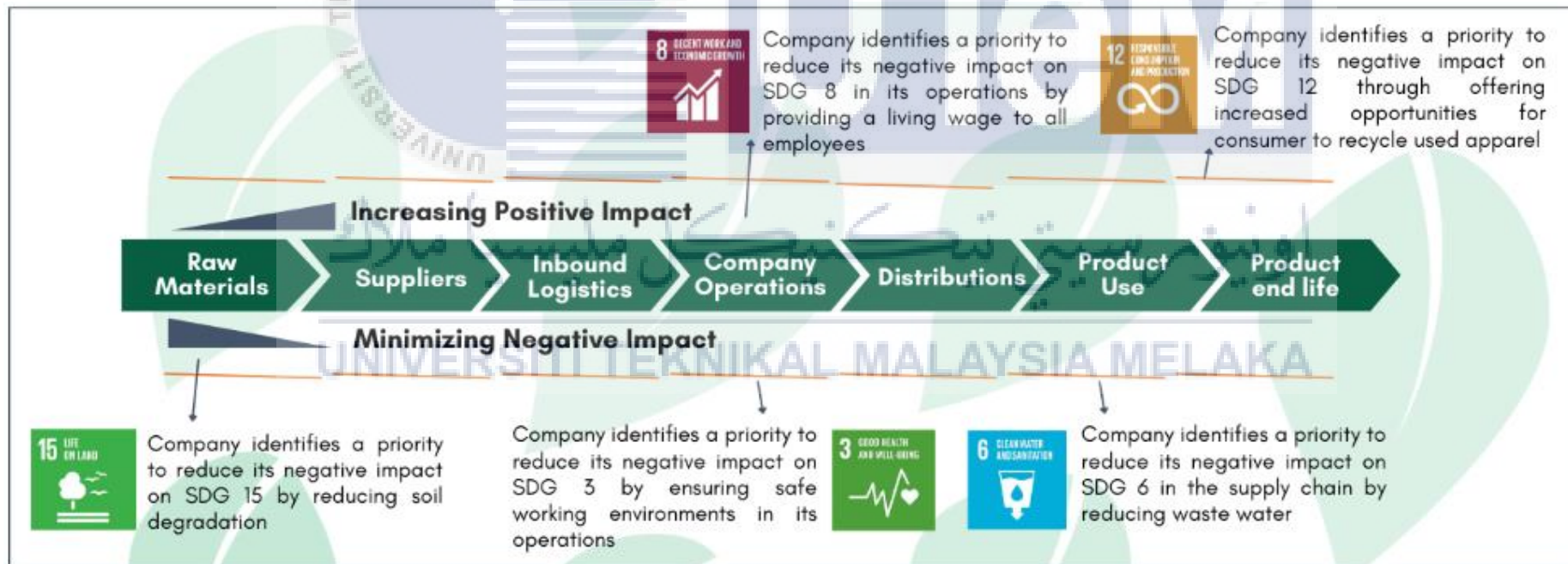
Adapted from the i-ESG Phase 1.0 "Just Transition" framework, the following is an example of how manufacturing companies may integrate SDGs into their business practices.



Target 12:6 “Encourage companies, especially large and transnational companies to adopt sustainable practices and to integrate sustainability information into their reporting cycle”.



Companies are urged to track their contributions to the SDGs – positive and negative, including their ambitions to improve their efforts – by disclosing the impact of their activities in sustainability reports.



(Source: MITI, 2023)

GOVERNMENT'S PLAN

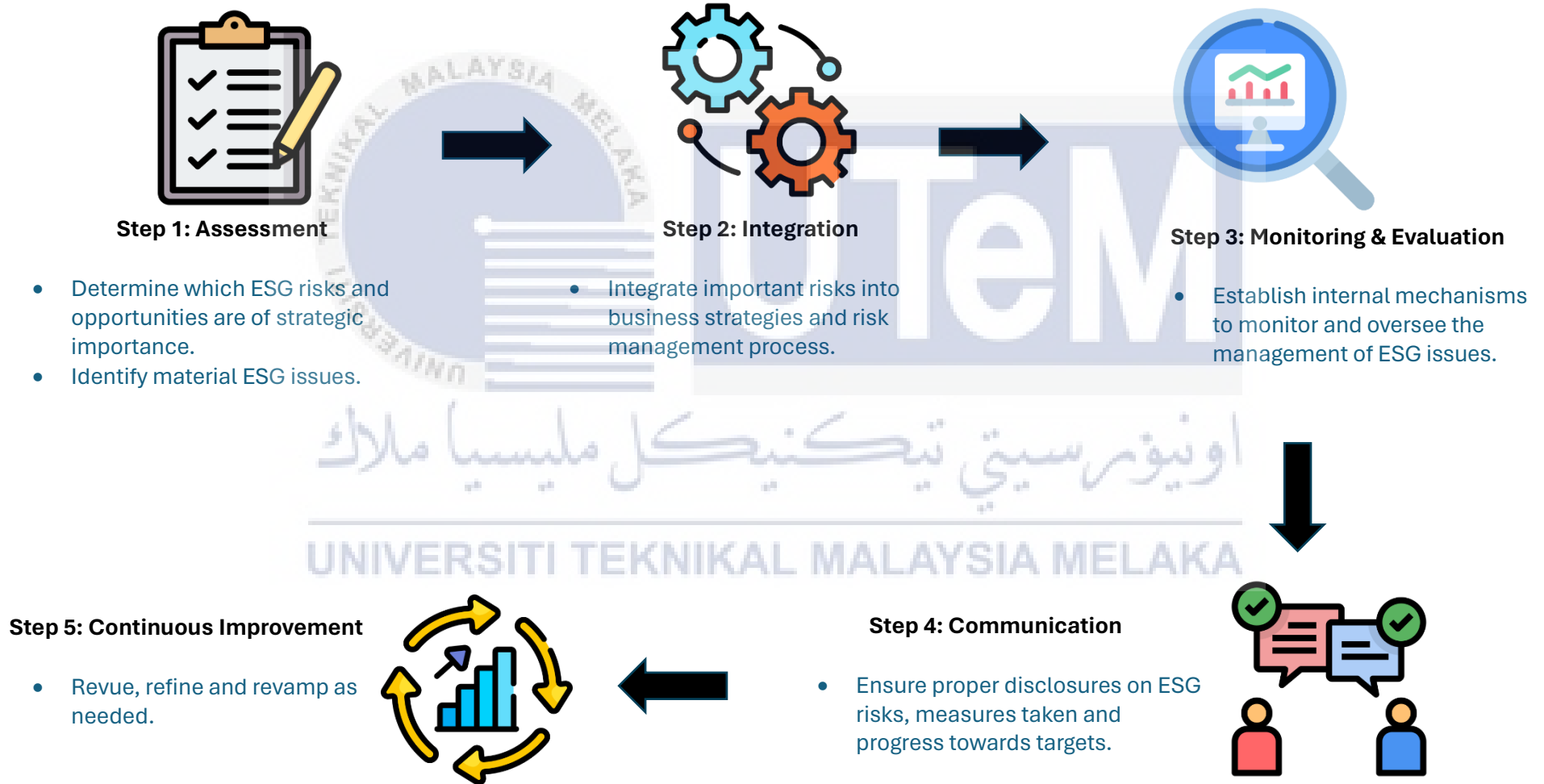
MITI illustrates an overview of the government's plan on ESG enhancements, as shown in the figure below.



(Source: MITI, 2023)

METHODOLOGY FOR REPORTING ESG

This section outlines the general methodology for sustainability reporting.



KEY PERFORMANCE INDICATORS (KPIs) FOR ESG

Companies may refer to the information provided below for guidance on disclosure.

Criteria	Issues	What to disclose	References
Environmental	Energy consumption and efficiency	<ul style="list-style-type: none"> The energy consumption during the reporting year is broken down by non-renewable and renewable sources in commonly used measurement units. The total reduction in energy consumption achieved through energy-saving and efficiency initiatives. Provide the energy efficiency index, which measures energy usage per product unit. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 302: Energy Sustainability Accounting Standards Board (SASB). Automotive Industry Standards.
	Water consumption	<ul style="list-style-type: none"> The total volume of water used for its main activity during the reporting year, categorized by source type (surface water, groundwater, rainwater, wastewater, utility, and other water supply systems). The impact of the company's consumption on the source of water, biological diversity, state natural reserve fund status, and importance to the local population. The total volume of water reused and its share in total consumption, as well as calculate the water efficiency index (volume consumed per product unit). 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 303: Water and Effluents. Sustainability Accounting Standards Board (SASB). Water Management.
	Waste management	<ul style="list-style-type: none"> The total weight of hazardous and non-hazardous wastes available in the company, their classification, and disposal methods (decontamination, recycling, dumping) during the reporting year. The total weight of hazardous waste carried, imported, exported, and recycled, as well as the percentage of domestic and foreign transportation. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 306: Waste. Sustainability Accounting Standards Board (SASB). Waste Management.

	Materials used	<ul style="list-style-type: none"> Indicates if the company engages in ecologically hazardous commercial operations or has the right to special use of natural resources. The use of non-renewable and renewable materials for production and packaging, as well as the percentage of recyclable materials used. Includes information on hazardous materials, their classification, and the measures taken to mitigate them. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 301: Materials. Global Reporting Initiative (GRI). GRI 103: Management Approach. Sustainability Accounting Standards Board (SASB). Material Sourcing and Efficiency.
	Products and services	<ul style="list-style-type: none"> Quantifiable information on lowering the environmental effect of its goods and services during the reporting year, as well as environmental concerns during design. The percentage of recyclable produce and packaging materials for each product category, as well as the percentage of items created using recycled or renewable resources. The company should disclose if its items have eco-labelling. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 301: Materials. Global Reporting Initiative (GRI). GRI 302: Energy. Global Reporting Initiative (GRI). GRI 417: Marketing and Labelling. Sustainability Accounting Standards Board (SASB). Product Lifecycle Impacts.
Social	Workplace health and safety	<ul style="list-style-type: none"> Employee injuries, accident frequency, occupational disease rates, lost days, absenteeism, and fatalities at production sites, including independent subcontractors, with a breakdown by region and gender. The procedures for recording incidents at the manufacturing site, as well as reports on fire safety. Any actions that may pose a significant risk of damage or certain illnesses. Indicate whether official agreements with trade unions address health and safety concerns. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 403: Occupational Health and Safety. Sustainability Accounting Standards Board (SASB). Health and Safety Performance.

	<ul style="list-style-type: none"> Information on fires that occurred in the company during the reporting year, the frequency of safety training, and the availability and types of firefighting equipment. 	
Training and education	<ul style="list-style-type: none"> The average number of training hours per employee for the reporting year, broken down by gender and employee type. Information on employee development programs, their sorts, and support programs for retired or resigned personnel. A breakdown of employee performance evaluations by gender and category for the current year. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 404: Training and Education. Sustainability Accounting Standards Board (SASB). Employee Training and Development Practices.
Diversity and equal opportunities	<ul style="list-style-type: none"> The percentage of employees in several categories, including gender, age groupings (under 30, 30-50, 50+), minorities, and other diversity categories. The statistics on the pay base rate for women vs males by employee category, split down by location. The overall number of employee discrimination cases, their status, and the steps taken. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 405: Diversity and Equal Opportunity. Sustainability Accounting Standards Board (SASB). Diversity and Equal Opportunity Practices.
Labour practices	<ul style="list-style-type: none"> The number and status of labour practice complaints received during the reporting year, as well as a brief explanation of the complaint filing system in place. The organization should provide grievance procedures for employees. For the reporting year, the total number of training hours and the percentage of workers who completed policies or procedures connected to human rights should be completed, which are important for the company's operations. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 407: Human Rights. Global Reporting Initiative (GRI). GRI 408: Child Labor, Forced or Compulsory Labor.






		<ul style="list-style-type: none"> Divisions and suppliers with a high risk of utilizing child labour, forced labour, or dangerous employment by young people. 	
	Affected communities or stakeholders	<ul style="list-style-type: none"> The company's management processes and procedures to prevent or minimize impacts on local communities. This comprises regulations and codes governing relations with the local population, such as security forces, worker conduct, and treatment of indigenous and minority groups. Include how the company's operations or initiatives affect the safety and livelihood of the surrounding community, including the employment of security personnel, involuntary re-settlement, and forced evictions. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 413: Local Communities. Sustainability Accounting Standards Board (SASB). Community Engagement.
	Liability for products	<ul style="list-style-type: none"> For the reporting year, provide a breakdown of non-compliance with legal requirements and codes regarding the impact of produce on health and safety, information and property marking, and marketing communications, including advertising, promotion, and sponsorship. This should include cases that resulted in fines, collections, or warnings. Disclose if offer items that are banned in specific markets, generate stakeholder concerns, or are a topic of public discussion. Explain how to address these issues. Information on product recalls due to defects during the reporting year. 	<ul style="list-style-type: none"> Global Reporting Initiative (GRI). GRI 418: Customer Health and Safety. Sustainability Accounting Standards Board (SASB). Product Safety.
Governance	Board of Directors	<ul style="list-style-type: none"> Each member of the company's board of directors (supervisory board) must reveal their biographies, 	<ul style="list-style-type: none"> International Corporate Governance Network (ICGN).









		<p>abilities, and experience, including their understanding of ES risks.</p> <ul style="list-style-type: none"> • Data on board of directors (supervisory board) meetings and results should be supplied for the reporting year. • Describe the process of nominating and selecting candidates for the company's supervisory board and committees, including gender, independence, professional qualifications, and experience. The company should explain how the supervisory board prevents and manages conflicts of interest. • Details on how the board of directors (supervisory board) evaluates their performance, including independence and frequency of evaluations. 	<ul style="list-style-type: none"> • Global Reporting Initiative (GRI). GRI 102: General Disclosures. • Global Reporting Initiative (GRI). GRI 405: Diversity and Equal Opportunity.
	<p>Organization chart</p>	<ul style="list-style-type: none"> • Its structural units, branches, representative offices, staff count, average number of employees (including branches and representative offices), and gender diversity. • Information on the leaders of important organizational units. 	<ul style="list-style-type: none"> • Global Reporting Initiative (GRI). GRI 102: General Disclosures. • International Organization for Standardization (ISO). ISO 30414:2018 Human Resource Management - Guidelines for Internal and External Human Capital Reporting
	<p>Risk management</p>	<ul style="list-style-type: none"> • Risk identification, monitoring and control, and risk level evaluation. The board of directors (supervisory board) oversees risk management and sets the company's risk appetite. The risk management framework incorporates environmental and social hazards, as explained in detail. • A detailed description of compliance control procedures, including personnel training, audit and 	<ul style="list-style-type: none"> • Committee of Sponsoring Organizations of the Treadway Commission (COSO). • Task Force on Climate-related Financial Disclosures (TCFD).

		<p>monitoring systems, a hotline for reporting violations, conflict of interest guidelines, and sanctions for violations of legislative requirements. The scope of internal controls includes financial accounting and reporting, operational control, sustainability risks, and compliance control.</p> <ul style="list-style-type: none"> • Consider the function of the board of directors, relevant committees, and executive body in the company's internal control system. This includes identifying and ensuring independence of external auditors. 	<ul style="list-style-type: none"> • International Standards on Auditing (ISA).
Stakeholder relations		<ul style="list-style-type: none"> • Description of the company's stakeholder relations policies and strategy, as well as the principles for identifying and selecting stakeholders. Include the names of the most significant parties, such as local communities, clients, regulatory bodies, employees, contractors, and suppliers. The company's employees and senior management are accountable for stakeholder interactions. • The involvement of the board of directors (supervisory board) in managing stakeholder collaboration must be specified. 	<ul style="list-style-type: none"> • International Integrated Reporting Council (IIRC). • Global Reporting Initiative (GRI). GRI 102: General Disclosures. • United Nations Guiding Principles on Business and Human Rights (UNGPs). • ISO 10001:2018 Quality management — Customer satisfaction — Guidelines for codes of conduct for organizations.
Anti-corruption		<ul style="list-style-type: none"> • Information on internal anti-corruption policies and strategies. It should offer information on detected corruption-related concerns to the firm. • The number and percentage of business units assessed for corruption risks, as well as the number of personnel educated on anti-corruption policies and practices across geographies and categories. 	<ul style="list-style-type: none"> • Global Reporting Initiative (GRI). GRI 205: Anti-corruption. • Sustainability Accounting Standards Board (SASB). Anti-Corruption Practices.

GUIDELINES FOR ENHANCING ESG PRACTICES



Table below gathers sustainable practices adopted by well-established automotive manufacturing companies that can serve as guidance for other SMEs.

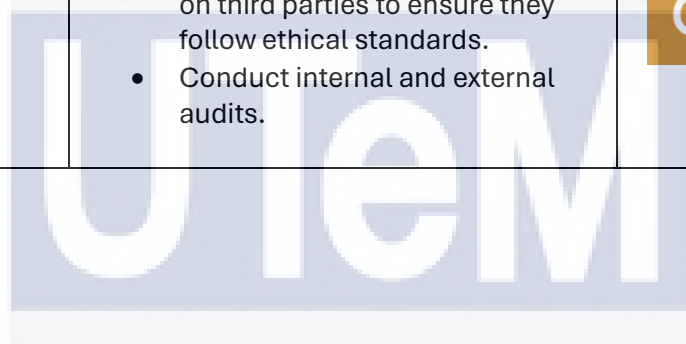
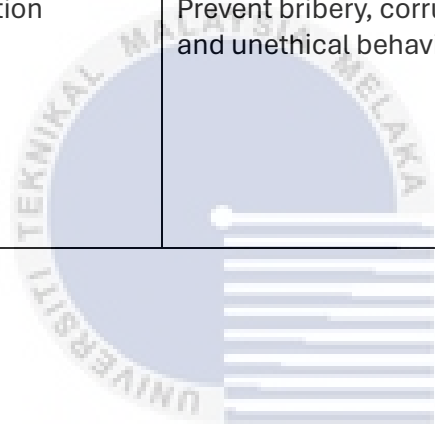
Criteria	Issues	Targets	Approaches	SDGs
Environmental	Energy consumption and efficiency	Reduce energy bills, production costs and increase profitability.	<ul style="list-style-type: none"> • Replace normal lamps (incandescent or fluorescent lamps) with LED. • Replace normal switches to sensor switches. • Keep air conditioner's temperature in between 23°C to 26°C. • Regularly turn off or unplug unused power supply. • Install industrial fan systems. • Install solar systems. 	 
	Water consumption	Reduce water bills, as well as the need for municipal water supplies.	<ul style="list-style-type: none"> • Explore alternative water sources such as rainwater harvesting and greywater systems. • Install a water recycling system. 	
	Waste management	Reduce the generation of waste, and extraction of raw materials.	<ul style="list-style-type: none"> • Reuse, reduce, and recycle materials or production waste. • Conduct comprehensive Life-Cycle-Assessment. • Resell manufacturing scraps. • Adopt Lean Six Sigma or other methodologies to reduce waste, 	 

			<p>increase efficiency and improve quality of product.</p> <ul style="list-style-type: none"> Invest in technology such as CAD software or virtual twin technology. 	
	Materials used	Reduce pollution of air, water, soil, as well as health and safety risks.	<ul style="list-style-type: none"> Adopt water-based materials. Invest in technology such as additive manufacturing. 	   
	Products and services	Reduce climate change and air pollution through technological advancements.	<ul style="list-style-type: none"> Ramp up electric vehicles (EV) production and development efforts. 	 
Social	Workplace health and safety	Ensure employees well-being and maintain productivity.	<ul style="list-style-type: none"> Equip employees with personal protective equipment (PPE) and other safety equipment. Provide counselling services and wellness initiatives. Conduct free medical examinations. Report hazards and keep accidents on record. 	

	Training and education	Empower employees through professional development opportunities.	<ul style="list-style-type: none"> • Provide upskilling programmes. • Involve employees in HRDCorp claimable programme. • Provide Employees Suggestion Scheme. 	 
	Diversity and equal opportunities	Promote a culture of respect, inclusion, and sense of belonging of the employees.	<ul style="list-style-type: none"> • Recruit employees from diverse backgrounds (regardless of genders, religions, races, and ages). • Provide equal access to career advancement to female employees. • Collaborate with big or small businesses within the supply chain. 	 
	Labour practices	Uphold labour rights.	<ul style="list-style-type: none"> • Adhere to labour law and international standards. • Establish employee resource group or union. • Provide fair wages, benefits and working conditions that comply with the legal requirements. • Organise monthly intervention involving top management and employees. 	

	Affected communities or stakeholders	Give back to communities.	<ul style="list-style-type: none"> Organise CSR programmes. Collaborate with educational institutions. Collaborate with stakeholders on projects that align with mutual interests and goals. 	  
Governance	Board of Directors	Promote transparency, diversity, and inclusion.	<ul style="list-style-type: none"> Disclose required details of each member including the chairman. Take account of gender equality among board of directors. 	 
	Organization chart	Define clear structure and roles within the organization.	<ul style="list-style-type: none"> Establish accountability for their key performance indicators (KPIs). Diversify organization. 	
	Risk management	Reduce risks that have an influence on operations, financial performance, compliance, and reputation.	<ul style="list-style-type: none"> Engage with internal and external stakeholders on potential risks and emerging issues. Conduct internal and external audits. State clear company's missions and visions for business continuity. Keep up with current industry standards. 	

	Stakeholder relations	Maintain trust, collaboration and ensure sustainable business practices.	<ul style="list-style-type: none"> • Provide transparent reporting in financial reporting, ESG and sustainability performance. • Participate in related associations to influence policy development. 	
	Anti-corruption	Prevent bribery, corruption, and unethical behaviour.	<ul style="list-style-type: none"> • Develop code of conduct. • Conduct extensive due diligence on third parties to ensure they follow ethical standards. • Conduct internal and external audits. 	



اونيورسيتي تيكنيكل مليسيا ملاك

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

SUMMARY

In order to achieve sustainable development, the Malaysian automotive manufacturing sector must incorporate these ESG practices.

The sector may improve its competitiveness in the global market and make a substantial contribution to the national objectives of carbon neutrality and sustainable economic growth by coordinating with the NIMP 2030 and the 12th Malaysia Plan's overarching goals.

The emphasis on ESG standards provides a framework for addressing key challenges such as high carbon emissions, water scarcity, and waste management.

For SMEs within the industry, this framework offers essential support in transitioning to ESG and sustainable business practices.

Furthermore, by aligning with the United Nations 17 SDGs, the industry can ensure that its growth is inclusive and beneficial to all stakeholders.

In conclusion, the adoption and improvement of ESG standards influence long-term health and performance of Malaysia's automotive manufacturing sector.

The sector may make major sustainability advancements by cooperative efforts between the government, business leaders, and SMEs, establishing Malaysia as a pioneer in sustainable manufacturing practices in ASEAN.

In addition to promoting economic progress, this calculated strategy will guarantee that social and environmental obligations are fulfilled, ensuring a sustainable future for future generations.

OVERVIEW: ESG Framework towards Sustainability Initiatives in Malaysian Manufacturing Industry

ENVIRONMENTAL

SOCIAL

GOVERNANCE

ENERGY CONSUMPTION

To reduce energy consumption, lower operational costs, and minimize environmental impact, contributing to sustainable economic growth and energy security.

PUSH FOR NET ZERO

WATER CONSUMPTION

To minimize water consumption, maximize water efficiency, and ensure responsible water management practices, contributing to environmental stewardship and long-term economic viability.

WASTE MANAGEMENT

To achieve a circular economy where waste is minimized, resources are efficiently used, and industrial by-products are effectively managed and recycled.

REUSE, REDUCE, RECYCLE

HEALTH & SAFETY

To create a safe and healthy working environment for manufacturing labour, ensuring that occupational health and safety standards are at par with global best practices, thereby enhancing worker well-being and productivity.

DIVERSITY & FAIRNESS

To create an inclusive and equitable industrial sector where diversity is valued, and all individuals have equal opportunities for growth and development, fostering a harmonious and productive workforce.

*FEMALE LABOUR
FAIR WAGES*

RISK MANAGEMENT & TRANSPARENCY

To ensure that the manufacturing sector operates transparently, ethically, and efficiently, contributing to Malaysia's economic development and global competitiveness.

ESG REPORTING



- TARGETS**
- Reduce energy bills.
 - Reduce production costs.
 - Reduce climate change.
 - Increase profitability.
- PRACTICES**
- Replace normal switches to sensor switches.
 - Regularly unplug unused power supply.
 - Solar systems installation.
 - Electric vehicles (EV) production and development efforts.

- TARGETS**
- Reduce water bills, as well as the need for municipal water supplies.
- PRACTICES**
- Rainwater harvesting.
 - Install a water recycling system.

- TARGETS**
- Reduce the generation of waste.
 - Reduce the extraction of raw materials.
 - Reduce pollution of air, water, soil, as well as health and safety risks.
- PRACTICES**
- Conduct comprehensive Life-Cycle-Assessment.
 - Reuse or resell manufacturing scraps.
 - Invest in technology such as CAD software or virtual twin technology.

- TARGETS**
- Ensure employees well-being.
 - Increase productivity.
- PRACTICES**
- Equip employees with safety equipment.
 - Provide counselling services and wellness initiatives.
 - Conduct free medical examinations.
 - Report hazards and keep accidents on record.

- TARGETS**
- Promote a culture of respect, inclusion, and sense of belonging of the employees.
- PRACTICES**
- Provide equal access to career advancement to female employees.
 - Collaborate with big or small businesses within the supply chain.
 - Involve employees in HRDCorp claimable programme.
 - Organise CSR programmes.

- TARGETS**
- To reduce risks that have an influence on operations, compliance, and reputation.
 - To maintain trust and ensure sustainable business practices.
- PRACTICES**
- Engage with stakeholders on potential risks and emerging issues.
 - State clear company's missions and visions.
 - Provide transparent reporting in ESG and sustainability performance.

APPENDICES F

VALIDATION SHEET

This validation will be submitted to the Faculty of Industrial and Manufacturing Technology and Engineering at Universiti Teknikal Malaysia Melaka as partial fulfillment of an undergraduate degree project titled "Designing an ESG Framework for Sustainability Initiatives in the Malaysian Manufacturing Industry.", conducted by student named NOR AIDATUL SHAFIEFA BINTI ABU SEMAN (ID: B052110023).

The purpose of the validation is to ensure the designed ESG framework is relevant in promoting sustainability within the Malaysian automotive manufacturing sector. By consulting industry experts and sustainability professionals, we aim to verify the framework's accuracy, relevance, and applicability. The feedback and insights gathered from these validations will help refine and enhance the framework, ensuring it meets academic standards and industry expectations.

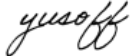
Comments (Optional): as in the document

Reviewed and validated by,

Name: Mohd Yusoff bin Ishak

Profession: Lecturer

Stamp:


Mohd Yusoff bin Ishak
Senior Lecturer
Faculty of Forestry and Environment
Universiti Putra Malaysia

APPENDICES G

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Comments (Optional):

Review and Feedback on ESG Framework:

The approach to consolidate the ESG-related KPIs and metrics for disclosure under the ESG pillars is commendable and demonstrates a good direction. However, there are a few areas that require further refinement:

1. GRI Standards Referencing: There is a need to ensure proper referencing between the GRI Standards and the metrics being disclosed. The current referencing appears to be misaligned, which could lead to inconsistencies in reporting. Revisiting the GRI Standards and ensuring accurate mapping to your metrics will enhance the credibility and clarity of your disclosures.
2. SASB Automobile Industry Standards: The referencing of the SASB Automobile Industry Standards is not accurately reflected in the table. I recommend downloading the latest SASB Automobile Standard module and thoroughly reviewing the required metrics to ensure correct alignment and reporting.
3. TCFD Alignment: TCFD is highly specific to climate-related risk management disclosures. Please re-evaluate if climate-related risk assessment is intended to be part of your scope. If so, ensure that the TCFD guidelines are thoroughly incorporated to meet the specific requirements for climate-related financial disclosures.
4. Proposed Targets in "GUIDELINES FOR ENHANCING ESG PRACTICES": The targets related to the reduction of energy and water bills may not effectively reflect efficiency monitoring. It would be more accurate to use intensity metrics, such as energy use per unit of production or water use per square meter, for monitoring purposes. This approach will provide a clearer picture of efficiency improvements.
5. Referencing Frameworks: It is advisable to use GRI and SASB as the foundational references for your ESG reporting. These frameworks are widely recognized and commonly used, providing a robust base for reporting. ISO Standards, while valuable, are often more specific to certain industries and might not be as broadly applicable unless there is a strong familiarity and specific need within your industry.

By addressing these points, the ESG framework will not only align more closely with established standards but also enhance the accuracy and reliability of the ESG disclosures.

Reviewed and validated by,

Name: LOO YIK XIANG (JAYDEN)

Profession: GROUP CHIEF SUSTAINABILITY OFFICER

Stamp:

APPENDICES H

The screenshot displays a Zoom meeting interface. The main window shows a document editor with the following text:

What networks, standards, or guidelines does your company use to disclose and report on sustainability performance?

b. What practices that your company has set up for greater transparency to the market? (eg: clear information about product services, code of conduct for suppliers etc)

Part 5: Additional

13. What should be reported on a specific aspect of an automotive-manufacturing company's sustainability performance?
14. What activity in your operations have high impact on ESG or sustainability?
15. What key performance indicators (KPIs) does your company use to track progress on ESG goals and targets?
16. What are your company's plans and goals regarding ESG, and how do you plan to address any challenges or obstacles along the way?
17. How do you see the role of ESG evolving within the automotive industry, and what opportunities do you foresee for innovation and collaboration in this area?
18. Is there anything else you would like to share about your company's approach to ESG or its broader sustainability strategy?

The document editor also shows a watermark for 'UNIVERSITI TEKNIKAL MALAYSIA MELAKA' and 'UTeM'. The Zoom interface includes a top bar with '22:33 | Interview session with UTeM FTKIP (STUDENT)', a bottom toolbar with various icons, and three video thumbnails on the right side:

- Nadiyah Amalina
- Ridwan Mohd Yusop
- NOR AIDATUL SHAFIEFA BINTI ABU SEM...

APPENDICES I



Mohd Yusoff Ishak · 1st

Sustainability | ESG Analyst | Communication Science | SDG2030 |
Lecturer at Universiti Putra Malaysia

Selangor, Malaysia · [Contact info](#)

500+ connections

 Siti Nursyarnisa Masmos, Ir. Ammar Mohd Rashid, and 4 other mutual connections

[Message](#) [More](#)

Highlights

 Mohd Yusoff is celebrating 13 years at Universiti Putra Malaysia


[Message](#)


UNIVERSITI TEKNIKAL MALAYSIA MELAKA


About

Experienced Lecturer with a demonstrated history of working in the various government agencies and now at higher education industry. Skilled in Sustainable Development, Water Quality, Heavy Metals in Water Research. Strong education professional with a Doctor of Philosophy (Ph.D.) focused in Aquatic Biology/Limnology from University of Adelaide.

APPENDICES J






Jayden Loo  (He/Him) · 1st

Certified Sustainability Reporting Specialist (CSRS) | GRI | SASB | TCFD | UN SDG | Sustainability Professional | Sustainability Consultancy | Sustainability Practitioner |

WP. Kuala Lumpur, Federal Territory of Kuala Lumpur, Malaysia · [Contact info](#)

500+ connections

 Mohd Yusoff Ishak, Ts. Edy Mustaqim Muhamad, and 3 other mutual connections


[Message](#) [More](#)

About

Manager with years of professional experience in sustainability consultancy and internal audit. Enhanced skills in Sustainability Data Review, Sustainability Reporting, Assurance, Internal Audit, Process Design Review, and Standard Operating Procedures (SOPs) Development. Certified Sustainability Reporting Specialist (CSRS) has a Certificate in Global Reporting Initiative (GRI) Certified Training Program, which is the most widely recognised guideline for sustainability reporting.

Manage, execute, and support the strategic establishment of the organisation's sustainability plans, programmes, and action plans to drive the organisation's sustainability performance and management of material sustainability impacts.

Excellent interpersonal skills, confident and poised in interaction with individuals at all levels, readily developing rapport with clients and colleagues.


UNIVERSITI TEKNIKAL MALAYSIA MELAKA